



THE UNIVERSITY OF
WESTERN AUSTRALIA

COURSES FOR TOMORROW'S WORLD

*An Issues and Options Paper
on the Structure of Academic Programs at
The University of Western Australia*

Prepared for consultative purposes as part of a
Course Structures Review
being conducted by the University

October 2007

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Executive Summary

This paper suggests a range of possible changes to course structures at The University of Western Australia, and invites evaluation of their relative educational merits.

The options have emerged from a broad consultative process, including submissions from many individuals and groups within the University community and beyond it, commissioned research, forums and working party reports.

Extensive consultation will continue, with comments on this paper being invited from all stakeholders. Reports and recommendations for change are not likely to be made before April/May 2008, and they will be referred to the appropriate UWA decision-making bodies.

The intention of the Course Structures Review is to ensure that in every academic field the quality of the education provided by this University will meet the needs of twentyfirst-century graduates at the highest international standard.

Accordingly, the Review has been examining course structures in relation to the University's goals, priorities and mission, and also national and international trends. It has paid particular attention to the impact of course structures upon the student learning experience, and the acquisition of graduate attributes. It is also seeking to improve the efficiency and effectiveness of course structures, nomenclature, and course administration.

Section 1 of this paper describes the nature and scope of the Review, including the steps taken so far and the further consultation and decision-making processes that will be followed.

Section 2 discusses various trends and pressures, internal as well as external, that are causing many universities to scrutinise the structure of their educational programs. These include demographic changes, globalisation, new knowledge and new technology, patterns of employment and work mobility, reduced reliance on public funding, changes to secondary school curricula, pressure on resources and on staff and students, a more competitive and diverse higher education market, and the need to fortify some of the University's defining characteristics.

Section 3 sets out some basic principles that should inform the University's teaching and learning in the context of the challenges outlined in Section 2. These principles will provide a framework for deciding which proposals eventually deserve adoption. This section discusses the existing UWA Educational Principles, the important role of research skills as a means of equipping students for lifelong learning, the need to achieve an appropriate balance between breadth and depth, and ways in which UWA might best provide an international and intercultural focus, and enrich the student learning environment.

Section 4 sketches out seven different options for change to UWA course structures:

1. Reinforcement of the UWA "Educational Principles"
2. First-year semester of common general units taken from outside the home discipline
3. Distributed general requirements
4. Breadth governed from within the home discipline
5. Honours as the standard first-degree program
6. Several general undergraduate degrees with expanded provision of postgraduate degrees
7. One comprehensive undergraduate degree (or two), plus a variant for especially high achievers, with expanded provision of postgraduate degrees

Some of these options would involve only relatively minor modifications; others are more far-reaching.

Section 5 outlines matters that need to be investigated further in relation to the options indicated.

Preamble

A good university teaches. A great university transforms people.

Shih Choon Fong
President, National University of Singapore

Established in 1911 in the traditional lands of the Nyoongar peoples, The University of Western Australia (UWA) is part of a rich legacy of teaching and learning. It is located in an ancient and biodiverse continent that is home to the oldest living culture on earth, and it belongs to a vibrant higher education sector that attracts students from many different countries.

As the University approaches its centenary, with the declared aim of being one of the top fifty universities in the world within the next fifty years, it is timely to consider how it can continue to provide the best possible learning environment well into the future. The Course Structures Review represents a once-in-a-generation opportunity to design structures that ensure UWA maintains its place as one of the leading universities in Australia, and attains its vision of achieving international excellence.

1 Processes

1.1 Nature and scope of the review

The Course Structures Review takes place in the context of trends and pressures that are prompting a re-evaluation of tertiary education around the world. The rapid growth of knowledge, advances in science and technology, and increasing global interconnectedness have impelled universities to ask how they can best equip graduates for the changing world of the twentyfirst century. UWA is taking seriously the challenge of recognising the needs of its students, and of designing an educational experience that meets those needs. In undertaking this task, the Review is informed both by the broader considerations influencing changes elsewhere, and by the need to reduce administrative complexity within UWA.

The terms of reference for the Review are:

The Review of Course Structures will consider and make recommendations concerning:

1. *Course structures in relation to the University's goals, priorities and mission;*
2. *Course structures and their relationship to national and international trends;*
3. *The impact of course structures upon the student learning experience, and the acquisition of graduate attributes; and*
4. *The efficiency and effectiveness of course structures, nomenclature, and aspects of administration.*

The Review has addressed postgraduate as well as undergraduate curriculum structures, and a separate report on postgraduate coursework (mentioned in more detail below) forms part of the Review process, which is being guided by a Steering Group with the following membership:

- Professor Don Markwell, Deputy Vice-Chancellor (Education) (Chair);
- Mr Peter Curtis, Executive Director (Academic Services) and Registrar;
- Associate Professor Jane Long, Pro Vice-Chancellor (Teaching and Learning);
- Professor Robyn Owens, Pro Vice-Chancellor (Research and Research Training);
- Professor David Plowman, Chair of the Academic Board;
- Professor Karen Simmer, Deputy Chair of the Academic Board;
- Professor Ian Reid, Senior Academic Reviewer;
- Ms Trudi McGlade, Acting University Secretary;
- Mr David de Hoog, Guild President;
- Ms Ambelin Kwaymullina, Project Officer, Course Structures Review; and
- Ms Suzanna Santa (as Executive Officer)

The Review is also being assisted by Dr Hamish Coates, Senior Research Fellow at the Australian Council for Educational Research.

1.2 Purpose of this paper

The purpose of this paper is to discuss a range of factors influencing the future development of academic programs at UWA, and to suggest some options for changes that aim to provide an

education well suited to the needs of twentyfirst-century graduates. The possible changes represent a whole-of-university approach, ensuring that all UWA students have the benefit of a coherent educational experience while still allowing for some diversity and flexibility within the context of whichever structural approach is preferred. Section 2 of this paper discusses various internal and external trends and pressures affecting UWA, section 3 sets out some principles that should inform high-quality teaching and learning, and section 4 suggests options for change. The options suggested are necessarily sketchy at this point. More detailed development will follow in the process of deciding which option is the most appropriate for the University.

The paper will be subject to an extensive consultation process (see 1.4 below), with comments invited from both within and beyond the University community. Any recommendations will be made in the first half of 2008, and will be referred to appropriate decision-making bodies within UWA. It is anticipated that changes will be implemented by 2011 at the latest, depending on the complexity involved. All external stakeholders such as secondary schools and accreditation bodies will be kept informed of alterations to course structures in a timely and appropriate manner.

While an attempt has been made to outline in broad terms some of the implications of the proposed structural options, these implications have not been fully explored, and further work will be done as consultation on the paper proceeds. UWA staff are encouraged to evaluate the *educational* value of the suggested options, rather than respond simply on the basis of resource implications. Organisational and funding structures can be changed as appropriate, and the University remains committed to being a comprehensive institution. There is no intention to increase staff workloads, reduce staff numbers, or aggravate financial pressures in any part of the University community.

1.3 The process so far

The Review began with the release of the Course Structures Review Discussion Paper (CSR Discussion Paper) in December 2006. That paper identified a range of issues for consideration in relation to the Review's terms of reference, and set out a number of questions designed to provoke discussion and stimulate debate.

Extensive consultation followed both within and beyond the University community. Within UWA this included communications to all staff and students, staff and student forums, discussions with Deans and with various groups and committees, and a meeting with the UWA Albany Centre. UWA alumni and numerous external individuals and organisations – including the Chamber of Commerce and Industry, the WA Department of Education and Training, and some professional associations – were also invited to comment, as were all WA secondary schools. Face to face meetings were held with some of these external stakeholders.

A number of leading international educational institutions also contributed, sharing details of comparable initiatives and processes of their own. In this respect, the Review Steering Group would like to acknowledge the valuable input of Columbia University, Cornell University, Imperial College London, the Institutional Management in Higher Education Program (OECD), Massey University, Northwestern University, Oxford University, Pennsylvania State University, Rutgers University, Seoul National University, University of Auckland, University of California – Berkeley, University of California – Santa Barbara, University of Canterbury, University of Colorado – Boulder, University College London, University of Manchester, University of Minnesota, University of Sheffield and the University of Wisconsin-Madison.

More than 160 submissions were received in response to the Discussion Paper, over half of these from staff and students. A significant number of submissions also came from alumni, and around thirty from external stakeholders. All comments received as part of the consultation process were reviewed by the Steering Group, and considered in the drafting of this paper.

The topics that drew the most comment in submissions were generic and transferable skills, the appropriate balance between breadth and depth, and issues related to administration and nomenclature. Submissions from external stakeholders particularly stressed the need for students to acquire a range of generic/transferable skills as part of their tertiary learning experience, in order to equip them for a changing world. Skills identified as important included cultural competence, leadership, communication, critical thinking, mathematical literacy, ethics, research skills, teamwork, and other employability skills as listed in the nationally endorsed "Employability Skills Framework." With regard to breadth and depth, most submissions argued that greater breadth was required, but there was considerable disagreement about the means through which this should be achieved. Various options for incorporating greater breadth in UWA courses are presented in section 4 of this paper. There was strong agreement that administrative aspects of course structures at UWA needed improvement, and that nomenclature should be clear and consistent.

Numerous submissions stressed the importance of a distinguishing hallmark or hallmarks for a UWA degree, for instance an emphasis on research and/or an international focus. As many other universities could claim that their own educational programs display these same hallmarks, UWA will need to consider realistically how to make its course structures distinctive.

The Steering Group commissioned working parties to examine the topics of generalist/specialist education, teaching-research nexus, honours, and postgraduate coursework. The working parties were chaired by Professor Ian Reid (generalist/specialist education), Professor Lyn Abbott (teaching-research nexus), Professor Phillipa Maddern (honours), and Professor David Plowman (postgraduate coursework). The generalist/specialist education working party comprised the Steering Group members, and its research has been used to inform several parts of this paper. Thanks go to all who participated in, and contributed to, the working parties. Anyone with a particular interest in the issues examined by the Teaching-Research Nexus, Honours, and Postgraduate Coursework working parties is encouraged to read their reports, which are available on the Course Structures Review website (www.coursestructuresreview.uwa.edu.au).

A Framework and Definition of Degrees working party, chaired by Ms Trudi McGlade, has also been formed to examine matters related to course administration and nomenclature – see section 3.6 below for a discussion of various issues in this area. This working party will continue its work throughout the Review process.

1.4 The process ahead

The Course Structures Review Steering Group is now seeking responses to this paper. Respondents are specifically asked to consider the ***relative educational merits of the options presented in section 4***. Comments are also welcome on any other matters raised in this paper, with a view to improving the student learning experience at UWA. The principles set out in section 3 are of particular importance because they will provide a framework for deciding which proposals eventually deserve adoption.

Responses are invited until 31 January 2008, and can be submitted by email to coursereview@uwa.edu.au or by post to:

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Administrative Officer
Course Structures Review
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Australia*

As with the CSR Discussion Paper, consultation will be conducted within the University community and outside it. This will include staff and student forums, discussions with Academic Board, and consultation across the Crawley campus and with the UWA Albany Centre. Engagement will continue with UWA alumni, and with external individuals and organisations, including everyone who made a submission on the Discussion Paper.

As noted in section 5 below, there is still much to be done on assessing the implications of the suggested options for structural change. This work will continue throughout the consultation period, and will in part be informed by submissions received. Reports and recommendations will be prepared following the close of the comment period.

2 Contexts

Many leading universities around the world have been subjecting the structure of their educational programs to intense scrutiny within the last few years, and radical changes are occurring in some places. Global developments have generated much of this widespread increased attention to course structure review and reform, but the following analysis refers also to matters that have special relevance to Australia, particularly Western Australia, and are mentioned or implied in the UWA Strategic Plan.

2.1 External Environment

Several strong influences are shaping the external environment within which the University will have to operate. While posing real challenges, they also indicate significant opportunities.

2.1.1 Demographic changes

More than any other Australian university, UWA has always relied heavily on school leavers for its main catchment group. The average age of its undergraduates is the youngest in the country. Most of its students enter with very high Tertiary Entrance Rank (TER) scores, a fact that has contributed substantially to the University's reputation for excellence. Therefore important implications for UWA flow from the fact that profound demographic shifts are changing the patterns of demand and supply in higher education. Although specific estimates depend on assumptions about fertility, mortality and migration, the general picture is clear. The rapid ageing of the Australian population means that the number of 15 to 19 year olds will decline from 2010, as will the number of 20 to 24 year olds from 2015. More distant projections are less certain, but it seems likely that the long period of sustained growth in domestic student demand for higher education will soon come to an end, accompanied by an increasing shift to older students with different needs and educational requirements. The outlook in Western Australia, while different in scale from the national trend, is essentially similar in its pattern.

The University will be considering this projected demographic pattern carefully with regard to its declared intention of increasing the student population (now around 18,000) to 25,000 in the period beyond 2010. As noted in the CSR Discussion Paper, a report commissioned by the UWA Senate's External Environment Committee (Rees 2005) has already drawn attention to a need for strategic reconsideration of the University's student age profile. The mature student market comprises several distinct segments (West, Hore et al. 1986), which require close attention if UWA wishes to achieve significant growth from domestic sources.

Mature students deserve consideration on other grounds as well. Some submissions to the Review question whether the commitment to equal opportunity in the University's Strategic Plan sits comfortably with the fact that a large proportion of the UWA student cohort comes from a narrow segment of Perth society, or with the fact that teaching modes and schedules in most fields of study tend not to be accessible and convenient for people who are working full-time and may have families to support.

In addition to the demographic changes within Australia, there are also significant trends overseas that will affect the supply of students seeking higher education places here. Especially notable are

the growth of multinational universities, the development of international education hubs in countries like Singapore, and the increasing self-reliance of higher education within countries that have previously provided most of the international student enrolments in Australian universities. In recent years the rate of growth in international student numbers in Australian universities has slowed, despite strong recruitment from China and India. Between 2006 and 2007, for example, the figures for on-shore Australian enrolments from the main source countries show a decline of 7.3% in the case of Hong Kong and 5.1% in the case of Indonesia, offset by an increase of 8.8% from India and 4.3% from China (IDP 2007).

2.1.2 Globalisation, new knowledge and new technology

Continuing developments in the trans-national knowledge economy and rising standards of living in some of the world's most populous nations are fuelling global demand for higher education and advanced research and development. Technological progress facilitates and strengthens these forces. The consequence is a potentially bright future for those universities capable of operating internationally, at competitive standards of quality in teaching and research, and with sufficient resources to stay at the leading edge of innovative technology.

In responding to global change, each institution must look to its own particular strengths and competitive advantages. Many high-status universities that once situated themselves in a single location and defined their identities and catchment areas in those terms have now spread their operational networks internationally, with multiple campuses and often an increasing range of on-line course offerings. There are also new kinds of borderless institution jostling for students, and some have established strong credentials as specialist on-line providers of professional education. As it clarifies its own strategic response, UWA will want to be a leader, not a follower, but it does need to ensure that its graduates meet the highest international standards and are well equipped to engage knowledgeably with global trends.

