Developing Lifelong Learners through Undergraduate Education

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August 1994
Foreword

This report was commissioned by the Higher Education Council in June 1993 in order to identify and describe 'the characteristics of undergraduate education which enable and encourage graduates to participate in formal and informal learning throughout their lives.' The project was supported by a Steering Committee composed of representatives of the Higher Education Council, the Australian Vice-Chancellors’ Committee, and the Department of Employment, Education and Training. The purpose of the study outlined in the Project Brief was 'to identify whether and in what ways, the content, structure, teaching modes and assessment procedures of undergraduate degrees and the activities of student support services are designed to lead to the formation of attributes which both enable and encourage graduates to become lifelong learners.'

In the course of conducting the study and preparing the final report we were fortunate to have been able to draw on the expertise and experience of a number of people. The members of the Steering Committee were particularly helpful in giving advice, making suggestions and supporting our endeavours to meet deadlines. We would like to acknowledge, with gratitude, the help of Meredith Doig of the Higher Education Council (Chair of the Steering Committee), Ian Chubb of the Higher Education Council, Peter Boyce of Murdoch University, Phil Meade of Griffith University and Mike Gallagher of the Department of Employment, Education and Training.

In addition, we greatly valued the contributions of the members of a reference group which met in Brisbane to explore some of the implications of the study. I would like to thank Bob Cannon (formerly of The University of Adelaide and recently of the University of Indonesia), Peter Freebody (Griffith University), Colin Lankshear (Queensland University of Technology), Ian Lowe (Griffith University) and Leigh Tabrett (Queensland Office of Higher Education) for their assistance. On the subject of the Office of Higher Education, I would like to especially acknowledge the kindness of Leigh Tabrett and her colleagues for providing me with a quiet and supportive working environment, where the body of this report was actually written.

The course coordinators, staff, students and graduates who took part in the interview program on which the bulk of this study was based played a major role. We acknowledge with appreciation their willingness to give up their valuable time, often at inconvenient hours, so that we could explore various aspects of their courses with the benefit of their first hand experience.

We received many formal submissions to the study in response to advertisements in the media. These submissions provided us with valuable insights into the views of practising professionals and professional associations, academics, and librarians and we have tried to ensure that their opinions are adequately represented in the body of the report. We would also like to thank all those who responded with suggestions and constructive criticism to the discussion paper which was circulated to all Vice-Chancellors in Australian universities in the early part of 1994.
On the 'home front' the project team and I would like to express our thanks to the members of the Academic Staff Development Unit at Queensland University of Technology. I personally would like to acknowledge the invaluable support of Jill Borthwick, who, by taking over as Acting Director for several months, made it possible for me to concentrate on preparing the project report. We are also particularly indebted to Lynne Bryan, Robyn Daniel and Joanne Semple for their professionalism and attention to detail, and especially for their willingness to work under pressure which allowed us to meet various project deadlines.

In committing this project to our colleagues across the Australian higher education system, I would like to echo the words of Rev Dr John Woolley, foundation Principal and Professor of Logic and Classics in his oration at the inauguration of the University of Sydney.

Our undergraduates...will, we may reasonably hope, possess a well-cultivated and vigorous understanding; they will have formed the habit of thinking at once with modesty and independence; they will not be in danger of mistaking one branch of science for the whole circle of knowledge, nor of unduly exaggerating the importance of those studies which they select as their own. Above all, they will have attained the truest and most useful result of human knowledge, the consciousness and confession of their comparative ignorance. (Woolley, 1862, p. 21)

Philip C Candy
Queensland University of Technology
June 1994
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Executive Summary

This report is the outcome of a study commissioned by the Higher Education Council. The purpose of the study was ‘to identify whether and in what ways the content, structure, teaching modes and assessment procedures of undergraduate degrees, and the activities of student support services, are designed to lead to the formation of attributes which both enable and encourage graduates to become lifelong learners’ (HEC Project Brief, 1993, p. 2).

Lifelong learning is considered to be a very broad and comprehensive idea. It includes all formal, nonformal and informal learning—whether intentional or unanticipated—which occurs at any time across the lifespan. The focus of this study was on the extent to which, and the ways in which, undergraduate education can assist graduates to enhance their skills of and attitudes towards lifelong learning, with the particular intention of allowing them to take conscious control of their learning after graduation.

The study was undertaken by members of the Academic Staff Development Unit at the Queensland University of Technology, principally between July 1993 and February 1994. The study comprised a number of components including an extensive review of both Australian and international literature; a public call for submissions; direct approaches to senior personnel in universities, employers and professional associations; analysis of course documentation and institutional publications; and interviews with 160 staff, students and graduates of programs spread across different disciplines and different parts of Australia.

As a working definition of lifelong education, the study accepted the five criteria articulated by Unesco. Ideally a system of education should:

- last the whole life of each individual;
- lead to the systematic acquisition, renewal, upgrading and completion of knowledge, skills, and attitudes made necessary by the constantly changing conditions in which people now live;
- have as its ultimate goal promotion of the self-fulfilment of each individual;
- be dependent for its successful implementation on people’s increasing ability and motivation to engage in self-directed learning activities; and
- acknowledge the contribution of all available educational influences, including formal, nonformal and informal (Cropley, 1979, p. 3).

It was acknowledged that the concept of lifelong education has appeared repeatedly in government and other reports and discussion papers since at least the early 1970s. Sometimes it is based on instrumental values such as the need to maintain professional currency and to have an internationally competitive workforce; sometimes on more liberal and humane considerations such as the enrichment of society and the fulfilment of individual citizens. This study took these two major orientations as equally legitimate and based its findings and recommendations on both economic/technical and
social/cultural rationales for continuing learning throughout life. It was however noted that the promotion of lifelong learning is not mentioned as a principal aim of the Australian higher education system in the document *Higher Education: Achieving Quality*.

The following findings emerged from the study:

- undergraduate education forms a potentially vital link in the lifelong learning experiences for each individual;

- when students graduate, they confront a diverse range of formal, nonformal and informal post-graduation learning opportunities, and the development of a capacity for lifelong learning should form the core of all undergraduate programs in every discipline; however, relatively few Australian undergraduate degrees are designed with this in view;

- access to, and critical use of information and of information technology is absolutely vital to lifelong learning, and accordingly no graduate—indeed no person—can be judged educated unless he or she is ‘information literate’ and, to an extent, computer literate as well;

- many of the curricular, instructional and assessment practices currently in use in Australian universities actively militate against the development of lifelong learning attributes in graduates;

- courses which enhance lifelong learning have five basic characteristics: (1) they provide a systematic introduction to the field of study; (2) they offer a comparative or contextual framework for viewing the field of study; (3) they seek to broaden the student and provide generic skills; (4) they offer some freedom of choice and flexibility in structure; and (5) they provide for the incremental development of self-directed learning;

- teaching methods that encourage graduates to become lifelong learners have the following characteristics: (1) they make use of peer-assisted and self-directed learning; (2) they include experiential and real-world learning; (3) they make use of resource-based and problem-based teaching; (4) they encourage the development of reflective practice and critical self-awareness; and (5) as appropriate, they make use of open learning and alternative delivery mechanisms;

- assessment of student learning needs to evaluate ‘what’ rather than ‘how much’ has been learned; it should be viewed as an opportunity to ‘teach’ as well as to ‘test’; and it should increasingly depend on peer- and self-assessment such as that encountered in real-world settings;

- the enhancement and facilitation of learning should be viewed as the central purpose of the university, and accordingly student support services such as libraries, learning centres and study skills units, and computer-based education facilities should be regarded as full partners in the education process;

- whether or not students choose to value the development of learning skills is a personal choice, which cannot be mandated, although it can be influenced through the combined efforts of climate and modelling by academic staff;
• the most vital determinant of whether or not graduates choose to become lifelong learners is the climate of intellectual inquiry in the institution, and the single most important factor influencing this climate is whether or not the academic staff members themselves manifest a lively curiosity, a passion for their subject and a predisposition towards being continuing lifelong learners themselves;

• there must be congruence between institutional rhetoric and the reality, and this applies not only to students’ experiences, but also to the valuing and rewarding of academic staff for their attempts to emphasise and develop lifelong learning competence; and

in the final analysis lifelong education must be a partnership between government, universities, schools and other education providers, employers, the professions, and the community at large. Only when there is this level of commitment and shared responsibility will ‘the enabling characteristics of undergraduate education’ be seen as contributing fully towards the realisation of the ‘learning society.’