Contemporary changes in the nature and application of knowledge include a tightening link between knowledge and wealth creation, as companies recognise that marketable knowledge is the ultimate organisational capability, and a growing influence of information technology on productivity through knowledge acquisition and management, independent of physical location (Johnston 1998).

Also noteworthy is the fact that relationships between different fields of knowledge are shifting: the lines traditionally demarcating one academic discipline from another are no longer as clear as they once seemed. The social world into which future graduates emerge will not be shaped by the boundaries that separate university faculties and schools. Major problems facing people in the twentyfirst century are spread across several areas of their lives, and can hardly be understood – let alone solved – without some initiation into different methods of intellectual inquiry. Obvious examples include climate change, population health, cultural conflict, international security, and ethical aspects of biomedical advances. In this respect, teaching tends to lag behind academic research, much of which already transcends traditional disciplinary lines of demarcation. The corollary, according to the Boyer Commission, should be clear for a research-intensive university: “As research is increasingly interdisciplinary, undergraduate education should also be cast in interdisciplinary formats” (Boyer 1998).

The sheer abundance of data has become another challenge for educators. Now that so much undifferentiated information is so readily accessible, especially in electronic form, there is an acute need for expertise in sifting it critically. The best universities must equip their students with an ability to locate, retrieve, decode, appraise, and apply information in a range of contexts and media.

This principle was already well understood some years ago (Candy et al. 1994), and subsequent advances in information technology have reinforced its importance. As UWA wishes technological innovation to be one of its distinctive features, it must ensure that all its students will not only acquire the useful basic skills of computer literacy (comparable to being able just to drive a car) but also learn how to select and manage information in a purposeful way (comparable to being able to use complex roadmaps for making clever choices that will lead to the desired destinations). Information technology is a great vehicle, but not a great driver (Reid 2001).

2.1.3 Graduate employment and work mobility

The role of higher education in advanced service economies such as Australia's has changed and vocational considerations now influence all forms of educational provision. Even programs that are specifically "liberal" or "general" in nature carry more or less implicit assumptions about the professional skills and capabilities that they are developing in students. There are increasing calls for university graduates to be "work ready", to possess sound "employability skills", and even to have work experience and emerging professional networks by the time they graduate. Such developments have, for example, led Victoria University to plan for all of its students to spend 25 per cent of their time in the workforce, for the Commonwealth Department of Education, Science and Training (DEST) and the Australian Industry Group to call for an examination of employability skills in Australian higher education, and for many institutions, both in Australia and abroad, to consider how their curriculum might best be shaped to meet new economic demands.

In many industry sectors, at all levels, the labour force is becoming more and more mobile, nationally and internationally. On the one hand, competition for good local jobs will be very keen (notwithstanding skills shortages in some fields), but on the other hand global opportunities will expand for those equipped to pursue them. In Western Australia, employment of the kind that many UWA graduates aspire to is likely to be more open than ever before to applicants from all parts of the world. Conversely, many well-qualified graduates from this University are going to expect to gain rewarding positions overseas at some stage in their careers.

A determination to promote graduate mobility and employability across national borders has led to the Bologna Process, the world's largest curriculum restructuring project. An inter-governmental initiative that aims to create a European Higher Education Area by 2010, the Bologna Process has established a three-cycle system of qualifications (bachelor, master, doctor), a set of learning outcome descriptors, a credit transfer system, a common reporting mechanism, quality assurance standards, and steps to eliminate obstacles that hinder the mobility of students and academics. The precise implications of the Bologna Process for higher education outside Europe are not yet clear, but significant change is likely to result from standardising structures (especially the "3+2" sequence of a three-year bachelor degree and a two-year master degree, though a 4+1 variant structure appears feasible) and making core elements of higher education more transparent. The Australian Vice-Chancellors' Committee (now Universities Australia) has made this observation:

Whilst it is unknown whether compatibility [with the Bologna model] would deliver real benefits for graduates in the employment market in Europe, current indications are that the master level for professional degrees is an increasing trend in Asia and the USA; and so the Australian system might benefit from a more explicit 3+2 model, particularly in engineering and architecture, the allied health professions such as psychology, physiotherapy etc., and in the professional science disciplines. (AVCC 2006)

2.1.4 Reduced reliance on public funding

Australian universities generate an increasing proportion of their income from non-government sources, especially international student fees, and students have borne an increasing share of the cost of their courses through HECS and fees. This shift means that universities are less reliant on government and in some ways are increasingly able to determine their own futures; that their income is increasingly contingent on their ability to compete for non-government sources of revenue; and that students have become demanding consumers, focused on course quality and outcomes.

An accompanying trend has been a gradual opening up of the higher education market through international fee-paying students, postgraduate fee-paying students, the extension of government funding and government supported student loans to private providers, and the active encouragement of universities based elsewhere to operate in Australia. These developments, which are consistent with arrangements in the schools and vocational education and training sectors, and with bipartisan government policies, bring opportunities for higher education but also acute uncertainties.

UWA needs to decide exactly where it wishes to stand in relation to all the different possible categories of funded student places:

- domestic undergraduate funded by the Higher Education Contribution Scheme (HECS) and government grants;
- domestic undergraduate funded by full fees;
- domestic fee-paying postgraduate (coursework);
- domestic postgraduate (coursework) funded with government support (if permitted);
- domestic higher degree by research; and
- international fee-paying.

The fact that many Australian universities have much larger numbers of students in some of these categories than UWA may suggest that a review of the latter's strategic purposes is timely, as it is expected that public funding will recede further.

2.1.5 Changes to secondary school curricula

School leavers – predominantly from Western Australian schools – are this University's main source of undergraduate enrolments. In the future, they will arrive with a different kind of preparation, but although the nature and extent of this difference cannot yet be predicted with much precision, its impact on the UWA entry population is likely to be negligible, as explained below.

By 2010 the process of introducing a new Western Australian Certificate of Education (WACE) for Years 11 and 12 students is due to be completed. The new WACE is expected to have up to 50 new courses that will replace all of the current subjects in Years 11 and 12. Schools will select which of these courses to offer to their students. Students will generally choose five or more courses, including one from the English area. Courses will be available (and separately examined) at Stage 2 or Stage 3, the latter being a higher level.

There will no longer be three types of subjects – Wholly School-Assessed (WSA), Tertiary Entrance Examination (TEE) and Vocational Education and Training (VET). All subjects will be

considered for the Tertiary Entrance Rank (TER), Technical and Further Education (TAFE) entrance and other further education opportunities. There will still be some pre-requisites or recommended courses for certain subjects. Students' TER will be based on their four best course results. For university entrance 50% of the final result will continue to be based on performance at school and 50% on exams.

It is too early to be sure of the full consequences of these changes, especially as they may be further influenced by the state government's recently announced intention to establish a new Educational Standards Authority for Western Australia and by the mooted introduction of national curriculum initiatives. However, as far as the WACE is concerned, it is likely that secondary school students of the kind who aspire to enter this University will continue to choose academically demanding subjects examined at the highest level.

It should also be noted that some schools in Western Australia (and more than 70 across Australia) offer the International Baccalaureate Diploma Program, which UWA recognises as an alternative pathway to admission; and more are likely to offer it in the future. Taught in 125 countries, the International Baccalaureate (IB) is the world's most widespread university entrance program. Students pursuing the Diploma take six subjects, including one from each of the following groups: Language A1, Second Language, Individuals and Societies (e.g. economics, psychology, history), Experimental Sciences (e.g. physics, chemistry, biology), and Mathematics. The sixth subject may be taken either as an additional one from any of those five groups, or from another group – Arts and Electives (e.g. music, film, theatre). There are certain further requirements, including the completion of 150 hours of creative activity, sport and community service, and also a Theory of Knowledge course, which promotes critical thinking. The IB curriculum seems exemplary in its combination of breadth with depth. However, in the foreseeable future the number of students applying for entry to UWA who have completed the IB Diploma is likely to remain small.

Current initiatives by several Australian universities may lead to significant change in admission procedures. DEST has funded a three-year pilot national student aptitude test (UniTest) for tertiary entrance, as a supplement to Year 12 public examination results. Developed jointly by the Australian Council for Educational Research (ACER) and Cambridge University, UniTest is also being trialed in the UK, and is similar to the Scholastic Aptitude Test widely used by American universities.

The sharp decline of Languages Other Than English (LOTE) in secondary schools has caused much concern in Australian higher education (Group of Eight, 2007b), and one compensatory measure that has already been adopted by some universities, and is currently under consideration at UWA, is a LOTE bonus for all students seeking entry. This is discussed in section 3.4.

2.1.6 A more competitive and diverse higher education market

As the UWA Strategic Plan (2007) remarks, on the one hand Australian universities are now “expected to operate under conditions applying to other industries, public and private, in areas of industrial relations, competition and trade practices”; yet on the other hand a government-administered bureaucratic framework has developed, linked to funding mechanisms and reporting processes. The result is “a complex mix of regulation and competition.”

Greater diversity is emerging among Australian providers of higher education, and Commonwealth Government policy – particularly in relation to performance-based funding and an increasing quality assurance focus on academic standards and learning outcomes – is further accentuating differences between them. Competitive positioning will be paramount, and stratification will

become more marked. Those universities whose programs and resources enable them to stand out as first-class research-intensive institutions of national and international repute will derive many market benefits from their prestige. The Research Quality Framework (RQF) and the Learning and Teaching Performance Fund (LTPF) will lead to greater concentration of core government funding, and a de facto league table will dominate perceptions in the educational marketplace, with increasing differentiation in international standing, competitiveness, access to resources, and attractiveness to students and staff.

This more competitive environment may include incentives for outstanding students to enrol at the highest-ranking Australian universities. A recent discussion paper issued by the Group of Eight proposes that the Commonwealth should award national scholarships to individual students on merit, the payment being made to the institution at which the student decides to enrol (Group of Eight 2007a). Were this scheme to be implemented, many universities would probably lose a valuable part of their local recruitment base through "bright flight". A few prestigious universities could expect to be the major beneficiaries of these student choices.

Intensified rivalry will not be confined to universities that belong to our national system of public higher education. The Vice-Chancellor of the University of Melbourne has recently remarked:

With HECS-like income-contingent loans now available to students at private institutions, Australian public universities face, for the first time, serious competition in the domestic market. The strongest competition may come from Australian campuses of overseas-based institutions. Pittsburg's Carnegie-Mellon University is operating in Adelaide, and rumours persist of others to follow. Public universities need to be able to adapt to their market. (Davis 2007)

Simultaneously the academic workforce in Australia is ageing and the global demand for high-quality researchers and teachers is rising, so the academic labour market in this country is likely to become more competitive.

At a time when it is more important than ever before to establish a distinctive profile, UWA needs to ensure that it is well placed to take full advantage of this new operating environment.

2.2 Internal Environment

As the Student Guild remarks in its submission to the present review, "The University cannot afford to be solely reactive to the external environment." In addition to the various developments sketched above, which are being generated outside UWA, there are also internal factors that require the University to consider seriously the possibility of changing some aspects of its course structures.

2.2.1 Defining characteristics of UWA

UWA has much in common with most modern universities. To a large extent, the comprehensive type of higher education institution prevalent in industrial societies since the late nineteenth century has been shaped by creative tensions between three co-existing views about a university's main purpose:

- It exists to equip people for productive contributions to society, and should therefore emphasise practical utility, public service, professional/vocational training, and responsiveness to socio-economic needs.
- It exists to promote liberal culture, and should therefore emphasise critical inquiry, moral debate, creative expression, and qualitative evaluation of experience.
- It exists to pursue and communicate knowledge, and should therefore emphasise pure scholarly research, whether directly “relevant” to extrinsic interests or not.

Conciliating between those different ideas, and reviewing course offerings accordingly, are regular tasks for modern academic communities (Veysey 1965; Reid 1996). UWA has been mindful of this from the outset: as its current Strategic Plan observes, the 1911 Act that established the University requires it to provide instruction “in those practical arts and liberal studies which are needed to advance the prosperity and welfare of the people.”

On the other hand, this University sees itself as differing somewhat from many others in its particular configuration of features. In response to various constraints and opportunities posed by the external context sketched above, but also in keeping with its own traditional values and its distinctive place within the local educational scene, UWA has identified in its most recent (2007) Strategic Plan a number of “defining characteristics” that should guide its decision-making. Of specific relevance here are the following:

High quality: The primary consideration underpinning the University’s mission and value statements and all its activities is the pursuit of high quality. This implies a serious commitment to continuous improvement, exemplified in the present review. UWA must ensure that any changes made to its teaching programs will protect and enhance their quality, to which several performance indicators attest. It is the university of first choice for high-performing Year 12 students in WA. Its entry cut-off scores are generally the highest in Australia, with a real institutional minimum TER of 80 and median TER of 93. It has been ranked among the top five universities in the national Learning and Teaching Performance Fund assessments in the last two years.

Comprehensive: UWA sees its future role as continuing to offer the State’s widest range of fields of study. It plans to preserve a broad and balanced mix of disciplines in the arts and sciences and in the major professions. It will maintain a strong research presence across all these disciplines, while developing selectively some areas of particular importance.

Research-intensive: UWA is ranked in the top three Australian universities for research performance intensity (on various DEST measures on a per capita basis); is ranked second in its percentage of research students (11.5% of the student body – more than double the Australian average); and conducts approximately 70% of the State’s university-based research. The University has resolved that one of its distinguishing features should be a strong interrelationship between teaching and research, reflected in the kind of learning experience that all its students receive.

Internationally focused: In order to build upon its position of strength in research activities and in its undergraduate base, UWA has affirmed a determination to strengthen its international focus, knowing that the international world of scholarship provides the benchmarks by which the University will be judged in the long run. It is also conscious that it must strike an appropriate balance between its local, regional and global responsibilities.

2.2.2 Student population

The University's admission policies do much to shape the composition of its student body, and they have traditionally given priority to high-performing school-leaver applicants. The proportion of undergraduates entering directly from secondary school is the highest among Australian universities (75% in 2005, when the national average stood at 44.3%), and the calibre of this intake is indicated by the fact that UWA attracts approximately 83% of the top 5% of school leavers in the state, and over 80% of the top 10% of school leavers enrolling in WA universities. In all regions and across all education sectors, the University has a dominant share of the first-preference applications of school leavers with a TER of 80 or above, but its dominance is especially strong in the Perth metropolitan area and in independent schools. Only 7.5% of UWA students come from low-income family backgrounds – hardly more than half the average figure for Australian universities and for several other members of the Group of Eight (Ferrari 2007, James 2007). The University is committed to further action to make access more equitable.