In light of the above findings, an institution committed to the development of lifelong learning skills and attitudes in its graduates would be expected to:

• have an explicit policy on developing lifelong learners, including aims, strategies and resourcing;

• nominate the development of lifelong learning skills and attitudes as one of the core objectives of all undergraduate courses, clearly articulated in course aims and objectives;

• provide improved access to mature-aged and ‘non-traditional’ students wishing to begin or resume university studies;

• have in place unambiguous guidelines concerning the recognition of both formal and informal prior learning;

• provide academic staff development to enhance those aspects of curriculum design, review, teaching and assessment which develop the qualities of the lifelong learner;

• establish systems of recognition and reward for teaching practices that develop lifelong learners;

• make use of systems of course development, delivery and assessment that regularly evaluate against the profile of the lifelong learner and the principles for content and structure of undergraduate education, as described in this report;

• include systems of course accreditation and review which specifically include evaluation of the course’s contribution to the development of lifelong learning skills and attitudes;

• demonstrate specific support for learning-to-learn and information literacy programs; and

• where appropriate, introduce students to alternative learning strategies and teaching technologies which encourage self-managed learning.
Key Recommendations

The report includes a number of supporting recommendations directed variously at the higher education system as a whole; at institutions of higher education; at courses and programs of study; and at individual members of academic staff. These recommendations appear throughout the text and are summarised at the end of each chapter.

In particular, in order to promote the development of lifelong learning skills and attitudes as central to undergraduate education, it is recommended that:

1. The Goals of the Australian Higher Education System, as articulated in the Higher Education Council’s *Achieving Quality*, be amended to include reference to the promotion of lifelong learning.

2. The Higher Education Council sponsor, by means of discussion papers, conferences and consultative meetings, a national debate among the academic community, government policy makers, professional organisations and employer organisations on the purposes, objectives, content and structure of undergraduate education, and its relationship to education provided by other post-secondary institutions.

3. Lifelong learning skills and attitudes form part of the core of all undergraduate courses, clearly articulated in course aims and objectives.

4. Each university be encouraged to develop an explicit policy on developing lifelong learners, including aims, strategies and resourcing.

5. Each university be encouraged to monitor and evaluate on a regular basis how its policies and practices contribute to the development of lifelong learners.
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<td>ACER</td>
<td>Australian Council for Educational Research</td>
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<td>AVCC</td>
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<td>DPIE</td>
<td>Department of Primary Industries and Energy</td>
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<td>EPAC</td>
<td>Economic Planning Advisory Committee</td>
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<td>HEC</td>
<td>Higher Education Council</td>
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<td>HERDSA</td>
<td>Higher Education Research and Development Society of Australasia</td>
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<td>RACP</td>
<td>Royal Australasian College of Physicians</td>
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<td>RSA</td>
<td>Royal Society for the Encouragement of Arts, Manufactures and Commerce</td>
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<td>TAFE</td>
<td>Technical and Further Education</td>
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Part One

Overview of the Report

In undertaking this study, we became increasingly aware that levels of knowledge about lifelong learning, and attitudes towards its relationship with undergraduate education, were very varied across the higher education system. Moreover, to launch straight into an account of practices within a small selection of programs without any scene-setting would have left readers without any context as to what is happening more broadly in Australian higher education.

Accordingly, this report is divided into four principal parts. Part one, comprising chapters one to five not only explains the background to this study, but also examines the pressures for learning after graduation, the contexts and settings within which graduates may have to continue their learning, the ways in which a concern for lifelong learning could be built into undergraduate programs, and a very brief review of what universities have been doing in general with respect to promoting skills of lifelong learning for their graduates. Since we were not requested to survey all aspects of the institutional or system-wide commitment to this concept, we have not attempted to develop a comprehensive picture of how universities actually seek to contribute to lifelong learning in the community. Instead our study was limited to the development of graduates as lifelong learners.

Part two, comprising chapters six to nine, examines what universities could be doing to enhance the lifelong learning skills and attitudes of their graduates. It draws heavily on the interviews and submissions for the study and seeks to indicate practical directions and initiatives that are open to Australian universities. This part of the report includes a range of recommendations for consideration by organisations and individuals with an interest in the Unified National System of Higher Education.

Part three comprises the course profiles from courses which we targeted during this study. The following courses are highlighted: BArts (Visual Arts), Edith Cowan University; BScience (Physiology), The University of Adelaide; BVeterinary Medicine and Surgery, Murdoch University; BComputing, The University of Tasmania; BCommunication Engineering, Royal Melbourne Institute of Technology; BApplied Science in Information Studies, The University of Technology, Sydney; BAdult Education, The University of Technology, Sydney; BMedicine, The University of Newcastle; BApplied Science (Systems Agriculture), The University of Western Sydney, Hawkesbury; and BBusiness (Management), the Victoria University of Technology. The profiles are written in such a way that they highlight various facets of the 'profile of the lifelong learner' that appears in chapter three.

Part four consists of the Appendices to the report. It includes a range of supporting material including the Carnegie Foundation's 'Catalog of goals of higher education,' details of the research design, and the Higher Education Research and Development Society of Australasia's publication 'Challenging conceptions of teaching: Some prompts for good practice.'
Introduction and Background

Introduction

Universities...are at a hinge of history: while connected with their past, they are swinging in another direction.... Although it is one of our oldest social institutions, the university today finds itself in a quite novel position in society. It faces its new role with few precedents to fall back on, with little but platitudes to mask the nakedness of the change. Instead of platitudes and nostalgic glances backward to what it once was, the university needs a rigorous look at the reality of the world it occupies today....

The university is being called upon to produce knowledge as never before—for civic and regional purposes, for national purposes, ...and it is also being called upon to transmit knowledge to an unprecedented proportion of the population. (Kerr, 1963, pp. v-vi)

These words, which so eloquently capture the dilemma of Australia’s higher education system, were in fact penned more than thirty years ago by Clark Kerr, in his slim classic The Uses of the University. They describe the situation which confronted American universities in the early 1960s, yet their contemporary relevance emphasises the fact that Australian higher education now is undergoing the sort of transformation and soul-searching that American higher education did three decades ago.

In February 1992, The Australian National University and the University of Canberra, in cooperation with the Higher Education Council of the National Board of Employment, Education and Training, organised a major national conference on the implications of a shift from elite to mass participation in higher education. Fifteen months later, in June 1993, the Department of Employment, Education and Training was involved in a similar conference, this time jointly sponsored with the OECD and having an international focus (International Conference on the Transition from Elite to Mass Higher Education, Sydney, June 15–18, 1993). Together these two events highlighted the fact that Australian higher education has recently undergone a major—though by no means unique—reorientation in its educational systems and structures.

While other OECD countries either have experienced or are undergoing a comparable transition, in Australia the situation is complicated by certain other changes which have accompanied or coincided with the move to a mass system of higher education. These include: the abolition of the binary divide between universities and the former advanced education system; turbulence and dislocation caused by institutional mergers and amalgamations; ‘a change in the relationship between institutions and funding authorities as higher levels of expenditure lead to demands for greater accountability and intrusion into institutional policies and practices’ (Schedvin, 1992, p. 1); heightened or renewed emphasis on the role of the university in producing graduates for the workforce; and ‘changes in the governance of institutions themselves with
power and authority passing from the professoriate in two directions: to the academic community more generally and to a small group of professional managers' (Schedvin, 1992, p. 1).

Together, these various factors have conspired to catapult Australia's higher education institutions—and the people working in them—rapidly and unceremoniously into an era of mass participation for which few were adequately prepared. This rapid and extensive transformation of Australia's higher education system has also provided the stimulus for a reappraisal of what we, as a society, expect from our higher education institutions.

Unlike other comparable countries, Australia does not have an established tradition of public discussion and debate about higher education issues. In the United States, for instance, the move to a mass system of higher education occurred between 25 and 30 years ago, and was both preceded and accompanied by extensive public debate and discussion about the social purposes of higher education and about the structure and content of the undergraduate curriculum in particular. Playing a central role in this process was the Carnegie Foundation for the Advancement of Teaching and the Carnegie Council on Policy Studies in Higher Education. Between them, they undertook arguably the most extensive study of higher education ever undertaken anywhere, and produced more than 100 reports, surveys, discussion papers, commissioned studies and technical reports. Among these was *A Catalog of Goals of Higher Education* which is reproduced at Appendix A.

In Britain there is a similar corpus of published literature about higher education, although as in Australia, Government reports have been influential in shaping the debate. In recent years, the Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA), originally founded in 1754, has launched a major national project to promote discussion about the 'Learning Society,' with significant implications for universities and other providers of post-compulsory education and training.

While Australia is far from devoid of its own indigenous literature on higher education (see, e.g. Pickford *et al.*, 1993), the fact remains that, with the exception of a seminar organised in 1990 by the Western Australian Office of Higher Education (1990) the transformation of Australia's higher education system has been marked more by debates about systems and structures than about functions and purposes (Aulich, 1990, p. 1).

To some extent this bias has been redressed by the recent 'quality debate,' culminating in the publication of the Higher Education Council's report *Achieving Quality*. That report, and its various predecessors, has provided a focus for critical debate both inside and outside universities about what we mean by 'quality' in education, how it might be recognised and enhanced, and what can be done to assure it. One of the many issues raised in *Achieving Quality* is the need for undergraduate programs to prepare graduates to go on learning after they have left university:
....if higher education is to enable graduates to operate effectively in a range of activities over a period of time, a life-time in effect, and not just immediately after the studies are completed, then it must develop the characteristics that support learning throughout life. (HEC, 1992, p. 20)

Although this is a particularly cogent statement about this specific aspect of the undergraduate curriculum, a concern with lifelong learning has not materialised out of thin air. In fact there has been considerable ‘talking up’ of the need to place lifelong learning at the core of undergraduate education in a number of government reports and policy statements. A resume of the major precursors of this particular study appears in chapter two of the report.