Despite their high-ranking Year 12 results, even the most talented school leavers in Western Australia are sometimes poorly equipped for the demands of tertiary education. While some school leavers are able to choose a speciality which proves rewarding, others later find they wish to change to their course, and still others have no clear idea of which course they wish to pursue (UWA 2003). Some UWA teachers and senior secondary school teachers have expressed the view that many of these students, being among the world's youngest university entrants, would benefit from an opportunity to develop greater academic maturity before embarking on a specialised course. This might take the form of an introductory semester of foundation studies, or of a general undergraduate degree preceding a professional postgraduate qualification, or some other course structure designed to provide a broad education.

2.2.3 Pressure on resources

In order to achieve its goals, UWA will need to augment its income substantially. It must bridge the funding gap that separates it from the world's leading universities, most of which have very large financial reserves drawn from private benefactions and other sources.

For reasons indicated in 2.1.4 above, some Australian universities may be facing a decline in reserves and investment capacity and/or sharp cutbacks in spending. Others are operating on very thin margins and are failing to allow adequately for the risks inherent in the more competitive sources of income on which all universities now depend. Many are unable to invest adequately in the maintenance and development of their physical and human resources.

No institution can ignore cost pressures. Annual increases in certain major budget items, most notably staff salaries and IT investment, exceed the partial indexation of Commonwealth funding. While the University's present financial position is reasonably healthy, it could deteriorate as a consequence of any of the following developments:

- shifts in demand from domestic and international students;
- changes to methods of government funding;
- cost increases in excess of revenues; and
- increased competition from various sources.

UWA will need to keep such considerations in mind if it envisages any course structure changes that may entail significant costs. Possible examples of the latter are large-scale increases in

scholarship provision (for instance in relation to Study Abroad), in expenditure on staff development, and in resource allocation for new units; but there could be more far-reaching budgetary challenges, depending on the scope of any changes.

2.2.4 Pressure on students and staff

The financial situation in which many UWA students find themselves is very different from the norm of a few years ago. A recent report commissioned by Universities Australia highlighted the financial difficulties confronting tertiary students across Australia (James et al. 2007). Most notably, the great majority are now combining paid employment with their studies. This has implications for the nature and extent of their engagement with the University, the nature of the student experience they are seeking, the expectations they bring to their courses, their willingness to tolerate administrative complexity, and their need for access and equity considerations. UWA is currently addressing this situation through a comprehensive inquiry into student finances, including scholarships.

Many staff members are also experiencing an increase in demands on their time beyond the core responsibility for teaching and research. Coping with greater administrative complexity – including the various tasks posed by complex course structures – has become a difficult additional component of academic work. Therefore any structural changes that the University may contemplate should be of a kind that will ultimately serve to alleviate administrative pressures on academic staff, and should also be accompanied during the transitional period by adequate resources for professional development.

3 Principles

The shaping of course structures that will serve the University well into the future must be informed by principles that define the kind of teaching and learning environment that the University wishes to create. The considerations outlined below have been drawn from a number of sources including UWA's existing "Educational Principles", submissions made to the Review, research conducted as part of the Review, and the reports of working parties.

The matters discussed in this section are acknowledged as desirable elements of a UWA experience, but the extent to which they can be incorporated into course structures requires further exploration. In some cases, as noted below, there are significant practical and resource constraints that would need to be overcome. In addition, the amount of curriculum "space" available for elements such as languages other than English, Study Abroad and practicum units will depend in part upon which option for structural change is ultimately supported.

3.1 Strengthening UWA Educational Principles

3.1.1 Reconsidering the Principles

UWA encourages students to develop skills around commitment to life-long learning from a variety of sources and experiences; adapting acquired knowledge to new situations; communicating in English concisely and logically; thinking and problem solving skills; ethics, morality and social skills; working independently and in a team; and leadership. CCI strongly supports these principles that are essential to enable individuals to secure, and then maintain employment. – *Chamber of Commerce and Industry (WA)*

In addition to the fundamental importance of achieving mastery of their chosen discipline, graduates will require an increasingly broad range of skills and attributes in order to navigate the world of the twentyfirst century. The speed of change and technological advancement, the growing links between different fields of knowledge, and the increasing global inter-connectedness of individuals, nations and markets, mean that understanding of specific content will not be enough to equip graduates for a future that will be undergoing continual transformation. A recent Harvard University report (2007) noted that:

Rapid change is ... a feature of contemporary political, economic, and cultural life. Our world is not a stable one, and students are ill-served by a curriculum that assumes that the shape of things today is all they need to understand in order to engage with the political, socio-economic, and technological landscape of tomorrow. Students need to leave Harvard with skills to match the world's speed.

In an Australian context, business and education leaders recognise that the teaching of generic skills such as problem-solving, teamwork, communication, imagination and creativity, as well as values such as ethical practice, integrity and tolerance, will not only make graduates more employable, but will deliver educational advantages in the areas of course development, course delivery and assessment, and quality assurance (Hager, Holland & Beckett 2002). Many universities, both within Australia and elsewhere, have formulated broad sets of "graduate attributes" – that is, qualities and skills that students should be given the opportunity and

encouragement to acquire during their tertiary experience. UWA has developed the following statement of “Educational Principles”:

Students at The University of Western Australia are encouraged and facilitated to develop the ability and desire:

- *To master the subject matter, concepts and techniques of their chosen discipline(s) at internationally-recognised levels and standards;*
- *To acquire the skills required to learn, and to continue through life to learn, from a variety of sources and experiences;*
- *To adapt acquired knowledge to new situations;*
- *To communicate in English clearly, concisely and logically;*
- *To acquire the skills needed to embrace rapidly-changing technologies in a global environment;*
- *To think and reason logically and creatively;*
- *To undertake problem identification, analysis and solution;*
- *To question accepted wisdom and be open to new ideas and possibilities;*
- *To acquire mature judgement and responsibility in ethical, moral, social, and practical, as well as academic matters;*
- *To work independently and in a team;*
- *To acquire cross-cultural and other competencies to take a citizenship and leadership role in the local, national or international community.*

As UWA moves towards its centenary, it may be timely to consider whether these Principles should be revised. What skills and attributes will be the most important for the UWA graduates of the next hundred years? Universities elsewhere have identified matters such as participation in community service activities, a spirit of innovation, knowledge of other cultures (including, in an Australian context, Aboriginal and Torres Strait Islander cultures), leadership, and “active” or “global” citizenship. Submissions made to the Review have suggested that UWA graduate attributes might include concern for humanity and human rights, commitment to environmental sustainability, and knowledge of Indigenous culture.

Most of the Educational Principles that the University strives to achieve are provided at a unit level, and are taught in all disciplines. However, there are few formal opportunities to achieve responsibility in ethical, moral, social and practical matters, or cross-cultural competency, in the University's degree structures. – *Student Guild*

It is clear that cross-cultural competence – part of which is knowledge and understanding of Indigenous cultures – will be an important skill for graduates. Not only is greater cultural awareness part of the essential skill set for workers who will engage across several cultural contexts, but emerging Western understandings of the need for a more holistic approach to learning have much in common with ancient traditions of non-western cultures, including Indigenous cultures. In this respect, there is the opportunity for an enriching cultural dialogue and exchange. A recent report on Enhancing the Cultural Competence of Students at UWA (Cultural Competence report) noted that:

Indigenous cultural competency among Australian graduates is of particular importance. Native title, for example, is a critical area, particularly in related industries such as mining that require expertise in the areas of law and legal studies, business, archaeology, anthropology, geology and engineering, as well as other areas such as architecture, landscape architecture, and town planning. On an international level, the need for cultural competence has been demonstrated within business and

commerce, where it has been shown to assist in the building of networks in a globalised economy.

Integrity, ethics and an understanding of major social issues will also be important skills for the “active global citizens” of the future. In this context, it seems worth considering whether the existing Educational Principles should place a stronger emphasis on cross-cultural competence, ethical judgement and broader social awareness.

3.1.2 Implementing the Principles

It remains a continuing challenge for universities not just to identify those attributes that students should acquire but also to incorporate their acquisition within the curriculum. This is necessary to equip graduates for successful employment, and, in an age of international higher education markets and increasing competition, it also becomes important for universities to demonstrate how aspirations for excellence translate into quality outcomes for graduates.

Take for example one item on the UWA list of desired skills: “to communicate in English clearly, concisely and logically.” How might course structures ensure that graduating students can indeed do this at an appropriate level of accomplishment? The question is important because several other fundamental generic skills (e.g. thinking critically, analysing and interpreting information accurately, and solving problems collaboratively) depend on a confident command of the resources of language. While different disciplines may legitimately favour different kinds of communication, it is axiomatic that graduates of a reputable university should have learnt how to express themselves in a fluent manner, convey clear information, articulate a cogent argument, give a precise exposition of a problem in their field, and choose appropriate forms of written as well as oral language for various professional purposes.

Recently a UWA-based research project asked 300 established engineers to rate the professional importance of 63 different competencies, and the one rated as critical by the highest percentage of participants was “communicating clearly and concisely in writing” (Male, Chapman & Bush 2007). This echoes the results of comparable research elsewhere across various fields: for instance a survey of mid-career Harvard alumni (cited by Light 2001) found that more than 90% judged the “need to write effectively” as being “of great importance” for their careers.

Employer organisations agree that it is vital for higher education to develop and deliver at least this core skill above all: proficient use of a range of oral and written language forms to express one’s own ideas and to understand those of others. The Australian Association of Graduate Employers, having surveyed 150 of the largest public and private employers several years ago, found that the most commonly perceived deficiency in the quality of graduates is in the area of written English (Illing 1994); and very recently it has reiterated its concern (AAGE 2007). Many other employer surveys echo this finding. Within universities around the world there is the same view: a survey covering 20,000 academics from fourteen countries (Aubert 1994) found that more than two-thirds of teaching staff expressed general dissatisfaction with the written language skills of most of those they teach. The Boyer report sums up the matter in this way:

The failure of research universities seems most serious in conferring degrees upon inarticulate students. Every university graduate should understand that no idea is fully formed until it can be communicated, and that the organisation required for writing and speaking is part of the thought process that enables one to understand material fully. Dissemination of results is an essential and integral part of the research process, which means that training in research cannot be considered complete

without training in effective communication. Skills of analysis, clear explanation of complicated materials, brevity, and lucidity should be the hallmarks of communication in every course (Boyer 1998).

Existing course structures at UWA do not all guarantee the acquisition of communicative competence. This University could distinguish itself by being the first in Australia to embed into its course structures a truly comprehensive effort to equip all its students with exceptionally good skills in both written and spoken forms of communication.

Some submissions to the Review argue that, because communication skill development is so vital for success not only in academic studies but also to equip graduates for the workplace and for their social responsibilities, every student should be required to pass an all-purpose communication unit taken early in the degree course, of the kind that is compulsory at most leading American universities. A different view is that communication skills can develop most effectively within specific disciplinary contexts, and that accordingly there is an obligation for every School to embed oral and written practices into the subject matter and assessment of each unit – not as a low-level remedial chore but as something that is integrally linked to nearly all learning tasks, including research and project activities. This may already happen in some courses, but it needs to be demonstrably informed by expertise. For a university that aspires to the highest international standards of excellence, the best arrangement could well be to include in every degree course, alongside communicative practices embedded in all units, at least one separate unit that focuses intensively on oral and written work in an intellectually demanding way (as with the existing Science Communication units in the Faculty of Natural and Agricultural Sciences and the Faculty of Life and Physical Sciences).

It may be appropriate within the framework of the UWA Educational Principles to define specific graduate attributes at the Faculty level, where they can be precisely linked to curriculum plans, professional requirements and assessed outcomes. One method of achieving this is for Faculties to indicate what experiences and opportunities they offer to help develop these attributes (or uphold these principles). Students can then indicate, through a record of achievement that is broader than their academic transcript, what they have done to avail themselves of those experiences and opportunities. Such an approach has been taken by, for instance, the University of Sheffield, which not only enunciates a vision of the Sheffield graduate, listing a dozen desired characteristics, but also specifies a range of “opportunities for all students to fulfil their potential and develop the skills, attributes and values that are essential to entrepreneurship and employment, lifelong learning and global citizenship.” A similar approach to embedding graduate attributes is being followed by The University of Wisconsin-Madison (among others), which is developing an alternative transcript to provide a report of students’ involvement in a range of enriching educational experiences. The alternative transcript will provide graduates with a tangible record of the benefits drawn from the resources and opportunities, academic and extracurricular, that are offered by the university.

The development of a more comprehensive record of achievement is also being taken seriously in Australia, with a new graduation statement expected to be recommended for use by Australian universities. The statement would include a description of the relevant university and the nature of the Australian higher education system, the type of courses studied, overseas study experience if applicable, and any additional work experience (Slattery 2007).

However, it should be noted that while UWA needs to ensure that its Educational Principles are fully and consistently implemented, such an approach is not distinctive in the context of what universities have done elsewhere. This is discussed further at 4.1.

3.2 Achieving an appropriate balance between “breadth” and “depth”

Universities have long grappled with the challenge of achieving an appropriate balance between “breadth” and “depth” of knowledge – sometimes expressed as a need to include both “general” and “special” elements. Among many examples, John Stuart Mill’s remarks in a speech to the University of St Andrews more than 140 years ago still resonate today: referring to the example of “lawyers, or physicians, or engineers”, Mill argues that “what they should carry away with them from a university is not professional knowledge, but that which should direct the use of their professional knowledge, and bring the light of *general* culture to illuminate the technicalities of a *special* pursuit” (Mill [1865] 1963).

Graduates in the rapidly changing world and knowledge economy of the twentyfirst century will need a broad set of skills and a holistic understanding that extends beyond the boundaries of a particular discipline. In its 2002 report *Constructing Knowledge Societies: New Challenges for Tertiary Education*, the World Bank noted that:

The learning process now needs to be increasingly based on the capacity to find and access knowledge and to apply it in problem-solving. Learning to learn, learning to transform information into new knowledge, and learning to transfer new knowledge into applications become more important than memorizing specific information.... [T]he new competencies that employers value in the knowledge economy have to do with oral and written communications, teamwork, peer teaching, creativity, envisioning skills, resourcefulness, and the ability to adjust to change. Many of these competencies involve social, human and intercultural skills that are not normally taught in science or technology-based disciplines... [I]t is important to enrich curricula with general subjects wherever possible.

There can be a difference between achieving “breadth” and providing a “general” education. Students may obtain *breadth* in their studies, for instance, simply by undertaking units outside their home discipline or Faculty. However, a general education requires something more coherent than a random selection of units outside a chosen disciplinary field. A *general education* is one that incorporates a common core of courses that have been designed to achieve desired learning outcomes, and offers a broad educational experience across the arts and sciences.

The rationale for broadening undergraduate studies in the interest of a general education can be stated simply, and has many advocates. For example:

Current course structures at UWA are clearly successful.... However, current success within a local or national framework is not enough. Many leading universities around the world proactively educate their students for positions of leadership and influence; students who can make a positive contribution to their community and to world affairs. They do this by incorporating generalist as well as specialist studies into their curricula. If UWA aspires to greatness, it must move further in this direction. – A/Prof. Neville Bruce, School of Anatomy & Human Biology

Much is made of the fact that this University attracts the best students from the State, and there is no doubt that the top students in each unit are a joy to work with, but there is also no doubt that we teach, in large classes, many who are either too immature or not appropriately prepared to capture the benefits of a challenging tertiary educational experience.... There should be at least one general, introductory year where big overarching ideas and scope are presented to begin the walk towards increasing specialisation, and student interest and involvement is captured at the beginning. – *Dr Brenton Knott, School of Animal Biology*

The later they have to commit to a specialism the better.... [Often, school leavers] research their options poorly, have little knowledge of course structures or content, and frequently end up in the wrong discipline. A common first year ... may go a long way towards saving the numerous false-starts we see.... Many of them are simply too immature to make good decisions and dissatisfaction with the tertiary experience is, for them, an inevitability. – *Head of Year 12 at an independent school in Perth*

The course structure would be improved with the inclusion of units that broaden the graduate's capabilities beyond the technical requirements of the selected profession.... The quality of the graduate and the quality of the educational experience are both significantly improved with the inclusion of appropriate non-core elective material. – *Adj. Prof. David Agostini, Chair, West Australian Energy Research Alliance*

On the other hand, it should be noted that a few submissions have expressed an opposing view. For instance:

I am very suspicious of compulsory general studies or forced interdisciplinary studies.... Equally I am suspicious of any compulsory general unit (other than English for those who lack basic skills) that might be imposed through a spirit of political correctness. – *UWA graduate*

Most submissions received by the Review on the issue of breadth and depth argued that greater breadth is required. This aligns with a renewed focus on the need for general education at leading tertiary institutions elsewhere. Harvard University (2007) has just decided to revise its general education curriculum, with new courses to be developed in areas such as aesthetic and interpretative understanding, culture and belief, empirical reasoning, ethical reasoning, science of living systems, science of the physical universe, societies of the world, and the United States in the world. The University of North Carolina has also revised its general education requirements: in addition to their chosen field of disciplinary study, UNC students need to develop foundational skills in communication and quantitative reasoning, experience a range of methods for developing knowledge, and acquire a capacity to synthesise and apply their knowledge. At Fudan University in Shanghai, courses of general study are a key curriculum feature, and Fudan has set up a Foundation School offering first-year students the opportunity to study subjects unrelated to their major that they missed out on at high school. In Australia, the University of Melbourne has recently shifted to a generalist undergraduate degree structure that leads into professional postgraduate courses.

Given the relative youth of UWA's student population, noted above at 2.1.1, the introduction of general education elements has the additional value of exposing students to a wider range of disciplines at a time when they are making important life choices. Studies of first year students at UWA have shown that many are unsure of what they want to do, and do not feel ready to choose a specialised course (UWA 2003).

If UWA is to achieve an appropriate balance that offers students ample breadth, while still providing sound knowledge of a discipline, it will need to give serious consideration to a comprehensive form of general education in which that breadth is supported by a coherent

curricular framework. Section 4 of this paper suggests several structural options that would introduce more breadth into a UWA degree.

3.3 Strengthening the teaching-research nexus

UWA's aspiration to be an elite research-intensive university will be served best by course structures that encourage students to do advanced research and to benefit from the integration of research and training, and that give academic staff the opportunity to develop and maintain research while at the same time maintaining quality teaching. – *Faculty of Life and Physical Sciences*

Research, and the utilisation of research or inquiry-based methods in teaching and learning, are increasingly important in a world that requires graduates to be lifelong learners. It is recognised that research can take many forms, including:

- being exposed to the latest research;
- learning research skills; and/or
- undertaking a research project.

The report of the Teaching-Research Nexus working party noted that the benefits of an active research environment for student learning can include:

- developing an awareness of how knowledge is generated, and the current state of knowledge in a discipline;
- developing an undergraduate culture in which students see themselves as inquirers rather than simply as receivers;
- developing research expertise – e.g. through critical analysis of publications; and
- providing practical research experience (including methodology and technical aspects).

The 1998 Boyer Commission report *Reinventing Undergraduate Education: A Blueprint for America's Research Universities* advocated a move from traditional lecturing to inquiry-based learning, where learning through research is introduced into curriculum from the beginning of tertiary study. The report proposed a model where:

scholar-teachers would treat the sites of their research as seminar rooms in which not only graduate students but undergraduates observe and participate in the process of both discovery and communication of knowledge. Those with knowledge and skills, regardless of their academic level, would practise those skills in the research enterprise and help to develop the proficiency of others. Even though few researchers ever escape the human temptation to compete for rewards, this model is collaborative, not competitive. It assumes that everybody - undergraduate, graduate student, and Faculty member alike - is both a teacher and a researcher, that the educational-research process is one of discovery, not transmission, and that communication is an integral part of the shared enterprise....

A number of submissions to the Review identified research as being one of the desired hallmarks of a UWA degree – some say the most important. The Honours working party discussed the distinctiveness of the intensively supervised, yet independent, UWA Honours research experience, noting that “[i]n some fields (e.g. Fine Arts, Law) it is unique in Western Australia.”

At the Honours level, research is well established as a primary focus, but it remains a challenge to incorporate research throughout the undergraduate curriculum. As noted by the Teaching-Research Nexus working party, “[b]uilding the teaching-research nexus requires discussion at the level of the degree, major or program as well as individual unit...it is necessary to structure the learning experience to include a research methodology.” However, accomplishing this will not be an easy task. A study of the teaching-research nexus at three Australian universities, including UWA, noted several practical issues for this University (Zubrick, Reid & Rossiter 2001). These include certain aspects of the staffing profile, such as the difficulty of linking research-only staff with teaching activities; the challenge of integrating the advanced kind of research work undertaken in some fields into an undergraduate curriculum; and the resource constraints that may prevent some schools from providing adequate supervision of research project work for large numbers of students.

While there are certainly challenges to be overcome, the creation of a research culture at all levels of tertiary study is increasingly important. In the information age, it is research skills that will enable graduates to become familiar with new fields, and that will equip them to respond to changes in the underlying base of knowledge within their discipline:

It is important that we articulate “research” as the essential survival skill of the 21st Century, enabling graduates to access, interpret and use new knowledge throughout their lives, rather than conceiving research as an elitist engagement in essentially very esoteric knowledge. (Teaching-Research Nexus working party report)

A recent report of the Committee on Academic Priorities at Amherst College in the United States noted that “on some estimates, one-third of our students are training for jobs that have not yet been conceived” (Amherst 2006). In this context, “learning how to learn” becomes a vital part of the skill set for twentyfirst-century knowledge-workers. The options proposed in section 4 of this paper discuss several ways in which a stronger research focus can be incorporated into UWA degrees.

3.4 Providing an international and intercultural focus

In an age of increasing global interconnectedness and interdependence, equipping graduates with international and intercultural awareness is more vital than ever. This University lists an international focus as one of its defining characteristics (UWA 2007b).

Relevant to, but extending beyond, the internationalisation of curriculum is UWA’s declared commitment to cultural competence. As noted above at 3.1, a recent report has made a number of recommendations for enhancing the cultural competence of UWA students, some of which have been referred to the Course Structures Review. These recommendations are discussed further below.

The means by which a greater intercultural and international focus can be incorporated into a UWA degree include:

3.4.1 Study Abroad

Our student cohort in general comes from an extremely narrow sector of Perth, and are very young compared to most other universities in Australia, and around the world... My suggestion would be to work towards requiring that each of our undergraduates spend at least one semester at another

university, preferably outside Australia. – A/Prof. Carolyn Oldham, Assoc. Dean, Faculty of Engineering, Computing and Mathematics

Study Abroad gives students the opportunity for an international experience that immerses them in a different culture and allows them to build networks across borders. It can also be a distinguishing feature for universities that offer it.

Existing barriers to Study Abroad identified by the International Centre include the difficulty of fitting Study Abroad into the curriculum; negative/neutral preconceptions and attitudes of academic staff; students' uncertainty of the value of Study Abroad; additional cost and the possibility of taking a longer time to graduate; and students' extra-curricular commitments.

The International Centre notes that the key to a successful Study Abroad program is curriculum integration, whereby changes are made to degree programs to allow students to meet part of their requirements through study at overseas institutions:

For a university to integrate Study Abroad into its curriculum it will need to:

- introduce flexibility into degree requirements to allow for credit earned from Study Abroad to meet major, minor, elective and general education components of degree programs;
- identify pathways to partner universities where equivalent academic outcomes can be achieved;
- prepare its students for Study Abroad with timely and appropriate information and recommendations on Study Abroad;
- grant home credit of equal value to equivalent academic load taken by students while on Study Abroad;
- and support students on their return for Study Abroad, including provision of opportunities for individual study programs to make up for small content deficiencies in studies undertaken abroad.

– *International Centre*

However, it needs to be noted that any successful expansion of Study Abroad requires that the financial implications for students are addressed:

Students value the opportunity to gain nationally and internationally transferable skills and qualifications, and would welcome the opportunity to study overseas. However, in the current context there are few students who can afford to travel to study. – *Student Guild*

It is important to ensure that UWA course structures enable students to take advantage of Study Abroad opportunities. The Cultural Competence report (mentioned above) includes this recommendation: "That the curricula of each Faculty be considered as part of the general review to encourage the establishment of 'windows of opportunity' for Study Abroad".

Each of the options for structural change that are presented later in this paper includes the possibility of enhancing Study Abroad opportunities.

3.4.2 Language Other Than English (LOTE)

Australia's geographical isolation is an impediment to the pursuit of certain kinds of knowledge. Although this nation is home to people from many different cultures, its education system marginalises everything but English. In a world where some forty sovereign states have at least two official languages and where multilingual facility is normal for the educated citizens of most countries, UWA can hardly aspire to international excellence if it allows its graduates to be linguistically parochial. It ought to recognise within the structure of its curriculum the importance of language-based intercultural knowledge as a foundation for educational breadth.

Competency in a foreign language (and thereby gaining greater access to the riches of another culture), [is] a skill equally valuable to Australian students contemplating a career overseas as it is to graduates working in a multi-cultural Australian society, and to ESL international students living and working in a world where English is one of four language groups that will increasingly dominate. – *Student Services*

While there are several disciplines that provide valuable insight into cultural differences, studying a language other than one's own can have a unique cognitive benefit: it allows students to step outside the particular conceptual framework constructed by their own native language, giving them an understanding of how knowledge takes shape through the medium of a particular language. Grappling with a second language provides direct experience of the variability and arbitrariness of all language.

The primary purpose of incorporating one or two LOTE units within a general undergraduate education is *not* just to pick up a smattering of foreign phrases. Rather, it is to broaden a student's awareness of language as a system, thus enhancing the ability to analyse verbal input, facilitate control over thinking processes, and help improve performance in a variety of academic tasks. There are also secondary intercultural benefits. Even a brief introduction to a language other than one's own can provide a basis for understanding, for example, the power of words in framing issues of homeland harmony and international security; some practical aspects of the circulation of research across discursive boundaries in the global knowledge economy; and the cultural complexities of business transactions, especially for a state whose continuing prosperity relies heavily on exports to Asia and Europe.

It is tempting to say that the problem of complacent monolingualism lies in the schooling system and that by the time students reach higher education without a second language it is too late to provide a remedy. Certainly LOTE acquisition should begin early, and universities should keep putting pressure on government, as the Group of Eight has recently been doing, to stimulate the growth of LOTE in schools through strong financial and policy support, including the introduction of a LOTE bonus. At UWA there is strong support for a current proposal to boost a student's TER score by a significant percentage of the scaled mark in a LOTE subject. But for the foreseeable future that will not significantly alter the situation at university level, and so UWA may wish to require all its undergraduate students to gain at least the rudiments of language learning. This would be a bolder step than merely encouraging language learning opportunities (valuable though such encouragement is), as envisaged in an important recommendation of the Cultural Competence report: "That the University develop and implement a coordinated marketing strategy for the Diploma of Modern Languages to encourage students in all Faculties to add an extra language qualification to their CV."

Many of the world's leading universities regard it is essential for undergraduates to acquire some knowledge of a language other than their own. There is good evidence that students value this part of their learning. For instance, Harvard students are required to study a language other than English unless they can demonstrate a strong background in languages; and far from regarding the requirement as a perfunctory chore, alumni set a very high value on learning a foreign language: Light (2001) records that 94% of them say they would urge current undergraduates to take as many language courses as possible, and well over half would give this advice even to those students whose pre-existing linguistic knowledge allows them to by-pass the requirement.

3.4.3 International and intercultural curriculum content

As WA takes on a higher profile because of its growing exports to India and China, it is imperative that all our students, regardless of their discipline of study, have an understanding of our trading partners and the region we live in, as a number of our graduates will end up working in these countries.
– *Filomina D’Cruz, Administrative Officer, Student Services*

Cultural competence, including an understanding of Indigenous culture, is an important skill for all our graduates. It has most relevance to students if it can be incorporated into each degree structure, with examples within the learning context of that degree and building in complexity at each level of the degree, rather than a stand-alone unit that can easily be dismissed. – *Dr Judy Skene, UniSkills Coordinator, Student Services*

The growing interconnection of individuals and systems, the spread of knowledge across traditional disciplinary boundaries, and the speed of communication in the information age mean that graduates will inevitably engage across geographical and cultural borders, and it is not only in an increasingly internationalised working environment that the effects of this will be felt. As discussed at 2.1.2, major global problems – such as climate change, population health, cultural conflict, international security, and ethical aspects of biomedical advances – will influence all aspects of graduates’ lives. In this context, an understanding of global developments and a broader cultural awareness are essential to equip graduates not just for the workplace but also for their responsibilities as well-informed citizens.

The social justice and global community case make it imperative that UWA graduates possess the wherewithal to transcend national and international boundaries, demonstrating excellence and leadership in their personal, professional and community lives. – *Equity and Diversity Office*

As noted above, UWA cites an international focus as one of its defining characteristics, and has a declared commitment to improving the cultural competence of its students. However, there is a need to consider how the curriculum can be shaped to meet these aspirations. A survey conducted as part of the Cultural Competence report noted that:

[F]aculties vary according to the level of teaching they provide that will further students’ cultural competence. Only the Faculty of Education, and the Faculty of Medicine, Dentistry and Health Sciences provide core units that educate students on the complex issues of race and ethnicity that they will encounter in their personal and professional lives. Many of the remaining faculties offer optional units, although there is less of a tendency to do so within the “hard” sciences of Engineering, Computing and Mathematics, Life and Physical Sciences, and Natural and Agricultural Sciences.

If UWA is to meet its aim of achieving international excellence, and to help its students “acquire cross-cultural and other competencies to take a citizenship and leadership role in the local, national or international community” (one of its Educational Principles), then there is a need to consider exactly how the internationalisation of curriculum is to be measured, and how cultural competence skills are to be incorporated. In this regard, the following recommendations of the Cultural Competence report have been identified as particularly relevant to the Course Structures Review:

- The overarching goal “That by 2009, all courses of study at UWA will incorporate an element of for-credit study that contributes to a minimum standard of cultural competence for all students, to the value of at least three credit points within all courses of study”;

- That the University investigate the costs of, and commit funding to, curriculum development to enable greater course content to be devoted to Indigenous Studies; and
- That further efforts be made to investigate embedding issues of race and cultural diversity into the University curricula, in partnership with the Equity and Diversity Office and drawing upon the example shown by the *Citizens of the globe* project.