The research project and research team

In April 1993, the Higher Education Council invited submissions to conduct a study to examine the ‘enabling characteristics of undergraduate education.’ In particular, as outlined in the Project Brief:

The purpose of this study [was] to identify whether and in what ways the content, structure, teaching modes and assessment procedures of undergraduate degrees and the activities of student support services are designed to lead to the formation of attributes which both enable and encourage graduates to become lifelong learners. (HEC, 1993, p. 2)

The Academic Staff Development Unit at the Queensland University of Technology submitted a tender and was commissioned in July 1993 to undertake the project. As outlined in the tender document, the purposes of the project were:

(i) to define the concept of lifelong learning and to enumerate the qualities and attributes of people capable of such learning;

(ii) to identify, from a study of the literature, those characteristics of undergraduate education that are held to enhance students’ capacity for lifelong learning;

(iii) to assess, mainly from a study of mission statements and other public documents, the extent to which Australian universities actively seek to develop the capacity for continuing lifelong learning in their graduates;

(iv) to examine in detail a number of courses and programs of study, and to evaluate the ways in which the content, structure, teaching modes and assessment procedures, as well as student support services, contribute to the attainment of the above-mentioned goal;

(v) to provide case studies from a range of institutions, disciplines and types of awards; and

(vi) to offer recommendations on the staff development and curriculum development implications of adopting a lifelong learning perspective in undergraduate curricula.
The study itself was carried out by a team comprising:

Prof Phil Candy (Principal Investigator)
Dr Gay Crebert (Associate Investigator)
Ms Jane O’Leary (Research Assistant)
Mr Stephen Gapsa (Research Assistant)

In addition, we sought advice and feedback informally from a group of advisers as follows:

A/Prof Robert Cannon (The University of Adelaide)
Prof Peter Freebody (Griffith University)
A/Prof Colin Lankshear (Queensland University of Technology)
A/Prof Ian Lowe (Griffith University)
Ms Leigh Tabrett (Queensland Office of Higher Education)

The project also benefited from the advice of a Steering Committee comprising members of the Higher Education Council, the Australian Vice-Chancellors’ Committee and the Department of Employment, Education and Training. The final responsibility for this report rests with the principal investigator—Phil Candy—but grateful thanks are due to all the above for their contribution. In particular, Gay Crebert and Jane O’Leary provided draft versions of chapters six, seven and eight, including all the quotes from the interview transcripts, prepared the course profiles and compiled the bibliography and chapter references.

Components of the present study

In order to fulfil the requirements of the project, we employed the following research strategies:

• public advertisements and call for submissions
• commissioned discussion papers
• literature review
• analysis of disciplinary reviews
• review of mission statements and other public documentation
• analysis of actual destinations of graduates
• analysis of course documentation randomly selected from Department of Employment, Education and Training fields of study
• course profiles of programs, based on interviews and analysis of course documentation
• discussion paper.

Each of these is discussed in the sections that follow.
Public advertisements and call for submissions

We placed public advertisements calling for submissions to our study in *The Australian Higher Education Supplement* on 21 July, 1993; *Campus Review Weekly* on 22 July, 1993; and *Higher Education Bulletin* on 23 July, 1993 (see Appendix B); and, as well, achieved wide circulation by including a flier in the July, 1993 edition of *HERDSA News, 15*(2). In addition, we wrote directly to some 200 senior university administrators, staff developers and members of professional associations and educational societies inviting them to contribute to the study.

We received 58 submissions: of these, 35 came from academics, 10 from librarians, 12 from members of the professions, professional associations and employers, and one from a member of the general public (see Appendix B). When quoted in the report, submissions are designated as ‘S’ and the relevant submission number. Although not every submission has been cited or quoted in this report, every one was valuable in drawing to our attention particular ideas and practices, or in helping us to define the boundaries of our inquiry.

Commissioned discussion papers

A number of discussion papers were commissioned to provide the investigators with a range of perspectives on the topic of this study. The authors were chosen because of their differing points of view on the topic of lifelong learning. The following people have contributed papers to the study: Associate Professor Robert Cannon; Professor Max Charlesworth; Associate Professor Ian Lowe; Dr Simon Marginson; Dr Dale Spender; and Dr Lucy Sullivan.

Literature review

A wealth of material exists on lifelong learning and the enabling characteristics of undergraduate education. To determine what was already available in the literature, we undertook an extensive survey of databases available in electronic form. The most productive searches used ABI-INFORM; AEI (Australian Education Index); APAIS (Australian Public Affairs Information Service); AST (Applied Science and Technology Index); BPI (Business Periodical Index); CURRICULUM (Curriculum Resources Abstracts); EDLINE (Education Database); ERIC (Educational Resource Information Centre); MLA (International Bibliography); PSYCHLIT (Psychological and Related Disciplines Index); and SSI (Social Sciences Index).

We conducted an initial search of these databases using the following broad terms: Curriculum; Education; Higher Education; Lifelong Learning; Undergraduate; and University. These broad key terms were then cross-referenced with the following more specific terms:

- Adult education
- Accreditation
- Assessment methods
- Continuing education
- Cooperative education
- Counselling services
- Course evaluation

- Graduate characteristics
- Independent learning
- Interdisciplinary approach
- Interviews
- Labor market forces
- Learning outcomes
- Learning processes
As well, we contacted numerous international and national instrumentalities, government agencies, universities and private institutions for monographs, reports, conference proceedings, etc. Among them were the Australian Council for Educational Research; the Australian Government Publishing Service; the Australian Vice-Chancellors' Committee; the Department of Employment, Education and Training; the Economic Planning Advisory Council; the National Board of Employment, Education and Training; the Organisation for Economic Cooperation and Development; and the Royal Society for the Encouragement of Arts, Manufactures and Commerce.

From the above searches and contacts we were able to locate in excess of 500 different items by individual and corporate authors. The more relevant of these appear in a bibliography which is available on request from the investigators.

Analysis of disciplinary reviews

We also consulted disciplinary reviews conducted over the period 1980 to 1993 in a variety of disciplines (including accounting, agriculture, architecture, Asian studies, Australian studies, computing studies and information sciences, design education, engineering, fine arts, law, management, medicine, modern languages, nursing and teacher education) in order to determine the degree of commitment to the principles of lifelong learning (Appendix D). We were able to identify elements within courses which aided or hindered this process; details are given in chapter four under the heading ‘What others say about them.’

Review of mission statements and other public documentation

We obtained the current mission statements from all 38 Australian universities (including Batchelor College, Northern Territory) from university handbooks or calendars, and through university administrations. In some instances, mission statements were not immediately available as they were undergoing review.

Fourteen universities make explicit reference to the term ‘lifelong learning,’ either in the body of their mission statements or in sections on aims and goals or vision and values. A more detailed analysis of this part of the study appears in chapter five.

In addition to mission statements, we also sought to obtain material representative of the views of Vice-Chancellors and other senior staff. Some Vice-Chancellors contributed to the study by providing relevant material which they or their senior
administrators had published or publicly delivered. Not all Vice-Chancellors responded to this request but approximately half of the material received proved to be relevant.

Analysis of actual destinations of graduates

We examined Australian statistics on graduate full-time employment destinations to allow inferences to be drawn about the value of the undergraduate degree for individual graduate employment and to identify graduate needs with respect to learning at university.

Graduate employment figures over the ten year period 1982 to 1992 were examined to establish whether or not graduates were advantaged when attempting to obtain full-time employment (Graduate Careers Council of Australia, 1988; Graduate Careers Council of Australia, 1993).

Literature (B/HERT 1991, 1992a, 1992b, 1993; Coopers & Lybrand 1991; NBEET 1992) which identified those attributes considered by employers to be desirable in their graduate employees, and qualities which they felt were lacking or undeveloped, was examined in order to compare the degree of match or mismatch between employers' requirements of graduates and graduates' performance in the workplace.

The data collected suggests that, despite considerable diversity in employment percentages across different fields of study, overall graduates were consistently advantaged when attempting to obtain full-time work. Despite this, relevant literature demonstrated significant employer dissatisfaction with the quality of graduate performance in the workplace, particularly with regard to graduates' personal, transferable skills. If graduates are to maintain their advantageous position within the labour market universities need to give greater emphasis to the development of students' generic skills.

Analysis of course documentation

In addition to indepth profiles of a number of exemplary programs (see following section), we conducted a comparative study of 18 randomly selected courses representing all of the 10 fields of study laid down by Department of Employment, Education and Training from all undergraduate courses presently offered in Australian universities (see Appendix E). We then examined curriculum documentation and degree regulations to identify elements within course aims and objectives, course structures, teaching methods, assessment practices, and course development which aided or hindered the process of incorporating attributes of lifelong learning into the undergraduate curriculum. Further details of the findings are given in chapter five.