3.5 Enriching the learning environment

The student learning experience is the sequence of events (teaching, learning, extra-curricular, and life-skill learning) that occurs in the framework established by course structures, during a students' time at University. Accordingly, there is a strong relationship between graduate attributes, course structures and the student learning experience. Any changes to the course structures will be focussed on graduate attribute acquisition, and the student experience will require significant adaptation to ensure that the quality is retained under any new course structures. – *UWA Student Guild*

We believe improving the overall student experience may be more important than changing the structure of courses. This encompasses their experience as students on campus, in terms of enhancing receptivity to learning, and after graduating in terms of their attachment ... to the University. – *UWA Business School*

It is well established that a considerable influence on the knowledge, skills, and values that students develop during their tertiary studies is the university environment beyond their curriculum and their classroom experiences. How well UWA fulfils its Educational Principles, and any other educational objectives, is thus significantly influenced by the extent and nature of student engagement in these areas. Richard Light, in reporting on his extensive study of student learning at Harvard and other leading US universities and colleges, records that “when we asked students to think of a specific critical incident or moment that had changed them profoundly, four-fifths of them chose a situation or event outside of the classroom” (Light 2001).

UWA's deliberate focus on these aspects of its educational environment is already reflected in its Operational Priorities Plan 2006-2008, which states:

At UWA, student learning encompasses experiences both within and beyond the formal setting of classrooms, laboratories and lecture theatres. While the goal of maintaining and extending approaches to teaching and learning that will secure excellent learning outcomes for students remains central, ‘student learning’ within this Strategy is used broadly. It reflects the University's strong commitment to offer students opportunities to learn and develop in a wide range of social and cultural settings. The learning environment of UWA therefore refers also to that large array of sporting, social and cultural activities, and day-to-day life at the University, supported by sections such as the University Library, Student Services, the Guild, the PSA, the Colleges and the UWA Sport and Recreation Association.

Consideration of course structures, aiming to achieve the objectives discussed elsewhere in this paper, must therefore pay attention to these other aspects of enriching the learning environment which can strongly support, fail to support, or even obstruct the objectives of UWA's course offerings.

3.5.1 Extra-curricular activities

UWA has an active Student Guild, and a high level of student engagement through the Guild and existing Clubs and Societies. The UWA Guild has the highest level of Guild membership in Australia (around 80%), and supports around 80 student run clubs and societies. In addition to this, students receive strong support through Student Services, and student learning on and off campus is facilitated through various means including the many UWA libraries and the use of information technology to offer learning support online.

However, it is worth considering whether there are other activities or opportunities that could further enhance the University's learning environment, and promote the achievement of the Educational Principles. These might include any of the items listed below.

3.5.2 Colleges

The colleges provide a unique opportunity for students to live in a community of scholars and develop the skills and attributes identified by the UWA as an essential part of their university experience; interpersonal and communication skills, an understanding of cultural diversity, the social and ethical dimensions of an issue, a regard for human rights and the environment, a capacity to work in teams, etc. The colleges also ensure that students enjoy their university experience by making lifelong friendships with people from around the world, undertaking degrees in a range of faculties. The on-campus living experience also ensures that students are easily able to participate in the wealth of intellectual, social, cultural and sporting opportunities available to them on campus, as well as in their college. – *Fiona Crowe, Chair of the Heads of Colleges Committee, UWA*

UWA has a strong association with its colleges, and further integrating these into course structures would take advantage of their potential to contribute substantially to student progress. This could be done in a number of ways.

A much greater number of students could be encouraged to live in residence (resources and capacity permitting). Even without the residential component, UWA colleges could play a role in engaging students more fully in educational experiences. On entry to the university, all students could be admitted to a college that would provide additional academic support and advice, extracurricular activities, and community networks. Again, there would be significant resource implications if this potential role were to be fulfilled.

3.5.3 Induction

Induction programs for first-year students can have important benefits, as some very good existing arrangements at UWA demonstrate. The possibility of expanding these arrangements should be considered. Surveys of first-year students at UWA have found that a significant number find adjustment to university life difficult (UWA 2003), and a more comprehensive induction program could ensure that all incoming students receive advice and support that helps integrate them into the university community.

Such a program might include brief group-based orientation sessions, seminars on university life, and/or individual advice. Student Services, noting that most UWA students commence tertiary study straight from school with little broader life experience, has suggested that the University consider developing a foundation program which could include “a brief seminar series, perhaps delivered in a re-structured orientation program with a renewed emphasis on academic issues, or

delivered via services that are characteristic of an emerging Web 2.0 social networking environment: wikis, blogs and discussion forums.”

Even students who arrive at UWA with a good understanding of higher education could benefit from this pragmatic focus on transition into a new kind of learning community. If suitably resourced, the University's colleges might be well placed to contribute substantially to an induction program of this kind for all beginning students, not only for their residents.

3.5.4 Work experience/professional practicum

The value of a work experience or professional practicum component of a course is well recognised in several fields. It can enable students to gain valuable “real life” experience, as well as enhancing their understanding of their discipline through the practical application of knowledge. This is usually incorporated into the curriculum for academic credit – for example, the UWA Centre for Co-operative Education for Enterprise Development links student academic projects with research required by outside organisations, usually at Honours level. Alternatively, work experience could be recognised as part of a student's extra-curricular activities. At the University of Sheffield, work experience or volunteering forms a component of the Sheffield “graduate award”.

The idea of introducing a practicum into some programs that have not previously included it may seem attractive, but careful consideration would need to be given to the costs and resources required to set up any such arrangements. The School of Psychology, in its submission to the Review, highlighted the difficulties in successfully sustaining practicum units, noting that “the identification of appropriate settings for practicums, cultivating colleagues working in professional settings, embracing field supervisors within formal and informal School functions, and meeting with them regularly to communicate appreciation and to troubleshoot problems, makes these units onerous to run.”

There may be a good case for introducing structured work experience into some disciplines that do not at present require this. For instance one submission, from a UWA graduate in Geology and an employer of geological graduates, argues that a field placement of at least three months as a student geologist should be mandatory before graduation. However, others assert that a practicum experience would be of little or no value in some fields of study:

Practica can be valuable learning experiences but are not suited to all disciplines and should be implemented only where appropriate to the discipline.... Practica are costly to administer and the imposition of a required practicum as part of a general degree, rather than in specialised area, would be crippling and for no foreseeable advantage to the students. – *Faculty of Life & Physical Sciences*

3.5.5 Community service

[Service learning] is a form of student learning which involves participation in organised service experiences. Ideally these experiences are collaboratively organised by students, the university and the community. The opportunity is for service to the community and may involve application of student's education. It may be incorporated into a course or involve a stand-alone activity. It may involve credit in a course or not, but should involve some kind of recognition. It is a volunteer activity but one which is well organised and strongly encouraged. There are some activities going on around UWA that fit into this category already. More of these opportunities should be available to UWA students. – *Prof. Paige Porter, Director, UWA Institute for International Development*

Engagement with communities is integral to higher education, and is often characterised as forming part of leadership or citizenship skills. The University of Melbourne offers a Student Ambassador Leadership Program, where students can, among other things, offer their volunteer service to non-profit organisations or create their own projects aimed at addressing the needs of a community group. Some universities elsewhere – for instance, Michigan State University, the University of Chicago, and University College London – have established centres to facilitate student involvement in voluntary activities. At UWA the Student Guild has recently launched the “Student Volunteer Management Project”, which will deliver a volunteer management system in accordance with the national Standards for Involving Volunteers in Not for Profit Organisations. The initial stage of the project will focus on Guild volunteers with a feasibility study into the further development of a volunteering centre for all UWA students engaged in volunteer activity.

There is an opportunity for UWA to set up a comprehensive institution-wide Service Learning Centre. Within Western Australia, it should also be noted that Curtin University has already established something along these lines: for the last decade Curtin Volunteers has been organising a range of well-regarded community service activities for students.

3.6 Simplifying course administration and nomenclature

Addressing the numerous issues related to administration and nomenclature is an important part of the Course Structures Review. Challenges previously identified in the CSR Discussion Paper include the wide range of different course structures (both undergraduate and postgraduate); a lack of clarity and consistency in the University’s understanding of “Honours”, “streams”, “specialisations”, “programs” and “majors”; and the proliferation of courses. Submissions received following the release of the CSR Discussion Paper, and work done as part of the Review, have only served to emphasise and amplify the issues to be dealt with – for example, the Postgraduate Coursework working party identified a number of procedural inconsistencies, including some that suggest a need to clarify the “points” system that UWA uses; and it also raised the possibility of a distinction being made in nomenclature between research Masters degrees and other Masters degrees.

Ensuring greater administrative clarity, efficiency and effectiveness is not simply a matter of improving course delivery within UWA, but also a practical way of giving substance to UWA’s vision of achieving international excellence:

It is our view that a university which is aiming to achieve the very best international standards and international recognition for our graduates cannot simply rely on recognition of the UWA brand – rather the University needs to support its graduates on the world stage by publishing accessible, standards-based information about its course, units and course components, and in several languages. Standard agreed terminology and uniform definitions should apply to the components used to build all courses offered by the University with the accompanying course rules re-structured in a much more accessible format. – *Student Services*

Submissions repeatedly stressed the need for an overhaul of existing arrangements:

The current diversity of rules and policies applied to units, and even degrees, by the Faculties and UWA generally creates considerable confusion and misunderstanding for both undergraduate and postgraduate students, as well as staff. – *Postgraduate Students Association*

Administrative structures need to be clear and consistent, while still being flexible and responsive to student needs. Critical areas to be addressed include inconsistencies in points values, the course/unit approval process, named and generic degrees, student transfer, and definitions of

terms. There was general agreement in submissions about a need for standardisation (for instance, in points values for degrees and diplomas), consistent definitions (for instance, of major, minor and program), and clearer policy guidance in some areas (for instance, in relation to named and generic degrees).

The topic of pre-requisites also attracted attention, and in this regard opposing views were expressed. Some submissions contended that pre-requisites were necessary to retain the high standard of the UWA student intake, while others took the opposite view:

The main outcome I would like to see is elimination of prerequisites, other than English and, for some courses, basic Maths. This will greatly increase the diversity in many courses, most notably Engineering. We should be attracting the best students who show an interest in a particular course, regardless of whether or not they have completed formal pre-requisites. This could be brought about through the introduction of a foundation year, for example, in which pre-engineering or pre-science subjects are taken before entering the degree proper. A foundation year also provides the opportunity for broadening of students who do have the pre-requisites. All UWA students should have a foundation in Maths, Computer Science, Humanities, etc. – *Prof. Mark Bush, Dean, Faculty of Engineering, Computing and Mathematics*

A number of students and graduates also raised timetabling issues as a concern:

At present, the rigidity and complexity of the timetabling system is a source of concern for many students. As most students are juggling work and study commitments, it is not uncommon for students to make their unit selections based on the timetable implications rather than the content of units.... A related issue is that postgraduate courses are often unavailable during working hours.... This may result in venues that could be better used standing empty at times when students could make use of them. – *UWA Student Guild*

Whatever option for change to course structures is eventually preferred, issues related to administration and nomenclature will need to be addressed. As noted at 1.3, these issues are being investigated by the Framework and Definition of Degrees working party. Recommendations will be made in the first half of 2008.

4 Structures

Teaching and learning practices can express in various ways the principles outlined above. Structural change in the curriculum is by no means the only way of attempting to raise the quality of learning. One important factor, for example, is simply the size of classes: it is noteworthy that in the world's leading universities the ratio between teachers and students is much more favourable than in any Australian university. Only substantially augmented financial resources will enable UWA to ameliorate that aspect of its situation. Another important factor is the whole set of physical and cultural facilities that constitute the campus environment and supplement the educational programs. In this regard UWA has many rich assets, including its residential colleges, and it continues to look for ways in which it can utilise them more fully.

Several options for change in course structures have emerged from the consultations, working party reports, submissions and deliberations to date. They are sketched here, with an outline of points in their favour and also of matters that would require further investigation if any of these options were to be pursued. It will be obvious that some aspects of some options could be varied, or incorporated into other options. The aim in what follows is to differentiate the options conceptually but not to suggest that each is necessarily a separate package.

4.1 OPTION 1: Reinforcement of "Educational Principles"

One possibility – closer to the status quo than any other options under consideration – is simply that the University should establish robust mechanisms for ensuring that everything on the institutional list of Educational Principles becomes demonstrably embedded in every degree course with rigour and consistency.

As noted above in the discussion of Educational Principles, identifying attributes that students should acquire is merely a first step; fastening their acquisition securely within the curriculum is a much larger challenge. The University's progress in linking specific attributes to course objectives, professional requirements and assessed outcomes at the Faculty or School level has been uneven. As a matter of basic quality assurance, there is a strong argument for requiring all Faculties to indicate precisely what experiences and opportunities they offer to uphold the Educational Principles. It might follow in some cases that Faculties would need to make adjustments to their existing course structures in order to comply fully with those stated Principles, in much the same way as an externally conducted process of professional accreditation can sometimes lead to curriculum changes.

However, it should be noted that such an approach is by no means distinctive in the context of normal Australian university practice, let alone on the international scene. It is now usual for providers of higher education to embrace policies that require all their courses to contribute in demonstrable ways to students' acquisition of specified knowledge, skills and attitudes. The systematic linkage of intended learning outcomes with course approval, review and reporting requirements is already well developed at many institutions, including all public universities in Western Australia. Internationally, the University of Sheffield is among the most notably resolute exemplars of a commitment to make every School accountable for embedding in its courses the particular learning processes that are best suited to develop an institutionally specified set of graduate attributes.

Further development of this approach at UWA would certainly seem desirable, though it would hardly rate as an outstanding achievement in a comparative context.

While the option of reinforcing the UWA Educational Principles would presumably be accompanied by uncontentious simplification of administrative arrangements and nomenclature, as discussed in section 3.6 above, it would not in itself involve substantial structural consequences for most areas of the curriculum. This option would seem to be the bare minimum required in order to achieve any improvement to course structures at UWA, and is probably more appropriately viewed as a basis for structural change rather than as a significant or distinctive shift in itself. Accordingly, it is proposed that all of the other options would include a reinforcement of UWA Educational Principles and a simplification of administration and nomenclature (so that options 2 – 7, below, should be read to include the elements of Option 1).

Option 1 in summary:

- *all UWA Educational Principles to be demonstrably embedded in every course;*
- *each Faculty to determine what opportunities it should provide to link specific graduate attributes to course objectives, learning experiences, professional requirements and assessed outcomes;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University.*

4.2 OPTION 2: First-year semester of common general units taken from outside the home discipline

As noted previously (section 3.2), there is considerable interest within the University community and among external stakeholders in the possibility of broadening the scope of undergraduate education. One way of doing this is to make it compulsory for all students to take some units from outside their main field of study.