Course profiles

As part of our terms of reference, we were required to identify and profile examples of good practice with respect to enhancing lifelong learning in institutions across Australia. We used a range of strategies to help with this selection. In addition to the disciplinary reviews already referred to (Appendix D), we also examined the literature we had collected, and the submissions we had received. We contacted all Vice-Chancellors to ask them to nominate not more than three courses of study at their
own institutions, which, in their opinion, embodied the principles of lifelong learning. Unfortunately, many of the Vice-Chancellors were attending the Association of Vice-Chancellors' Congress in Wales at the time the invitation was extended, and consequently were unable to respond in time.

On the basis of these various sources, we compiled a 'long list' of courses and programs, and then requested course coordinators or administrative officers to provide us with more detailed course documentation in relation to the nominated courses. The courses we eventually profiled (see Appendix F) were chosen on the basis of the documentation provided, having regard to other additional criteria such as the Department of Employment, Education and Training fields of study; geographic representation (only Northern Territory is not represented); regional and urban universities; and the kind of institution ('traditional' or pre 1987, and 'new' or post-1987 university).

While we would hesitate to claim that the courses and programs profiled are 'the best' in Australian higher education, we believe that they are interesting examples of what can be achieved 'in the field.' We conducted interviews with staff, students and graduates from fifteen courses, three support units and three additional programs. This component of the study particularly informed chapters six, seven and eight, and profiles of some of these courses appear later in this volume.

With respect to methodology, in addition to detailed analysis of the provided documentation, we conducted over 160 interviews across Australia during a seven week period at the end of 1993. Dr Gay Crebert undertook all the interviews, and for each course she met with one or two members of teaching staff, at least one first and final year student, at least two employed graduates, and support staff such as librarians, members of computer-based education units, academic staff development units and study skills units where appropriate. The interviews followed a standard format which included questions on lifelong learning; institutional commitment to the concept; teaching and assessment methods; course content and structure; and implications for higher education of adopting a greater emphasis on developing lifelong learners.

The hour-long interviews were designed to be as open-ended as possible, allowing the participants to speak freely on a range of issues in higher education in Australia. Few of the questions elicited a simple 'yes/no' answer; the questions generally drew thoughtful and considered responses and in some cases the interviewees forwarded supplementary comments made in hindsight, after the interview.

Certain key questions occurred in all the interviews, but the format varied according to the perspective of the interviewee—whether a member of teaching or support staff, first or final year student, or graduate (see Appendix G for interview used for academic staff). Most of the interviews took place on campus and the schedules were meticulously coordinated by school or departmental staff. Many of the graduates were interviewed at their place of employment, often in their own time. In all instances the participants were fully cooperative and welcomed the opportunity to crystallise their thinking on matters of personal interest and concern.
Each interview opened with broad questions on the nature of lifelong learning and desirable outcomes of higher education, before moving to the particular courses and their 'special' features, and concerns about the existing undergraduate curriculum. The interviews concluded with a number of hypothetical questions about the potential impact of a greater focus upon lifelong learning upon the undergraduate curriculum, the higher education system and graduates themselves. Many academics who had introduced large-scale innovations to their courses were asked to give their advice to others who had either begun the change process or were considering it. With the participants' permission, the interviews were recorded and later transcribed for analysis.

The transcripts were analysed in two ways. To assist in the preparation of the body of the report, we examined the responses by different categories of respondents (e.g., course coordinators, first year students, graduates, etc.) in order to look for recurring themes, common concerns, trends in thinking, and recommendations. When directly quoted in the report, interview transcripts are designated as 'T' and the relevant transcript number. The transcripts were also analysed by program, to provide a detailed view of the programs or initiatives studied. A number of these course profiles appear later in this volume.

Discussion paper

As part of the project, and also as part of disseminating preliminary results, a discussion paper of twenty pages was prepared in early March 1994 and distributed to every university in Australia, as well as to others who had made submissions or demonstrated an interest in the outcomes of the study. The discussion paper consisted of five sections; each section concluded with a range of questions designed to stimulate debate, discussion and reaction. A total of 22 responses were received, most of them basically supportive of the direction taken by the project. Several, however, provided critical feedback in varying degrees of detail, and every attempt has been made to take account of these responses in preparing this final report.

Overview of the report

Chapter one deals with the genesis of this study and provides a very brief summary of the main components of the research design.

Chapter two provides a background on the emerging importance of lifelong learning, especially to higher education, and traces its appearance in various reports and discussion papers over the past two decades. It also deals briefly with experiences in other countries, particularly the UK, USA, New Zealand and parts of Europe.

Chapter three deals with learning after graduation. It identifies some of the many pressures that cause graduates—along with other members of the community—to continue learning. Four different types of postgraduation learning are identified and the chapter concludes with a profile of the sorts of skills required by the effective lifelong learner. These include: an inquiring mind; helicopter vision; information literacy; a sense of personal agency; and a repertoire of learning skills.
Chapter four is concerned with the overall purposes of undergraduate education and, within that, with the components of the undergraduate curriculum. The chapter discusses how, in principle, a concern with lifelong learning might be built into undergraduate studies.

Chapter five provides an overview of what universities say they have been doing about lifelong learning, and what can reasonably be inferred about what they have actually been doing, based on a variety of documentary and other sources such as mission statements, accreditation and review policies, and degree regulations.

Chapters six, seven and eight turn their attention to what the universities could be doing to promote lifelong learning competence. They are based on a combination of literature reviews, interviews and analysis of documents. Chapter six focuses on the content and structure of curricula that support the development of lifelong learning skills, and posits five criteria that would mark such curricula.

Chapter seven is concerned with methods of teaching and assessment that are intended to promote the skills of lifelong learning. It argues that those which place increasing responsibility on the learner, make use of real-world contexts or resources, are active and participatory, and develop higher order cognitive skills are most appropriate in this context.

Chapter eight shifts the focus from the course or program level to that of the institutions. The chapter profiles a range of student support services that, if used appropriately, can assist students to become ‘learners’ in the full sense of the term, and concludes that arguably the most central construct of all is whether or not the institution encourages a ‘climate of intellectual inquiry.’
References


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Context to this Study

Introduction

Each year, tens of thousands of Australians make a brief but significant appearance on the stage. Dressed in period costume, and usually restricted to a small walk-on role, they get to shake hands with a person splendidly attired in medieval regalia, and leave again clutching a rolled certificate.

For some, this ceremony embodies the intangible links between the modern university and its ancient predecessors; for others, it represents the essentially anachronistic trappings of an out-of-date institution. For all, it marks an important accomplishment, the realisation of a dream, the fulfilment of an ambition, the recognition of an achievement. For a brief instant, the new graduates can pause and revel in their attainment before turning towards whatever the future might hold for them. None knows for certain just what that future will be: the only thing they can be sure of is that their learning—far from being over—is really only just beginning.

In recent years, the concepts of lifelong education and lifelong learning have become increasingly commonplace in the literature of education and training and, to a lesser extent, in institutional documentation. Since the purpose of this study was to examine 'the characteristics of undergraduate education which enable and encourage graduates to participate in formal and informal learning throughout their lives' (HEC, 1993, p. 1), it seemed important to explore the genesis of this concern, and to place it into a broader historical and policy context. Accordingly, this chapter comprises three main sections: a brief overview of lifelong learning and lifelong education; a review of major precursors or antecedents of this study; and finally a survey of significant overseas developments in the field, particularly in the context of higher education.

Lifelong learning and lifelong education

The fact that people learn throughout their lives is beyond argument. For almost everyone, continued learning is virtually inseparable from life itself. It extends from such basic (but nonetheless complex) accomplishments as learning to walk and talk, through an astonishing variety of physical, aesthetic, social, linguistic and conceptual achievements, to encompass virtually everything that humans have been able to imagine, to explain and to do.

This sort of learning is unconscious and universal. It occurs over a lifetime, and much of it is both unbidden and incidental; arising out of the normal processes of living. Not everyone is equipped to undertake all possible learning, and not all experiences are educative, but it is important to acknowledge at the outset that learning is as much a normal human activity as breathing.

Not all learning of course is adventitious. A large proportion of what we actually learn is acquired through the deliberate and intentional efforts of learners themselves, consciously planned, self-managed, and generally in proportion to their motivation,
their ability and the opportunities available to them (Candy, 1991). This deliberate self-directed learning is a theme to which this report will return in subsequent chapters, particularly chapters six and seven.

In addition to such self-directed learning, other forms of learning are consciously mediated by a variety of agencies. In our society, we have set up extensive and elaborate mechanisms to ensure that all young people are exposed to certain skills, insights and values that are held to be basic to their functioning in society. Beyond this, we have structures to assist particular groups and individuals to master certain specified bodies of knowledge and expertise. These include the mass of education and training opportunities provided by universities and colleges, governments, corporations, professional associations, unions, community groups and others. Together, these educational providers represent an extraordinarily rich and diverse repository of learning opportunities, but they must be seen for what they are—just one part in the rich and seamless tapestry of learning experiences that most people engage in.

Some years ago, it was widely considered to be sufficient to provide such educational opportunities only in the early stages of life. Partly this was because many people's lives and careers changed only slowly, if at all; partly because the best available knowledge was that people could not—or would not—learn beyond the age of 25. Today, however, both these assumptions have been overturned. The rate of social, technical, economic and other change is so great, at least in advanced western industrialised countries, that few people will hold the same job throughout their lifetime. Similarly, recent research on learning across the lifespan has shown that people are not only capable of, but actually engage in, continuing learning over their active life and beyond (Tuinman & van der Kamp, 1992).

Recognising the significance of this fundamental shift, in 1971 Unesco set up an International Commission on the Development of Education, under the chairmanship of Edgar Faure, a former French Prime Minister and Minister of Education. The following year, the International Commission published its report under the title Learning To Be: The World of Education Today and Tomorrow. It was in many ways a visionary document, aimed at providing a framework for all levels and types of education in all parts of the world. Its first and most basic recommendation was that lifelong education should become 'the master concept for educational policies in the years to come for both developed and developing countries' (p. 182).

As a very broad document, Learning To Be did not seek to specify systems and structures in detail, but rather to provide an overarching conceptual framework against which individual countries could develop their own policies. The idea of lifelong learning was picked up as a major theme and promoted and disseminated assiduously by the Unesco Institute of Education in Hamburg. In the intervening years, it has published a significant body of literature on both the theoretical and practical aspects of lifelong education (see, e.g. Cropley 1977, 1979, 1980; Cropley & Dave, 1978; Dave, 1973, 1976; Ingram, 1979; Parkyn, 1973; Skager, 1984; Skager & Dave, 1977). Other terms have also been coined which refer to much the same phenomenon; for instance 'education permanente' by the Council of Europe (Jessup, 1973) and 'recurrent education' by the OECD (OECD, 1973). This proliferation of terms has not unexpectedly led to a proliferation of literature, some of it devoted to the tricky
process of teasing out subtle differences between and among the three concepts (Alonen, 1982; Kallen, 1979; McKenzie, 1983, pp. 15–17). Put simply, ‘education permanente’ refers primarily to those forms of learning throughout life that are called for by social and cultural change, whereas ‘recurrent education’ is more overtly concerned with continuing learning that has its basis in economic or technological change. Lifelong education, as a concept, basically subsumes both of the others, and goes beyond them. According to Unesco, education should:

1. last the whole life of each individual;
2. lead to the systematic acquisition, renewal, upgrading and completion of knowledge, skills and attitudes made necessary by the constantly changing conditions in which people now live;
3. have as its ultimate goal promotion of the self-fulfilment of each individual;
4. be dependent for its successful implementation on people’s increasing ability and motivation to engage in self-directed learning activities;
5. acknowledge the contribution of all available educational influences, including formal, non-formal and informal. (Cropley, 1979, p. 3)

In a sense, there was nothing particularly new or revolutionary about these ideas; the notion that people learn throughout life extends back for thousands of years (McClintock, 1982); even the term ‘lifelong education’ had been used in the title of a book 50 years earlier (Yeaxlee, 1929). But, as Butler comments:

What was revolutionary about Learning To Be was the idea that education should be a lifelong process for all adults, and that governments should use this as the basis upon which they design their whole education systems. Education for adults should no longer be merely ‘tacked on’ to a system designed for children and young people. The implications of this idea for every aspect of education—curricula, teaching methods, funding, accreditation, and the nature, organisation and location of educational institutions and agencies—were far-reaching. (Butler, 1989, p. 3)

Lifelong education in the Australian context

In common with those in other countries, educators and policy makers in Australia took up the idea of lifelong education during the 1970s. In 1974, the Kangan Report on Needs in Technical and Further Education ‘was notable for moving beyond its fairly limited original terms of reference and quite explicitly using the vision of lifelong education contained in Learning To Be as the basis for its own recommendations, which included a broad strategy of recurrent education encompassing all adult age groups and all levels of education’ (Butler, 1989, p. 6). Also in 1974, the (then) Australian Association of Adult Education brought out a multi-volume report entitled Lifelong Education: Conditions, Needs, Resources.

In 1975, the Australian College of Education devoted its annual conference to the theme ‘Learning throughout life—Lifelong learning—Learning through living,’ at which papers by McDonell and Short related specifically to its implications for the
universities. And in 1976, the Australian Council for Educational Research published a book by Duke, at that time Director of the Centre for Continuing Education at The Australian National University, entitled *Australian Perspectives on Lifelong Education*.

After this initial blush of enthusiasm, the concept of lifelong education somewhat faded into the background, certainly in higher education. The 1979 Williams report on *Education, Training and Employment* made only scant reference to recurrent education. In 1983, recurrent education was the focus of a brief monograph by McKenzie for the Australian Council of Educational Training, and in 1986 Davis, Wood and Smith issued a book entitled *Recurrent Education: A Revived Agenda*, although its primary focus was on school rather than post-secondary education.

During these years, the Government, through its Commonwealth Tertiary Education Commission, seemed to tip the balance away from adult participation in higher education towards young people, and hence away from an overt emphasis on lifelong education. However, by 1987, the scales seemed to be moving again in favour of a lifelong education perspective. In the 1987 Green Paper, Dawkins signalled the need for graduates to learn how to learn, and to develop their critical and analytical skills (p. 1). Within a year, this almost casual mention seemed to have resolved itself into a firm commitment. In the 1988 White Paper, Dawkins claimed that:

> The principle of lifelong education is now accepted as fundamental to achieving social, cultural, technological and structural change, and to our future economic development. (p. 68)

While it was encouraging to have lifelong education mentioned in this context, and given a sort of imprimatur by the Minister of Employment, Education and Training, there was (and for that matter still is) no formal policy commitment to either lifelong or recurrent education, with the result that the idea was open to a variety of alternative interpretations.

In 1989, the Commission for the Future attempted to provide a policy framework, as well as stimulating public debate about lifelong education, by issuing a discussion paper entitled *Lifelong Education Revisited: Australia as a Learning Society* (Butler, 1989). While it would be unfair to say that the paper sank without a trace, it certainly did not seem to galvanise any widespread critical debate, at least not in higher education. It is possible that the paper was seen as excessively instrumental and too heavily focused on the economic imperatives for lifelong education, but this would be a harsh judgement that ignores its treatment of broader social and cultural issues (pp. 11–17). Certainly the discussion paper deserves wider circulation and critical attention within higher education institutions, and accordingly it is recommended that higher education institutions consider the desirability of disseminating and discussing the Commission for the Future paper *Lifelong Education Revisited, and considering its implications for their own programs and activities* (R2.1).

In 1990, the Senate Standing Committee on Employment, Education and Training decided to investigate areas of higher education viewed as most in need of reform. The committee found, after extensive public meetings and analysis of submissions, that graduates 'need to develop a capacity for 'lifelong learning' to enable them to keep abreast of the world of rapid change in which they will practise' (Aulich, 1990, p. 3),
and that the time seemed ripe to broaden the undergraduate curriculum ‘to generate wider social and cultural perspectives, promote higher level, ‘transferable’ abilities, and address deficiencies in communication skills’ (Aulich, 1990, p. 27).

The report urged universities to take a more active role in providing continuing education for their graduates and in rectifying the existing ‘policy of benign neglect’ (p. 99) towards lifelong education, which it saw as important for the nation in both ‘economic and social terms’ (p. 99). Aulich recommended that institutions engage in a thorough-going analysis of the undergraduate curriculum which ‘in part...could consist of a formal review to gather information on particular courses or course structures which are designed to tackle the kinds of deficiencies identified in the present report’ (p. 41). In so doing, the Aulich report may be thought of as the precursor to this present study.

After Aulich, there followed a number of reports and discussion papers on the nature and purpose of higher education funded by the Higher Education Council, the Australian Vice-Chancellors’ Committee, the Business/Higher Education Round Table, and the Department of Employment, Education and Training.