We believe that the quality of general education at UWA would be enhanced if there were a structural requirement in all undergraduate degrees to study outside the primary discipline of the program.
– *Faculty of Education*

Some favour the idea of incorporating this breadth into the early part of a degree course. While there seems to be little enthusiasm for a full foundation year, the idea of a common semester (i.e. units to the value of 24 points) during the first year of study has attracted much stronger support.

A potentially better solution [than a foundation year] would be to introduce 24 points, or the equivalent of four units, of common material within the first year of each undergraduate degree. The virtues are simple enough: students would commence their degree-specific work from the outset, thus avoiding the sense that the foundational component was one more entry hurdle that needed to be jumped; and the limitation to just 24 points would underwrite a concentration on genuinely foundational content (rather than a 'tasting-plate' mix). – *Prof. Ian Saunders, School of Social & Cultural Studies*

Several submissions independently proposed much the same idea of requiring all undergraduate students to take certain foundational units in common for the equivalent of half a full-time year. In addition to its directly academic benefits, this would provide each cohort of commencing students with a sense of university-wide group identity and a shared vocabulary of learning.

In comparing the particular features of Option 2 with those of Options 3 to 7, it is important to distinguish three related kinds of learning experience: “broad”, “general” and “common”.

As noted in section 3.2 of this paper, a student's course may incorporate a certain element of *breadth* in various ways, such as simply including some units chosen from outside the disciplinary field of the School in which the student is enrolled. Breadth is a relative notion and therefore involves some flexibility, as studying a particular unit may be a broadening experience for one student but not for another.

The purpose of a *general education* is somewhat different: to give students a coherently structured engagement with fundamental skills and knowledge across the arts and sciences, so that their learning is not confined entirely within a specialised area.

One form that a general educational experience may take is a *common* foundational core of broadening units, introductory in nature (i.e., with no prerequisites or assumed prior knowledge) and specifically designed with particular learning outcomes in mind for all students. This is what Option 2 envisages.

It has been suggested that, in the context of Option 2, the design of these common units might seek to achieve any or all of the following purposes:

- implementing a core recommendation of the recent Cultural Competence report (UWA 2007): that all courses incorporate an element of for-credit study that contributes to a minimum standard of cultural competence for all students;
- ensuring that particular attention is given to other key generic skills (e.g. written communication, critical thinking) at an early stage;
- providing at least a foundational knowledge of Maths, Computing Science and English;
- showcasing different methods of inquiry through some introductory-level interdisciplinary units designed specifically for this purpose.

To illustrate what such interdisciplinary units might cover, here are a few examples:

- *A case study of economic, environmental and social sustainability in a particular region of Western Australia.* The focus might be, for instance, on the Pilbara or the Great Southern, with a range of discipline-based methods used comparatively to identify issues, raise questions and demonstrate analytical procedures. Indigenous culture and native title, infrastructure development, diversification of commerce and industry, and/or land and water management, could be among the matters broadly investigated in such a unit.
- *Aspects of population health.* Drawing on the different methods that characterise several fields of inquiry, from medical science (e.g. epidemiology and genetics) to social science (e.g. history and statistics), marketing (e.g. health promotion) and public policy development (e.g. community consultation), a unit on this topic could reflect the complexity of health issues and the range of academic disciplines available to study them.
- *Climate change: facts and opinions.* A unit on this topic could aim to show, from different disciplinary perspectives, how to gather, test and interpret evidence, how to draw inferences appropriately, how to determine causation, and how to evaluate arguments.
- *Forces of globalisation.* A unit on this topic could examine not only the economic processes associated with international financial markets but also historical trends, cultural conflicts, political responses, environmental impacts and social aspects of globalisation.

If Option 2 is deemed worthy of further investigation, a number of practical matters will need to be addressed, such as the following:

- Would a student have any freedom of choice with regard to the common set of units? Would there be a fixed compulsory set, or a small number of approved units with an individual selection being made in each case from that limited range of offerings? If latitude is allowed in making the choices, the University would have to determine how many such units should be available at any given time, and how any uneven distribution of unit enrolments (and therefore teaching loads) would be handled administratively.
- Would it be appropriate for the content of these units to be of the kind indicated above? For instance, several submissions argued that generic skills are best taught in the context of particular disciplines rather than (as suggested here) separately, while others argued that their importance requires them to be taught *both* in context and separately, for reinforcement.
- How would the common units be developed, approved, resourced, taught and administered? It is doubtful that the present curriculum approval and budget distribution mechanisms would be adequate for the purpose. For instance, if each Faculty had the right to offer and control its own unit as part of an interdisciplinary smorgasbord, the University might find it difficult to prevent the common semester from degenerating into a heterogeneous miscellany, and to avoid certain problems that have reportedly bedevilled efforts elsewhere to devise a coherent group of foundation units.
- What implications would this structure have for calculations of teaching load? In order to handle mid-year enrolments, the common units would presumably need to be offered in both semesters each year, with a corresponding increase in the workload of those who teach the units.
- Could all undergraduate courses accommodate a semester of units taken from outside the home discipline without adding (in effect) a semester to the length of the course? This question would be particularly relevant to those degrees that must include a certain amount of discipline-specific content to meet professional accreditation requirements.
- Would it be necessary to undertake and complete the set of common units during the first year (or perhaps even the first semester) of undergraduate studies? If so, what would be the effect of failing these units? Would a student have to repeat and pass them before proceeding to a second year?

Option 2 in summary:

- *all students complete 24 points of common general foundational units during their first year of study;*
- *these units would meet “cultural competence” requirements, focus on generic skills, and/or showcase different disciplines and methods of inquiry;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University;*
- *all UWA Educational Principles to be demonstrably embedded in every course.*

4.3 OPTION 3: Distributed general requirements

An alternative way of implementing the principle of breadth that underpins Option 2 would be to permit the requisite non-core parts of a course to be studied at variable stages. Thus, Option 3 envisages that the bachelor degree would consist of a number of modules (groups or sequences of units) – most of them specified by the core requirements of the chosen major or majors, but some consisting of general components that would need to be taken at some stage (though not any particular stage) during the undergraduate course.

For present comparative purposes it is simplest to assume here that the credit points value of the general units required for Option 3 would amount to 24, as for Option 2. A significant difference is that Option 3, because its general components can be distributed more flexibly across the whole span of a course, need not be tied so tightly to a particular set of freshly devised common units. Instead, it could perhaps specify that some (e.g. to the value of up to 12 of the 24 points) of the requisite general units may be chosen from what is already available outside the discipline in which the student is enrolled. However, this choice (if available) would need to be constrained by a list of units that the University had approved as sufficiently general.

A course structure based on distributed requirements is often found in leading North American universities. At Stanford, for example, all undergraduate students must study specific broadening subjects at some stage during their degree course. These moveable modules include one year of a foreign language, certain writing requirements, two courses with a “citizenship” focus (e.g. ethical reasoning), and five courses that fulfil the rules for “disciplinary breadth” (at least one in engineering and applied sciences, humanities, mathematics, natural sciences and social sciences).

There could be certain advantages for UWA students in a modular structure that embodies this concept of distributed general requirements. Most notably it would allow a good deal of flexibility in arranging some of the necessary components within a common user-friendly framework that all students could readily understand.

The more commonality, in terms of value and content, we could achieve, the less confusing it would be for students to select the components of their degree.... A modular approach may help minimise transfers, allow easier course combinations and provide a better mix of general [and] professional.
– Wayne Betts, Manager, Admissions Centre

A contrary argument is that, if required content could be taken at any stage during the degree course, the putative benefits of a *foundational* set of units (Option 2) would be diminished. Variable placement of modules does not ensure that all students gain certain core learning experiences and academic skills at a sufficiently early stage to inform their subsequent studies. As noted earlier in this paper (section 2.2.2), many commencing UWA students, being among the world's youngest university entrants, would benefit from a first-year experience that provides a broad induction to different methods of inquiry while still allowing them to embark on a course in their chosen field. If strengthening this aspect of the University's learning environment (foreshadowed in section 3.5 above) is regarded as a fundamental consideration, it seems to point towards a structure based to some extent on a developmental sequence rather than on distributed requirements.

On the other hand, if the main aim is simply to give all students some exposure to more than one discipline before they graduate, there is no need to package the general units into a common semester. Instead, students could assemble the various requisite components at convenient times during their course of study.

However, it would be possible – and perhaps desirable – to combine Options 2 and 3, making certain units mandatory within the first year of study and allowing other requirements to be met later. Nevertheless the University would still need to devise a mechanism for determining the nature and extent of the required components, and some of the same practical questions would arise as those indicated in 4.2 above.

A further question in this case is whether in practice it would be necessary for the required units to be completed before the final year of study, to ensure that they did not interfere with any capstone or practicum structure that might be a culminating part of the chosen degree course.

Option 3 in summary:

- *all students complete 24 points of general units, but these need not be taken during the first year and need not all be tied to a particular set of common units;*
- *any such units that are not purpose-designed common units must be taken from outside the home discipline and from an approved list of general units;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University;*
- *all UWA Educational Principles to be demonstrably embedded in every course.*

4.4 OPTION 4: Breadth governed from within the home discipline

Some submissions express the view that educational breadth, while important, does not require a more generalist degree; that it can be achieved most appropriately within a discipline, or at least determined from within a discipline.

The School feels that it would be a disservice to professional degrees to imply that a generalist degree is required in order to address the University's Educational Principles and Generic Skills requirements. The School view of this is that each degree, individually, should address and meet these requirements.
– *School of Electrical, Electronic & Computer Engineering*

In keeping with that emphasis on the integrity of each degree course, some argue that a research-intensive university must ensure that breadth, while recognised as important, is not sought at the expense of depth:

A university in the top 50 seems to be a very research-intensive institution, in which the undergraduate program is unashamedly preparing its students for a career in research ... or innovation management. [This] does require a broadening of the base of knowledge (students preparing for a research career in electrical engineering now need biology and psychology as more and more systems move to emulating nature), but at the same time it needs students to have very strong fundamentals. – *Dr John Dell, School of Electrical, Electronic and Computer Engineering*

Accordingly, one suggestion is that any broadening units that students may be encouraged or required to take ought to be selected from areas of study that are relevant in some direct way to their own discipline:

It is important not to foist upon students a requirement to study what they may see as unrelated to their chosen course/field..... While breadth is important, it must be relevant breadth ... [i.e. incorporating] areas outside the core of their own discipline but focused to be relevant to the discipline. For example engineering students might study native title in relation to mining claims; arts students might study the

history of physics; medical students might study the history of disease and how it impacted on various historical events; and so on. – *Trudi McGlade, Acting University Secretary*

Such an approach might take either of two forms: the decision as to which units would satisfy the criterion of relevant breadth in a particular case could be left to the individual student, or made by the Faculty in which the student is enrolled. That is, it could be elective or stipulated. The former – individual tailoring of unit selections – may be problematic, as it is not immediately clear how this would be ratified and administered, and how various practical matters such as timetable complications would be handled. The latter – stipulation of acceptable units by the home Faculty – seems more manageable but would still not automatically guarantee that the approved units could provide the student with a genuine cross-disciplinary broadening of educational experiences. Therefore some kind of transparent reporting arrangement might be desirable to ensure that the element of curricular breadth was sufficiently strong and consistent.

Even with stringent reporting requirements of that kind, the principle of letting the home discipline – the Faculty in which the student is enrolled – govern the choice of “relevant breadth” in its own way would be unlikely to lead to any dramatic revision of what is already being done. To those who want any curriculum changes to be minimal, this is an attractive option.

The main practical question posed by this option is how to ensure that it would actually combine relevance with breadth in an educationally sound way. It would seem necessary to put in place a support arrangement at the Faculty level (e.g. through an Associate Dean) for giving advice and approval on the choice of units. Without this, some students could undertake units that had no relevance whatsoever to their home discipline, while others might take units that were technically outside their primary field of study but so closely related to its objects and/or methods of inquiry that they could hardly provide a genuinely broadening experience.

Another aspect of Option 4 that needs clarification is what it would mean for those enrolled in combined courses. For instance, which would be the “home” Faculty in this case, and by what arrangement could the intended balance between relevance and breadth be achieved?

Option 4 in summary:

- *all students to choose 24 points of “broadening” units from outside the core requirements of their course, but deemed relevant to it;*
- *each Faculty must advise its students to ensure that the intended combination of relevance and breadth is consistently achieved;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University;*
- *all UWA Educational Principles to be demonstrably embedded in every course.*

4.5 OPTION 5: Honours as the standard first-degree program

A more radical option for structural change is to make an Honours degree the standard UWA first-cycle (bachelor) program. This would provide ample room for all undergraduate students to undertake a sustained capstone project, practicum, and/or research thesis, resources permitting. It could also make a Study Abroad component more feasible for more students.

An Honours program normally comprises four years of full-time study. In some fields (e.g. Engineering, Agricultural Science), UWA already offers undergraduate degree programs that require four years rather than the normal three-year span. There are also a few five-year or six-year

degrees (e.g. Dentistry, Medicine), and many five-year combined courses that lead to dual degree qualifications (e.g. BA BSc or BEng BCom). Some individuals and schools at UWA, though certainly not all, regard combined degree courses as problematic for several reasons, indicated below, and argue that a four-year Honours degree is educationally preferable.

The option proposed here is that on completion of a program lasting four years (or presumably more in cases such as Dentistry or Medicine), all graduating students would be awarded their degree with Honours. There would be a distinctive designation (such as Honours with Distinction) for those achieving a level high enough to permit them to proceed to enrolment for a higher research degree.

Several points can be advanced in favour of this option:

- It allows plenty of scope to accommodate both breadth and depth. The extended length of the degree course would facilitate the inclusion, for example, of the more general first-year content envisaged in Option 2 as well as more specialised content thereafter.

The increasing importance of multidisciplinary knowledge, the increasing complexity of social and environmental problems, the increasing cultural complexity as well as the tendency for people to move among career areas, underline the importance of breadth of education. Additionally students often enter Uni with little knowledge of what comprises the various fields, and sometimes even of the fields that are available for study. We should encourage / demand that they sample broadly during their first year and then specialise to a greater extent in subsequent years. This may require a four-year degree, but that is the norm in North America and many of our students will be competing with students educated in North America. – *Dr Debra Judge, Teaching & Research Fellow, School of Anatomy & Human Biology*

- It provides a readily recognisable hallmark, giving the University ample scope to enhance its competitive position through a distinctive package of features. As a research apprenticeship at an excellent university, the Honours program would continue to attract those with postgraduate research aspirations:

The end-on Honours program, which is the capstone of a student's experience and a gateway to postgraduate research study, is not a feature of many educational models adopted by other countries, and must be preserved to maintain UWA's status. – *Faculty of Life & Physical Sciences*

Further, the prestige and distinctiveness of this Honours degree would appeal to students seeking a competitive advantage in the workplace:

Honours should not be conceptualised simply as preparation for a research degree – it needs to be seen as a valuable educational experience in itself, which allows students to take the knowledge they have gained over the course of a degree and use it in a research environment to extend the body of knowledge in their discipline. We must also recognise that some students undertake honours not because they wish to go on to a research degree but because of the added prestige and advantage in the marketplace of graduating with honours. – *Jacqueline Flowers, Administrative Officer, Faculty of Architecture, Landscape and Visual Arts*

- It provides, arguably, a better learning experience than combined courses, which are hardly able to offer a fully integrated and coherent program, and do not distinguish this University's curriculum from what is readily available elsewhere.