In December, 1990, for instance, the Higher Education Council document, Higher Education: The Challenges Ahead, promoted the value of transferable generic skills and argued that:

...the particular abilities acquired through higher education introduce a level of transportability and adaptability of skills that is particularly useful in developing the knowledge base of a modern society, especially one with dynamically changing patterns of work. The skills of analysis and debate, the marshalling, integration and evaluation of facts, problem solving and high level technical skills are of long-lasting value and transferable beyond the confines of a single study. (REC, 1990, p. 1)

While highlighting the need for graduates to acquire a range of transferable skills, the report nevertheless retained the traditional values of higher education by placing its recommendations for change into the framework of what Warren Piper (1993, p. 124) calls the ‘cultural’ model. In this model, the purpose of a university is seen in terms of the quality of the educational process:

A vibrant higher education system fulfilling its obligations to the community through its traditional roles—the preservation, transmission and advancement of knowledge, of learning and thinking—while acting as a centre for the critical social and cultural analysis and debate of important issues is therefore one of the indispensable elements in a civilised society. (HEC, 1990, p. 1)

In the same report, the need for universities to provide access to higher education at varying stages throughout life was strongly expressed, albeit in terms of economic productivity:
the higher education system will be seen less as a resource provided largely for the 17–19 year old cohort, and more as a community resource that has the flexibility and adaptability to cope with the needs of different participants, at different stages of careers and with aspirations that extend to the more vocation-specific courses needed for career development during a working life. (p. 5)

In *Foundations for the Clever Country*, the Australian Vice-Chancellors’ Committee made the following statement, which, while acknowledging the universities’ responsibilities to preserve traditional values, nevertheless recognised their new ‘functional’ role:

The role of Australian universities is demonstrably crucial to Australia’s future in the provision of a better educated and highly-skilled workforce which can compete successfully in an international arena. Higher education has been invaluable in the analysis of the Australian social, technological and economic position and the identification of optimum directions to ensure economic growth and social stability. It will also be critical in the development of the intellectual basis on which Australia can position itself to move from reliance on a primary resource base to the development of a strong secondary and tertiary economic base. Australian universities provide the foundation for the ‘clever country.’ (AVCC, 1991, p. 1)

This report also recommended an examination of the Australian undergraduate curriculum over a two to three year period (p. 24) to resolve questions that had been raised earlier by the Senate Standing Committee on Employment, Education and Training and the discipline reviews. The report acknowledged some of the shortcomings of the present undergraduate curriculum, which it stressed could not be seen as ‘monolithic or uniform,’ (p. 24), but rather as something which values diversity:

It is generally acknowledged that in professional faculties the first degree should have a vocational objective, preparing students for employment in specific fields. To this end, the professional curriculum provides systematic training in the relevant disciplines and in the arts and ethics of professional practice. There is also, of course, a strongly held view that general education should not cease once students embark on their university studies. It is important that informed debate on these matters continue to inform the development of curricula. (AVCC, 1991, p. 24)

In October, 1991, the new Minister for Higher Education, The Hon. Peter Baldwin, recognised that:

the need for lifelong learning has been an issue of public discussion for many years. More recently it has been part of a broader agenda emphasising diversity and accessibility in education and training. (Baldwin, 1991, p. 43)

The belief that a ‘skilled and flexible workforce is critical to economic success’ (Baldwin, 1991, p. 13), became the catch-cry of government and attention began to be given to restructuring the undergraduate curriculum to include features such as recognition of prior learning, work experience, deferment of postgraduate study until
time had been spent in the workforce, broadening access to higher education to give
greater opportunities to mature age students, involving employers to a greater extent in
providing workplace training and including a ‘less than full degree’ option (p. 44) for
students entering and leaving higher education at various stages of their lives.

The report intimated that broadening the undergraduate curriculum and reorganising
the relationship between undergraduate and postgraduate courses, together with
restructuring the provision of employment-based education and training ‘would mean
that undergraduate study would be seen more explicitly than at present as a rigorous
foundation for lifelong learning’ (p. 43).

Meanwhile, the Senate Standing Committee on Employment, Education and Training,
again under the chairmanship of Senator Terry Aulich, had switched its attention to the
broad field of adult and community education, referred to as ‘the fourth sector’ of
education, the others being schools, TAFE and universities. By the time its
report—Come in Cinderella: The Emergence of Adult and Community Education—had
appeared in November, 1991, lifelong learning had become firmly entrenched, if not
in practice, then at least in government rhetoric about post-compulsory education:

As a nation we appear to have accepted the validity of the concept of lifelong learning.
Yet lifelong learning cannot be adequately delivered by an education system that is
structurally static and operationally slow to adapt. (Aulich, 1991, p. 9)

One of the distinctive features of this second Aulich report is that the field of adult and
community education seemed to be arguing for recognition on two separate—some
would claim incommensurable—bases. First, that if appropriately funded and
formally recognised, it could ‘contribute to the major national good in employment,
education and the economy’ (p. 159); and second, that at the same time, it ‘is
fundamentally a learner-centred and needs-based practice, characterised by active
concern for accessibility, democratic processes, social justice, and success measured
primarily in terms relevant to the needs and aspirations of the individual participants’
(p. 175).

By unifying these two very different visions of its purpose under the umbrella of
lifelong learning, the report provided a precedent for the Higher Education Council’s
Achieving Quality which appeared in 1992. Forsaking the narrow vocationalism of
many earlier reports, Achieving Quality saw the purposes of higher education as:

• the education of appropriately qualified Australians to enable them to take a
  leadership role in the intellectual, cultural, economic and social development of the
  nation and all its regions;

• the creation and advancement of knowledge; and

• the application of knowledge and discoveries to the betterment of communities in
  Australia and overseas. (HEC, 1992, p. 12)

It provided a balanced and comprehensive view of Australian higher education and,
along with the first Aulich report (1990), effectively set the scene for the present study.
Significant overseas developments

Although the preceding section has dealt almost exclusively with developments in the Australian context, other countries have also been caught up in the same sort of contextual changes, and have accordingly had to confront the need to provide opportunities for lifelong learning. This is an enormous subject, and the most that can be hoped for from this brief review is that it will show we are not alone in our concern to develop an integrated approach to lifelong education.

United States

The United States provides an interesting case study for Australia, for although in 1975 the American Association for Higher Education published a discussion paper on ‘Premises and Programs for a Learning Society,’ (Hernstadt–Shulman, 1975) and since October 1976 there has been a Lifelong Learning Act, the impact of the idea seems to have been patchy and uneven. While some institutions such as the University of Delaware have gone as far as setting up a Commission on Lifelong Learning (Gaither, 1979), others seem only dimly aware of the concept, or else equate it almost entirely with learning for the workforce.

The history of the idea in the United States is too complex to review here, but it seems to have made periodic reappearances in the educational firmament, rather like Halley’s Comet. In 1987, a distinguished United States academic—Patricia Cross from Harvard—in an article on ‘The changing role of higher education in the United States,’ argued that ‘lifelong learning has become a lifelong necessity for almost everyone...’ and that ‘a change is needed in the methods of teaching and learning to accommodate adult learners and to provide for the long-range needs of the learning society’ (1987, p. 99, emphasis added).

In 1989, the State Governors—led by then-Governor Clinton—agreed with President Bush on six National Education Goals, which inform an integrative piece of legislation called Goals 2000: Educate America Act. Goal No. 5, in particular, is explicitly predicated on ‘the precept that learning is an ongoing process and a lifelong activity’ (Riley, 1993, p. 19). In 1992, the National Governors’ Association (analogous, perhaps, to our Premiers’ Conference) set up an ‘Action Team on Lifelong Learning’ with the specific intention of ‘helping states achieve national education goal five’ (Thompson, 1992, p. 1).

Canada

Because of the pressure of time, no sustained attempt has been made to discover the status of lifelong learning in Canada. However, the Canadian Commission for Unesco, in 1983, did publish a very useful discussion paper entitled ‘Learning in Society,’ which explored the vital relationship between individual and societal needs for learning, and how these can be reconciled through formal and non-formal means (Thomas, 1983).

More recently, the Canadian Corporate-Higher Education Forum issued an ‘advisory’ on education entitled To Be Our Best: Learning for the Future. Among other things, it was concerned with the question:
How well is lifelong learning integrated into the system? Do we have a strategic plan for what is clearly an expanding need for the future? (p. 7)

Many of the issues, and indeed much of the rhetoric in this report could be directly transposed to the Australian context. Under the heading ‘Education for the Future,’ the Forum recommends:

Lifelong Learning—Enhance the continuity of educational experience by linking educators at different levels: pre-school, elementary, secondary, community colleges, universities, business, adult education centres. All educators must be concerned with promoting lifelong learning in their clients, and all can benefit from understanding how their efforts fit into the larger picture. The time has come for a broader and more integrated view of the teaching profession. (p. 17, emphasis added)

New Zealand

In the past few years, higher education in New Zealand has undergone major changes, many of which are also familiar in Australia: capped growth in the higher education sector, more centralised control of funding, an attempt to disaggregate teaching and research in funding policies, greater competition for students among institutions, and a concentration on ‘quality’ (Jones, 1991). However, there are at least two major differences. The first is that in New Zealand these changes have been within the policy framework articulated in two documents: Learning for Life, and, more recently Education for the 21st Century. Central to both these documents is the view that education, including higher education, is vital to the nation’s future prosperity and quality of life, that learning is never finished, and that the provision of education involves ‘a partnership of parents, education professionals, enterprise, and government’ (Ministry of Education, 1992, p. 9).

The second major difference is that, in New Zealand, higher education is subject to the New Zealand Qualifications Authority, through which an attempt has been made, under the rubric of lifelong learning, to fit all types of formal and nonformal education and training into a complex, multi-celled ‘Qualification Framework’ in order to form a ‘seamless education system’ (Ministry of Education, 1992, p. 20).

While Australia should perhaps be wary of following New Zealand too far down the track of developing an integrated, multi-level system of education and training based on a competency matrix, we could perhaps do well to consider a couple of ideas based on the New Zealand experience. Accordingly, it is recommended that:

attention be devoted to the metaphor of a ‘seamless education system’ which reduces or eliminates ‘barriers to participation and lifelong learning’ (Ministry of Education, 1992, p. 20) (R2.2); and

the National Board of Employment, Education and Training engage a range of stakeholders in widespread public debate on the sort of education system we want and the kind of outcomes we expect from its various components (R2.3).
Europe

As mentioned in chapter one, the term ‘lifelong learning’ actually originated in Europe in the early 1970s, and the concept has been subject to as great a diversity of interpretations there as anywhere else.

In recent years, several countries have developed national policies on lifelong education. These include Spain, Sweden, Switzerland, Germany and Britain. Not unexpectedly these policies exhibit great variability in their focus and breadth, depending on the nature and extent of government control, as well as the internal structure of the educational systems. A useful overview of some European trends is provided in the recent CRE–ERT report on European Approaches Towards Lifelong Learning (CRE–ERT in B/HERT, 1993, pp. 3–38).

Two points in particular emerge from this brief overview. The first is the recognition that many other countries besides Australia are trying to bring about greater collaboration between universities and enterprises in a variety of innovative ways. The second is that the term ‘lifelong learning’ is increasingly being used in the official rhetoric, yet many of the initiatives currently being implemented have characteristics formerly associated with ‘recurrent education,’ viz:

- the distribution of education over the lifespan of the individual in a recurring way;
- alternation of education with other activities, of which the principal one is work;
- greater responsibility by the learner in deciding when, where, how and what to learn; and
- integration of learning opportunities available through the conventional post-compulsory education system, on-the-job training, (most of which is organised by the private sector), and the ‘vast and manifold array of educational provisions for adults.’ (OECD, 1973, passim).

United Kingdom

Australia has traditionally looked to the United Kingdom (as well as to other English-speaking countries such as New Zealand, Canada and the United States) to obtain a sense of its ‘place,’ and of possible futures in higher education.

In some respects, this has been less vital in recent years: partly because the Australian experience in some cases has been ahead of its British counterpart (e.g., the abolition of the binary system), and partly because Britain itself has been more sharply influenced by European issues and trends to enhance the mobility and employability of its graduates in Europe, and thus must be seen as part of a multinational movement to promote lifelong learning (B/HERT, 1993, pp. 3–38).

Nevertheless, many of the developments in Britain are analogous to those in Australia, notably changes in funding arrangements, the dissolution of the binary divide, a focus on ‘quality’ and ‘value added,’ an emphasis on international competitiveness, and closer relationships between higher education and industry—for both teaching and
research. Two initiatives in Britain are of particular interest to this study: the Royal Society for the Encouragement of Arts, Manufactures and Commerce project on Higher Education for Capability, and the Enterprise in Higher Education scheme.

The Higher Education for Capability project (Weil, 1992) is a joint venture of the Royal Society for the Encouragement of Arts Manufactures and Commerce, Leeds Metropolitan University and the University of Leeds. Established in 1991, it is based on the need for higher education to develop ‘capability’ not only ‘in the acquisition of knowledge and skills of analysis, but also...in using and communicating knowledge, doing, making, designing, collaborating, organising and creating.’ Central to these attainments, of course, is the ability to go on learning.

The project operates on a variety of fronts and in a range of ways: invitational symposia, national conferences, publications, consulting, establishing networks, assisting with research, recognising excellent practice and acting as a clearinghouse. It has generated a number of publications on capability generally, and on specific approaches to teaching, learning, assessment and curriculum design in higher education to enhance capability.

The Enterprise in Higher Education scheme, begun in 1987, grew out of a ‘tide of opinion’ among higher education policy makers ‘that, in order both to expand and to respond to demands from the employment market, UK courses would have to be broader, more flexible and give deliberate prominence to what Bradshaw (1985) calls ‘transferable personal and intellectual skills’ (Wright, 1992, p. 204).

Basically, institutions of higher education were invited to bid for funds made available by the then Manpower Services Commission on the basis of ‘how, over five years, they would provide for all their students to be able to develop competencies and aptitudes relevant to enterprise, which should be acquired, at least in part, through project-based work, designed to be undertaken in a real economic setting...jointly assessed by employers and the higher education institutions’ (Wright, 1992, p. 205). Each project was eligible for a grant of up to £1 million over five years, providing the institution could raise significant employer support in cash or kind.

What started out as an unashamedly instrumental project, designed to improve employability and enhance work-related skills, has proven to be a valuable force for positive change and improvement in British universities. This has happened in two main ways. Firstly, to some extent, the concept of ‘enterprise’ has been progressively redefined by the universities to include some of the cherished values of a liberal education, many of which turned out to be valued by employers anyway. Secondly:

the fact that Enterprise in Higher Education is directed towards the world of work (private, public and voluntary) has been particularly beneficial because it has forced higher educationalists to focus attention upon what their graduates are going to do in their future lives and how, in the widest sense, higher education with its particular values and qualities, may prepare them for it. (Wright, 1992, p. 219)

In both these schemes, the concept of lifelong learning has emerged as a major unifying principle, and institutions have focused quite explicitly on what they can do to enhance graduates’ ability and willingness to go on learning after graduation.
Accordingly, it is recommended that the Higher Education Council undertake a more detailed study of the British Higher Education for Capability project, and of the Enterprise in Higher Education scheme, with a view to determining if either or both could be adapted to the circumstances of the Australian higher education system (R2.4).

Conclusion

It is evident that the need for continuing lifelong learning—for both economic/technological and social/cultural reasons—has been recognised since at least the early 1970s, and that this need has been emphasised repeatedly in a succession of reports and discussion papers. It is also apparent that Australia is not alone in confronting the requirement for a more flexible and adaptive education system, and that other countries have also tackled lifelong education in a range of ways.

This chapter has stressed that we must stop talking about lifelong education and do something—preferably something comprehensive and high profile—about it. We should also learn from the experience of other countries in their attempts to develop an overarching policy framework that spans all sectors of education and training—both formal and nonformal.

In the next chapter, the focus of attention switches from the broad issue of lifelong education to the specific issue of what graduates need to learn after graduation and why, before turning to an examination, in chapter four, of ways in which a concern with lifelong learning could be built into the undergraduate program.

Recommendations

It is recommended that higher education institutions consider the desirability of disseminating and discussing the Commission for the Future paper Lifelong Education Revisited, and considering its implications for their own programs and activities (R2.1).

It is recommended that attention be devoted to the metaphor of a 'seamless education system' which reduces or eliminates 'barriers to participation and lifelong learning' (Ministry of Education, 1992, p. 20) (R2.2).

It is recommended that the National Board of Employment, Education and Training engage a range of stakeholders in widespread public debate on the sort of education system we want and the kind of outcomes we expect from its various components (R2.3).

It is recommended that the Higher Education Council undertake a more detailed study of the British Higher Education for Capability project, and of the Enterprise in Higher Education scheme, with a view to determining if either or both could be adapted to the circumstances of the Australian higher education system (R2.4).
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Learning Beyond Graduation

Introduction

For many people associated with universities—staff, students or administrators—the question of what and how graduates will learn after graduation is rarely considered. For some, this is because the university itself is such a rich environment for learning that they never consider what might lie outside or beyond it. For others, perhaps, lifelong education is mistakenly assumed to be a synonym for non-formal adult education. For others again, it is simply a ‘non-question’ since a university education is supposed to equip its holder with the skills, knowledge and attitudes necessary to deal with any contingency he or she is likely to encounter. For many, graduation marks an end, rather than the beginning of a lifetime of learning.

However, there is no doubt that in virtually any discipline or field of study an undergraduate degree is only an introduction to the complexities of the domain. Even the best and most comprehensive degree program cannot anticipate and include all the changes that are likely to occur within an individual’s lifetime, and this is especially true when, as so often happens, graduates end up working in fields far removed from those for which they initially trained.

When a student graduates with an undergraduate degree from an Australian university, he or she not only holds a qualification of international standard, but hopefully has acquired what used to be quaintly called ‘a taste for learning.’ In the past, this taste for learning most often manifested itself in voluntary pursuits such as wide reading, attendance at lectures and conversaziones, and membership of learned clubs and societies. Today, it might be sharpened by various forces and pressures, many of them undreamt of a generation ago, just as the learning itself might be pursued in a range of contexts and settings—such as learning from the television or from a computer—also undreamt of a generation ago.

The purpose of this chapter, then, is fourfold: to show how universities fit into the overall pattern of lifelong education; to consider some of the salient pressures which lead to the need for continuing learning beyond graduation; to examine the principal types of continuing post-graduation learning; and finally to identify the sort of attributes or qualities that are likely to typify a lifelong learner.

Universities in the context of lifelong education

Universities, far from sitting outside the pattern of lifelong education, have a central role to play in realising its potential (Candy and Crebert, 1991b, Knapper and Cropley, 1991). They do this in several ways. For a start, they represent an important part of the temporal continuum extending from cradle to grave. For those fortunate enough to obtain university admission, the university builds on and extends their experience at school. In this sense, universities must interact with educational providers (including the TAFE system) whose students eventually find their way into.
university, and they need to be aware of, and responsive to, the past experiences, knowledge bases and aspirations of those coming from elsewhere in the educational spectrum.