Combined courses prepare students for a professional career, and their popularity appears to be diverting high-achieving students from Honours and hence from postgraduate research.... The Faculty

of Life & Physical Sciences is concerned that the trend to combined courses is a long-term threat to UWA's status as an elite research university and so to its competitive edge in Western Australia.

Combined course offerings should be managed and made available only where a case is made for their suitability. The University should avoid promoting combined courses as necessarily leading to a better qualification for students, and should promote the benefits of the single degree with an end-on Honours year as in many cases a higher and more appropriate qualification. LPS is also concerned that combined course enrolments create inevitable timetable clashes, with consequences for the student experience. – *Faculty of Life & Physical Sciences*

- For those students who are attracted to the four-year Honours course rather than to the five-year combined course, there would be a saving on HECS debt, and for those who proceed to articulate it with a one-year Master degree it would also be attractively economical as a research package.
- It can facilitate a stronger teaching-research nexus and comfortably accommodate a capstone experience. (UWA claims that one of its distinguishing characteristics is the strong interrelationship between teaching and research. In reality, some aspects of the present course structures and associated funding arrangements make this difficult to achieve consistently.)

What is lost in the English/Bologna model is the 'capstone experience', which in the context of the BSc means the Honours year, where students undertake a substantial research project in their chosen area – something they can really make their own. This is simply not possible in the narrow confines of the three-year program. – *A/Prof. Michael J. Wise, School of Biomedical & Chemical Science*

- There is room for more thorough development of generic skills, integrated with advanced course content, than is possible in a three-year course.
- There is also room for a Study Abroad component that would give substance, within the student learning experience, to the University's intention to sharpen its international focus, particularly in relation to cross-cultural competence.

On the other hand, this kind of change to undergraduate course structures would pose a number of complex questions:

- Would it be possible to make the Honours degree genuinely standard across the whole institution, or would its hallmark status be only nominal? Unless it could be adapted to or incorporated into certain professional courses such as Medicine and Dentistry, exceptions would be necessary, weakening the distinctiveness of the UWA course structure.
- Should Option 5 permit the continuation of combined courses, which might well prove more popular than the hallmark Honours degree, and if so would students enrolled in combined courses be expected to undertake Honours in both courses?
- Could the merits of the present Honours system be preserved if all students were undertaking an Honours degree? A report from the Honours working party, commissioned as part of the Course Structures Review, expresses the view that some students are not academically capable of engaging with the demands of a true Honours course, and that the essential quality of the course – focused on an intensive, independent thesis-based or project-based experience – would be impaired if it became a mass undertaking.

- Would it be feasible to provide at a consistently high level the kind of supervision and facilities that an Honours course requires?
- Would the Honours program automatically articulate with a one-year master course in all Faculties?
- Is it a problem that this (mainly four-year) structure would be discrepant with the 3 + 2 sequence associated with (though not absolutely required by) the Bologna model? Some would argue that the latter, adopted to resolve inconsistencies among European universities, ought not to constrain our structures, especially as North American (and some Asian) universities are accustomed to a four-year undergraduate degree. Option 5 envisages the possibility of a 4 + 1 bachelor/master sequence that arguably produces an educational outcome just as strong as 3 + 2, or perhaps stronger. On the other hand not everyone regards the Honours degree as a model worth maintaining, let alone suitable for extending to all students:

I consider the Honours year an antiquated concept that does not provide the best educational outcome. The material addressed should form a master degree where the depth and level achieved is more valuable and can be provided to a more consistent standard between disciplines. – *Emeritus Prof. Murray Hill*

- To what extent would this structure raise equity issues and necessitate special equity provisions?

We would have concerns with approaches that lead to the adoption of longer degrees resulting in increasing student debt. – *Student Services*

- Would it require an institution-specific policy change in government funding arrangements, and if so how would that be managed?

We need the Commonwealth to come to the party for funding four-year (or more) degrees as a standard, not just one-off instances, like our Agriculture BSc's. – *A/Prof. Les Jennings, Head School Mathematics & Statistics*

- How likely is it that such a change would lead to a significant net loss of student numbers at a time when the University intends to increase them? Presumably some local students would enrol in three-year courses elsewhere rather than take on the extra time and cost of a UWA undergraduate degree, and it may not be possible to offset that loss by recruiting suitably qualified students from interstate or international sources.
- Would it be possible to arrange the Study Abroad component for all or even most students (if that were to be an integral part of this scheme) without imposing on the University substantial costs, administrative burdens and reputational risks? However, this question would also be applicable to the expansion of Study Abroad as part of any other option for structural change.
- Would it be possible to allow some students to exit from the course as graduates after three years, and if so under what circumstances, and with what award?

Option 5 in summary:

- *an Honours degree becomes the standard UWA undergraduate program – all students normally graduate with Honours;*
- *a distinctive designation (e.g. Honours with Distinction) given for a level of achievement high enough to qualify for enrolment in a higher research degree;*
- *ample room for common, general or broadening units as in Options 2, 3 or 4, along with a research capstone and/or practicum and/or Study Abroad;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University;*
- *all UWA Educational Principles to be demonstrably embedded in every course.*

4.6 OPTION 6: Several general undergraduate degrees with expanded provision of postgraduate degrees

Until quite recent years, Australian university students were preponderantly enrolled at the undergraduate level, and most postgraduate students in most fields were working towards research degrees. That picture has changed rapidly. By 2005 there were over 215,000 enrolments in Australian postgraduate courses, 68% of them being at the master level. From 2001 to 2005 the number of enrolments in coursework masters degrees more than doubled.

Those figures are drawn from the report of a working party on Postgraduate Coursework, commissioned as part of the present review process. Various factors are contributing to the burgeoning of enrolments, reflecting the range of contexts outlined in section 2 above.

The working party remarked that UWA has a much lower proportion of its students enrolled in postgraduate courses than is usual across the national scene. In 2005 the Australian figure was 22.4%, while at UWA it was 12.1%. In part this difference reflects the fact that UWA has a relatively large number enrolled in higher research degrees, but it also has a larger percentage of undergraduate students (75.8%) than the Australian average (72.5%). Postgraduate coursework enrolments at UWA have always been lower than at any other university in the Group of Eight, and its total of 10,151 for the years 2001-2005 was hardly more than one-sixth of the number at either the University of New South Wales or Monash University during that time. Within Western Australia over the same five-year period, UWA postgraduate students were much less numerous than those at Curtin (which had nearly three times as many) or Edith Cowan (nearly twice as many).

The strong market demand for postgraduate coursework qualifications is an international phenomenon. One important consequence of the rapid proliferation of courses at that level is a concern about the need for parity in such matters as admission requirements and duration of degrees. Master degrees have become notoriously variable in substance and scope, and the guideline provided in the Australian Qualifications Framework states only that “most” master degrees require the equivalent of two years of full-time study following a three-year bachelor degree or one year of study following an Honours degree or four-year (or longer) bachelor degree. The Bologna Process also attempts to harmonise at least the basic framework for European universities by specifying that a master degree should normally take two years of full-time study following a three-year undergraduate degree. (In practice the Bologna reforms seem to accommodate both three-year and four-year bachelor degrees, articulating respectively with two-year or one-year master degrees; and an Australian honours degree model can fit into this structure.)

There are some obvious potential benefits in a structure that allows the relationship between undergraduate and postgraduate degrees to be conceptualised as a first-cycle program of general education preceding a second-cycle program of professional education. Instead of over-packing the curriculum of a bachelor degree in response to the expansion of knowledge, universities can stream some of the more specialised content into master-level courses. The separation also facilitates transition from one field to another after the first-cycle qualification has been completed, so that – for example – someone with a general science degree may (under certain circumstances) proceed to a master degree in a different discipline instead of having to go back to an elementary level of study. Further, there is the prospect of enhanced international mobility for graduates whose degree qualifications comply with the Bologna approach. Instead of focusing prematurely on an area of vocational specialisation that seems to offer secure employment, they would be equipping themselves – so it is argued – with a broader knowledge base and more transferable skills as new job opportunities emerge in the global workplace.

University degrees modelled after the Bologna Process have the potential to educate students in the fundamental skill of transforming information into knowledge.... Graduates today are highly likely to end up in careers far removed from their higher education course of study. This makes the need for young people with solid skills in a range of areas and a high degree of flexibility particularly important for Australia's future. – *Australian Academy of Science 2007*

Views about the relevance of Bologna arrangements to the UWA situation are mixed. The articulation of a three-year undergraduate course into a two-year professional masters degree is already part of a curriculum restructuring process that is being embraced by one UWA Faculty:

Following the Bologna Process ..., the successful consolidation of ALVA's Architecture 3 + 2 degree structure ... provides a strong impetus for the Landscape Architecture degree program to follow suit... ALVA will have the opportunity to integrate the undergraduate and pre-professional Bachelor of Environmental Design degree program across both the architecture and landscape architecture disciplines. The educational, professional and economic benefits of this integration and collaboration could be substantial. – *Faculty of Architecture, Landscape & Visual Arts*

The School of Social Work and Social Policy has also expressed strong interest in the idea of moving its qualifying degree program to the graduate level, in line with Bologna principles. But some submissions expressed doubt that an approach of this kind is widely applicable.

Students feel that a Bologna-process compliant degree structure may be appropriate in a limited number of courses (e.g. Architecture), but that owing to uncertainty about the long-term significance of the Bologna Process, and a diversity of other models operating around the world, it is too early to commit UWA to a single internationally compatible educational model or course structure. – *Student Guild*

It is not clear to what extent the Bologna Model will move towards broad OECD acceptance. At this stage it is not widely accepted in the 'anglo-sphere', where North America dominates with about 75% of the population. If we consider that for the majority of UWA graduates most of their career prospects will be within that 'sphere', it would suggest that compatibility within that grouping is a higher priority. – *Adj. Prof. David Agostini, Chair, WA Energy Research Alliance*

Nevertheless, submissions from a number of UWA alumni argue that this University should embrace the main principle underlying the Bologna framework, and expand postgraduate coursework provision accordingly. For example, one graduate said that this is “the right direction” for UWA, as “it seems that the world now expects much more than a bachelor degree.” Another urged UWA to “adopt a common, undergraduate degree structure like Melbourne and other

world-class universities abroad, [and] reshape dual degrees to be primary degrees plus secondary major." A third remarked that "this sort of model accommodates not only the young university entrant, who needs to broaden his/her horizons of understanding before specialising (with a postgraduate degree) or participating in the community, but also a more mature student, who already has a BA or BSc or appropriate work experience but now wants to enter into a postgraduate professional course after some years in the workforce."

Some regard this sequential (3 + 2) structure, in which a general undergraduate education precedes postgraduate specialisation, as raising equity concerns because of the cost of protracted study. In contrast, several submissions to the present review attach substantial value to the same structure on equity grounds, arguing that it can help students to make more informed and mature decisions on a level footing when choosing their professional fields:

Considering the negative impact on secondary education of competition for undergraduate places in programs such as law and medicine, we can see a considerable community benefit from predominantly postgraduate entry to professional degrees. In particular, the social selectivity of the most competitive degrees may be reduced if these programs were to select students on the basis of undergraduate performance rather than secondary school performance. – *Faculty of Education*

Further, it has been suggested that a shift of emphasis from dual bachelor degrees to bachelor-plus-master degrees would not only lead to better international recognition of UWA qualifications but also allow the University to offer postgraduate courses on a more flexible basis, thus attracting increased enrolments:

Students emerging from our combined degree programs are extremely capable and highly sought-after by local companies... The one difficulty that these students have is that other countries do not necessarily recognize their combined bachelor degree qualifications as directly equivalent to a masters degree. Now that the Federal government is displaying more flexibility, I think it is time to move to a bachelor and masters degree structure for degrees at UWA. This would provide some flexibility to offer part-time and evening programs that would attract additional enrolment at masters level. – *Prof. James Trevelyan, School of Mechanical Engineering*

There is also a view in some quarters that a 3 + 2 structure could provide a better grounding for those who wish to proceed to doctoral research, because a two-year master degree, if it includes a small thesis along with advanced coursework, might prepare a student more thoroughly for the demands of a PhD program.

A different point that favours the concept of a general first degree preceding a professional degree is that this kind of sequence corresponds broadly to what is usual in universities overseas that are in strong demand from strong students – e.g. the North American Ivy League institutions, drawing on elite liberal arts colleges – and is therefore educationally appropriate for a university that aspires to the highest standards of international excellence. However, as this North American pattern includes a four-year undergraduate degree, it does not match exactly the particular 3 + 2 segmentation envisaged here.

There could be difficulties for certain Schools if UWA moved to a systematic separation of general undergraduate degrees from specialised postgraduate degrees. An objection raised to this kind of structure in some quarters is that the time available to absorb necessary knowledge would be unduly curtailed by the deferral of professional specialisation. For instance:

- The UWA School of Dentistry, while conceding that some reputable universities (e.g. Sydney) do have graduate degrees in Dentistry, believes that its own five-year

undergraduate curriculum is superior. On the other hand the submission from an Emeritus Professor in the Dentistry field contends that the five-year specialisation “not only generates professionals with limited broad knowledge, it hampers professional communication and certainly is an impediment for those who choose to move on to an academic career.”

- The UWA School of Psychology observes that its present course structures, which are shaped by legislative requirements and accreditation procedures, are “incompatible with the Bologna/Melbourne model.” The need to provide 2.75 years of training in psychology within a four-year course, followed by graduate study, has meant that under the new Bologna-compliant Melbourne system an Honours year must be completed between the three-year basic degree and the entry to master-level professional training.

A number of issues will need clarifying if this option is judged to be worth further consideration. One important matter is to determine whether Option 6 would still allow combined courses to be undertaken – presumably not, because this option implicitly regards a sequence of two different qualifications (one being at the postgraduate level, and more specialised) as educationally preferable to the simultaneous completion of two compressed first-cycle degrees.

Option 6 in summary:

- *a five year framework in which general bachelor degrees articulate into professional or specialist master degrees;*
- *expanded provision of postgraduate coursework programs;*
- *no combined undergraduate courses to be offered, as the masters degree becomes the means of acquiring a second qualification within the same timeframe;*
- *common, general or broadening units as in Options 2, 3 or 4 could be incorporated into the undergraduate degrees;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University;*
- *all UWA Educational Principles to be demonstrably embedded in every course.*

4.7 OPTION 7: One comprehensive undergraduate degree (or two), plus a variant for especially high achievers, with expanded provision of postgraduate degrees

Proponents of this scheme contend that it could capture the spirit of Option 6 (expansion of postgraduate courses following a more general first-cycle education, within a structure broadly compatible with what is emerging from the Bologna Process), but that in addition it would arguably deliver several salient advantages:

- it would be simpler for prospective students to understand than the present system, and easier for university staff to administer;
- it would be highly distinctive in the educational marketplace;
- it would build on UWA's traditional strengths in linking research with teaching;
- it would replace the problematic combined degree arrangement, but would offer the most talented students a more prestigious program instead.

The proposal envisages that UWA would provide only two bachelor degrees: a Bachelor of Arts & Sciences (in which every student takes an Arts major or a Science major but through electives gains exposure to both cultures) and a Bachelor of Philosophy (which is a variant of the BA&Sc that requires a high TER for entrance and includes a research unit, but is otherwise available in all disciplines). In each case a strong engagement with research would be a hallmark of the degree. A variant of this option proposes three bachelor degrees: the BA, the BSc, and the BPhil. This variant has a very similar structure, but facilitates specialisation where desired.

In the simplest form of this option, every student would enrol in either a BA&Sc or a BPhil. The various disciplines would offer majors that satisfy the defining characteristics of either an Arts or Science program (or both). Entry into the BA&Sc would be set at a TER of 80 or above, whilst the BPhil would be marketed as a degree for outstanding students, with a much higher cut-off (e.g. 98), a more intensive research focus, and a Study Abroad component. Both bachelor degrees would require a major in a specified discipline, defined by two Level 1 units, three Level 2 units, and four Level 3 units including a research capstone unit or a professional practicum unit. The School responsible for the discipline-based major would specify its content. Depending on specific discipline requirements and assumed knowledge, students should be able to take two majors.

The idea of offering only one undergraduate degree (apart from the BPhil), under a joint Arts and Sciences flag, will not appeal to everyone. One argument against it is that, no matter what its actual content, it would be perceived by many as embodying a diluted curriculum. Although the Bachelor of Arts and Sciences is a respectable degree course at reputable universities overseas, such as Stanford, it might still struggle for acceptance in the Australian undergraduate educational marketplace. Macquarie University in its early years offered a single award – the BA – covering a variety of disciplines, but soon abandoned that practice because the designation was widely misunderstood by prospective students and employers as well as by other educational institutions.

Therefore this option may be more broadly acceptable in an alternative form, a less radical one, in which every UWA undergraduate (unless enrolled for a BPhil) would be working towards either a BA or a BSc. The general structural requirements would be the same in each case – a major in a specified discipline, defined by two Level 1 units, three Level 2 units, and four Level 3 units including a research capstone unit or a professional practicum unit.

Whichever of the two variant forms may be preferred, Option 7 also proposes the incorporation of a common semester or distributed equivalent, much like the arrangements described in Option 2 or Option 3: all students would take units to the value of 24 points from a set of general units, specifically designed to support broad educational principles and to be integrative across the sciences and the humanities. (This would correspond approximately to the core curriculum requirement at universities such as Harvard.) Within the Option 7 structure there may be an advantage in distributing these general units flexibly throughout the course as in Option 3 rather than confining them to an early stage of it as in Option 2. For if students did not need to undertake all four general units in a single semester, or even in a single year, but were simply required to complete them in order to graduate, the flexibility of sequencing would conveniently accommodate particular arrangements that may be stipulated for certain majors.

It is envisaged that these generalist units might fall into four themes, though the degree structure that Option 7 proposes need not be tied to the particular suggestions indicated here:

- Units that address big issues of interdisciplinary scope (e.g. environmental sustainability or population health) and involve both scientific and cultural perspectives;

- Units that address cultural competence, such as a language other than English;
- Units that address argumentation, logic, analysis, synthesis, advanced written communication skills, research skills and ethics;
- Units that address data literacy.

As mentioned above, Option 7 also envisages that a strong engagement with research would be a hallmark of the degree. To embed research as an integral part of the undergraduate learning experience it would be necessary for each discipline to teach and assess in a way that imparts knowledge of the practices, rituals and culture of the discipline. As noted in section 3.3 above, research can engage students in several ways and develop several abilities. The most fundamental can be described in these terms:

- The development of research skills that allow lifelong access to new knowledge in the discipline;
- The development of a sense of the history and philosophy of the discipline, and a capacity to sustain the discipline through communication of its ideas and practices;
- The development of skills that use the discipline's knowledge and methods to solve problems and provide new understandings.

Each of these skills would be developed primarily through the major discipline of study within the three-year degree. At UWA, a number of disciplines already do this well; for example, Psychology and Anthropology appear to address the acquisition of research skills explicitly in their undergraduate courses. From Level 1, students are required to read research papers, undertake the practice of conducting experiments and interpreting results, and report their findings in the format specified by the discipline.

The method of restructuring courses proposed in Option 7 would raise many practical questions – among them, the following:

- What administrative vehicle would be necessary to put all of this into effect? (It may be desirable to have a Board of Undergraduate Studies or a College of Arts & Sciences to administer the undergraduate degrees, and a number of Faculties for the professional masters programs.)
- How would the role of Faculties change? (Presumably they would develop and manage postgraduate courses more freely than at present.)
- In the process of transition to this form of the 3 + 2 model, how would UWA manage the consequences of there being one year when it would not graduate any Engineering graduates? (It may be necessary to run some programs in parallel for a few years to ensure a smooth output of graduates.) This is not the only option that would require careful transitional arrangements.
- Would this proposal be acceptable to the market? (There would probably be some impact on student preferences, e.g. in the case of students who at present choose the double degree structure for breadth, rather than as a generalist-plus-professional combination.)
- Could the professional faculties, even if convinced that the change was desirable, satisfy the relevant external associations (especially those with formal accrediting powers)?
- How would the general units be developed, approved and taught? (This question arises with some of the other options as well.)
- Should all terminating undergraduate degree programs include an Honours opportunity?

Option 7 in summary:

- *either two undergraduate degrees (BA&Sc and BPhil) or three (BA, BSc and BPhil), accommodating majors in any discipline;*
- *no combined undergraduate courses to be offered, as the masters degree becomes the means of acquiring a second qualification within the same timeframe;*
- *the BPhil is a degree for outstanding students available in any discipline, with a high entry cut-off, an especially intensive research focus and a Study Abroad opportunity;*
- *all majors emphasise inquiry-based learning through appropriate engagement with the research culture of the discipline;*
- *expanded provision of postgraduate degrees as the main vehicle for professional qualifications;*
- *the bachelor degrees (comprising three years of full-time study) articulate into higher research degrees through either Honours or masters programs;*
- *educational breadth provided through incorporation of common or general units to the value of 24 points, as for Option 2 or Option 3;*
- *course administration and nomenclature to be made simpler and more consistent (within the context of this option) across the University;*
- *all UWA Educational Principles to be demonstrably embedded in every course.*

5 Implications

This section provides an outline of some of the general implications of changes canvassed in 4 above. It does not provide an exhaustive analysis that anticipates every consequence of every scenario.

5.1 Recruitment, communication and marketing

Even if it makes only slight changes to its course structures, UWA will still need to consider modifying to some extent its student recruitment priorities and associated communication strategies in view of the demographic trends and the equity and access issues identified in section 2.1.1, particularly with regard to mature students.

If it decides on a concerted effort to expand its postgraduate coursework programs, the University will have to implement systematically many of the specific recruitment-related recommendations of the working party report on that topic. (Though generated by the Course Structures Review, this report is already being separately considered through the Academic Board consultation process because it covers a range of important matters that are not entirely dependent on structural reform.) Among other things, a centrally coordinated communication strategy should provide a supportive framework for individual Faculty marketing efforts.

Whichever of the change options explored in section 4 above is eventually chosen, various consequences will flow for recruitment of undergraduate students.

- Careful market research is plainly necessary before and after any final decision is taken, and the results of this research will be fed into a marketing strategy.
- It should be possible to sum up in a simple phrase or two the most distinctive and impressive aspects of the kind of education that UWA intends to provide (e.g. “breadth with depth” and/or “inquiry-based learning”).
- Nevertheless, as most universities strive (or claim to strive) for high standards of academic performance and try to incorporate these into their own hallmark, UWA will need to go beyond slogans in order to specify cogently the precise basis for its comparative advantage in offering a genuinely outstanding educational experience to prospective students.
- Any changes in the structure of courses ought to be integrated into a distinguishing strategy that moves beyond discrete initiatives, reflecting a strong sense of institutional purpose and identity.

Any concerns and misapprehensions likely to arise from the particular change being introduced must be anticipated and disarmed, whether they relate to financial issues, entry criteria, workload requirements, quality assurance, the recognition value of a new credential among employers and professional bodies, or any other matter. The matters noted below (5.2, 5.3, 5.4) are among those that the University will need to address. The particular importance of each will vary according to the preferred option.

Some of the options would have implications for prerequisites and/or entry cut-off scores, and these would need to be clearly explained through the Tertiary Institutions Service Centre (TISC) system and communicated to secondary schools. For instance if the proposed B.Phil is introduced as an undergraduate program for high achievers and combined courses are no longer available, the University cannot afford to underestimate the task of providing persuasive explanatory details as part of a carefully planned marketing strategy.

As some options (e.g. lengthening the standard undergraduate degree) could have an adverse impact on the recruitment of international students, extensive market research in the University's main source countries will be vital before final decisions are taken.

The University sets a high value on the strength of its relationships with a wide range of stakeholders, including professional associations, alumni, Commonwealth and State Governments (through members of parliament, departments and agencies), industry partners and employer groups. It is vital that the significance of any course structure changes be communicated to all such stakeholders in a timely manner, and that any concerns are addressed. In some cases, the most appropriate channel for this process will be Faculty/School advisory boards. In other cases, where professional accreditation is involved, it will be necessary to negotiate formal approval of proposed changes.

5.2 Financial impact

Research on the impact of different scenarios on study costs will be commissioned before any recommendations for change are presented to the University. Close consultation with the Student Guild and Postgraduate Students Association is required.

UWA Planning Services and Financial Services will need to prepare reports on the financial consequences for the University of choosing particular options, focusing on matters that affect the basic budget model in relation to administrative responsibility for units/courses, but also including scholarships and international student income.

As already noted, if the Study Abroad scheme is to be enlarged and incorporated more systematically into the structure of UWA undergraduate programs, the University will need to provide enough financial support to make travel overseas an attractive opportunity for a significantly increased number of students. In the case of Option 7, for example, even just to guarantee that every BPhil student would receive a Study Abroad scholarship, substantial resources would be required.

Lengthening the standard UWA undergraduate degree (as proposed in Option 5, for example) would also necessitate the funding of an extensive scholarship program to make it feasible for many prospective students to spend the extra time gaining their degrees. Again, this is a particular priority for some disadvantaged groups:

If UWA adopts a course structure that will extend the duration of degrees, then prior to implementing any changes the University needs to give very serious consideration to equity issues and lock in a much broader and better funded range of scholarships, especially for Indigenous students. – *School of Indigenous Studies*

Any new budget model would obviously have to include specific arrangements for any new curriculum structures (e.g. the resourcing of common units, if these are part of the chosen option).

If the University wishes to foster new programs of a type that Schools do not presently find it expedient to develop, then gearing up budgetary drivers could increase the incentives. – *School of Psychology*

It would not be possible for the University to adopt any radically new degree structures – e.g. as envisaged in options 5, 6 or 7 – unless appropriate funding could be guaranteed through prior negotiation with the Commonwealth Government. The Government has invited universities to consider how they wish to offer courses reflecting their diverse and distinctive missions, and to seek Government support accordingly.

5.3 Policy issues

No significant changes to course structures can be contemplated without concomitant policy changes, external and/or internal. Pursuing some options outlined in section 4 would mean engaging with government regulations and funding criteria, while pursuing any of the options would mean modifying some of the University's own policies.

The impact of any course structure initiatives that this University may envisage could well be complicated by national changes in the higher education policy environment. For example, as indicated in section 2.1.6 above, if the Commonwealth Government were to accept the Group of Eight idea of awarding transferable national scholarships to individual students, the likely impact of that scheme on local enrolments would need to be gauged carefully in relation to any UWA course structure changes.

Whatever changes the University decides to implement, there will be consequential adjustments to its own policies and procedures. Depending on the preferred option, these may extend from course approval mechanisms to regulations for scholarships and prizes. The relevant University committees will need to be engaged in the process of identifying all necessary policy developments.

By their very nature, some of the structural options presented in section 4 above are intended to make the University's course offerings more equitable and accessible. For instance one aim of Options 6 and 7, which postpone professional specialisation until the postgraduate level, is to lessen the social selectivity of the most competitive degree courses by choosing students on the basis of undergraduate performance rather than secondary school performance. On the other hand, the University may need to introduce special measures (e.g. bridging courses) to ensure that it draws its undergraduate students from a broader span of socio-economic backgrounds; and it may also need to provide a much larger number of scholarships, especially if it introduces changes that lengthen the time required to complete degree courses. Further, any increased participation in Study Abroad arrangements will need to be accompanied by increased scholarship provision.

As noted in 3.5, one way of giving substance to the declared principle of enriching the learning environment at UWA may be to offer an expanded induction program through which incoming students can receive advice and support that helps integrate them into the academic community. If introduced, this could be of special benefit to those who merit support on equity grounds.

Similarly, if any of the options canvassed in section 4 is likely to accentuate access difficulties for some social groups, there may be a need to expand what is currently provided through bridging courses. One possibility would be to manage this through a partnership arrangement, e.g. via a UWA Preparatory College.

5.4 Staff matters

As noted in section 2.2.4 above, any course structure changes should be managed in such a way that they can ultimately alleviate administrative pressures on academic staff, and should also be accompanied during the transitional period by adequate resources for professional development.

In addition to their core responsibilities as teachers and researchers, academic staff members are commonly being expected to cope with increasingly complex administrative matters, including the various tasks posed by intricate course structures. If those structures are going to be modified, the changes should lighten workloads rather than compound them.

Transition to new teaching arrangements – especially if these involve far-reaching structural change – will create a need for professional development so that staff are well equipped and supported to engage confidently in course design of an innovative kind, to advise students appropriately, and to achieve the planned outcomes.

5.5 Responses to this paper

All members of the UWA community, and all others who have a stake in the quality of the education that this institution provides, are warmly invited to assist in evaluating the educational merits of the options put forward in this paper and identifying their practical implications.

The University's eventual decision on which option to adopt will be guided not only by the principles set out in section 3 and the ongoing research conducted by the CSR Steering Group but also by the advice and information received through meetings and submissions during the months ahead, as explained in section 1.

Responses to this paper are invited until 31 January 2008, and can be submitted by email to coursereview@uwa.edu.au or by post to:

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