Secondly, universities are increasingly viewed, by students as well as by policy-makers and others, as repositories of special expertise to meet particular learning needs and goals. Many institutions have recognised this fact and have adapted, by accepting mature-aged students, by encouraging people to return to study on an intermittent or recurrent basis, and by providing their courses in a variety of formats including short courses and open learning. As a result, many universities are finding their student body is increasingly comprised not simply of young school learners, but also of mid-career professionals—adults who for one reason or another did not have the opportunity to undertake degree studies when they were younger. Such ‘mature-age’ or ‘non-traditional’ students bring a distinctive ambience to the university. Many have extensive life experience and major family, community or organisational responsibilities. Some are primarily interested in learning particular subjects, or even parts of subjects, to meet immediate personal or professional interests. Others seek to obtain academic credit for learning obtained elsewhere. In either case, they confront universities with novel challenges about how they teach, as well as how they interface with other educational and training providers.

Thirdly, universities fit into the context of lifelong education in their relationships with graduates. They do this in three principal ways. One is through providing opportunities for postgraduate study for those who choose to study further. The second is through offering non-award continuing education, some of which may be career related, and some for personal enrichment. Third, and arguably most vital, is through conducting their programs in such a way that graduates are enabled and encouraged to continue learning throughout their lives, not only in the formal contexts mentioned above, but at home, at work, and in the community. This dual mandate—enabling and encouraging—has significant implications both for what is taught and how. This is the central theme of chapters six and seven of this report. In a paper entitled ‘Lifelong education: An enduring mandate for higher education,’ Candy and Crebert (1991b) describe these three dimensions of the university’s role respectively as ‘vertical linkages,’ ‘sideways linkages,’ and ‘forward linkages.’ While all three are vital for the successful realisation of a system of lifelong education, it must be stressed that this research is primarily concerned only with the third category—‘forward linkages’ and even then with only one component, namely the development in graduates of an ability and willingness to continue learning throughout their lives. Since both the decision for any given individual to go on learning throughout later life, and the opportunity to do so, lie outside the direct control of the university, it is clear that ‘the enabling characteristics of undergraduate education’ constitute only a small part of a very much larger domain, and furthermore that there are many other initiatives that universities can—and indeed must—take if they are to fulfil their role as part of the ‘learning society.’
Pressures for continued learning after graduation

Adult education must not be regarded as a luxury for a few exceptional persons here and there, nor as a thing which concerns only a short span of early adulthood, but it is a permanent national necessity, an inseparable aspect of citizenship, and therefore should be both universal and lifelong. (Adult Education Committee, 1919, p. 5)

These prophetic words appeared more than seventy years ago in the Final Report of the Adult Education Committee of the British Ministry of Reconstruction—widely referred to as ‘The 1919 Report.’ Whatever circumstances at that time justified the claim that adult education should be ‘universal and lifelong’ must surely be even more applicable today, for if anything both the rate and the extent of change are greater now than they were seven decades ago.

These changes have been analysed and discussed ad nauseam at conferences and seminars, in books and articles, in newspapers and magazines, and on television and radio. The postmodern world is characterised by turbulence and discontinuity: changes in the structure of the family and of society at large; radical changes in the geo-political landscape and in economic systems; alterations in what we eat, how we dress, how we communicate and travel; and transformations in how we relate to each other—both interpersonally and globally. The old adage that the ‘only constant is change’ is more evident now than at any time in history, and this has significant implications for the ‘what,’ the ‘how,’ the ‘when,’ the ‘where,’ and the ‘how often’ of learning.

Many graduates, far from being insulated from rapid and pervasive change, are in fact especially vulnerable to the effects of this turbulence, especially when they work in professional areas that are themselves undergoing rapid transformation. The urgent need for professionals to stay up-to-date with rapidly increasing bodies of knowledge is articulated well by Economic and Planning Advice Committee in its Background Paper No.31, Education and Training in the 1990s. The argument here is that knowledge depreciates at 10 per cent per annum, therefore ‘knowledge appreciation of the existing workforce must be greater than the depreciation effect to offset the decline in the stock of knowledge,’ so that ‘we need to achieve a skill appreciation in the existing workforce of over 11 percent, to maintain the 2001 stock of skills to the year 2011’ (1993, p. 48).

The next part of this chapter discusses some of the many trends which are impacting on the continuing professional education needs of graduates. This list is not intended to be exhaustive, but rather indicative of the sort of pressures to which graduates are subject: emergence of new occupations and careers; explosion of knowledge and technology; shift to an information society; specialisation versus professional interdependence; increasing internationalisation; and microeconomic reform and the changing workplace.
Emergence of new occupations and careers

It is widely recognised that few if any of the graduates either currently in or entering the workforce will spend their entire working lives within the same occupation, much less the same organisation. Partly this reflects the extraordinary personal mobility that people enjoy today, but partly it is because of the continuing emergence of entirely new occupations. Several commentators including Drucker (1980), Naisbitt (1984) and Toffler (1970) have estimated that most people will have as many as three separate careers in their lifetime, and accordingly this discontinuity gives rise to a need for significant continuing learning.

Explosion of knowledge and technology

The rate at which both knowledge and technology are expanding is extraordinary. Sixty years ago the noted philosopher of education, A N Whitehead commented:

... in the past, the span of important change was considerably longer than that of a single human life. Thus mankind was trained to adapt itself to fixed conditions.

Today, this time span is considerably shorter than that of human life and accordingly our training must prepare individuals to face a novelty of conditions. (Whitehead, 1929, p. 118)

As Lengrand asserts, 'the notion that [one] can accomplish [one’s] lifespan with a given set of intellectual and technical luggage is fast disappearing' (Lengrand, 1970, p. 44). Within many vocations, technology is changing at such a rate that one’s occupational preparation can become obsolete in a matter of years. One of the specific implications of such rapid technological developments is the heightening of the need for learning throughout life: 'More specifically, individuals may need to engage in a lifetime of learning not as a matter of choice but as a matter of survival. In the future, individuals may lack the option to choose not to engage in learning activities over the lifespan' (Gooler, 1990, p. 321).

This point was made strongly in a submission to the study from the Education Group of the Australian Society of Biochemistry and Molecular Biology:

No biochemist this century could anticipate a state of knowledge stability adequate for a professional career that did not have constant input from new sources. The extensive digitisation of reference material and storage of data in national and international repositories means that the established practice of journal browsing may be expected to decline. [Even] teaching the mechanics of keeping current is therefore not practical, so we trust that the attitude of responsibility to keep current is what is transferred by our teaching. (S4, p. 1)

A second, and in many ways no less urgent, implication of this rapid technological change is that as the public becomes increasingly proficient through education, professionals will require new skills to communicate with a more sophisticated and technically educated public' (Munger et al., 1990, p. 13).
Continuing shift to an information society

The move towards being increasingly dependent on information has occurred in all advanced, western industrialised societies, and among other things has implications both for the economy as well as for most sectors of the workforce. In Australia, this trend has been documented by the House of Representatives Standing Committee for Long Term Strategies in its recent report *Australia as an Information Society: Grasping New Paradigms* (Jones, 1991). Broadly speaking, the 'information explosion' has two interrelated components: an increase in the volume and complexity of information, and an increase in the sophistication of how it is stored, accessed and transmitted.

In recent years, there has been an unprecedented increase in the amount of information available. For professionals, this has been a double-edged sword because, while it brings more and more information within their reach, at the same time it has made the process of retrieving and evaluating that information more difficult. To some extent this effect has been ameliorated by the availability of new technologies: not only is information more complex and more plentiful than at any time in history, but it can be coded in a variety of forms and transmitted with unprecedented speed across cities, countries and continents. But this too is not an unmixed blessing. According to Inose and Pierce, 'current advances in information technology have become more than extensions of the information technologies of the past. Information technologies are rapidly merging into one common digital electronic art of tremendous power and impact. The power of this art is so great that the changes it is working and will work in our civilisation are qualitative as well as quantitative' (1984, p. x). A submission from the Northern Territory University made a similar point:

> With changes in technology it will be possible that a different concept of 'Student Support' will emerge. For many students, increase in information technology may allow the creation of the 'virtual classroom and library.' The trend may be a move from direct human support through tutorials and lectures to indirect support through computers and data bases. Use of such information systems may well be coupled with a rather different social organisation on the world at large, as well as in the world of education. (S26, p. 33)

Thus the continuing changes in technology mean that people must be able to learn not only from familiar forms such as lectures, discussion sessions and written materials but from less familiar modes including educational broadcasts, video and audio cassettes, interactive teleconferences, computers, and even 'virtual reality.' Accordingly graduates need to be prepared not only to learn about technology, but to learn from it.

The whole concept of 'information-rich' and 'information-poor' (Wilson, 1987) relates closely to people's ability to gain access to the abundant information which now exists and this is related, among other things, to the geographic locations where individuals live and work, as well as to the size, complexity and wealth of their employers. In Australia, a large proportion of the workforce is employed in small enterprises which may lack the technological infrastructure and financial resources to obtain information available to 'large corporations, the media, government, and large associations' which,
in the United States at least, are not only major consumers of information but ‘are competing with universities in the generation of new knowledge’ (Munger et al., 1990, pp. 13–14).

Competing influences of specialisation and professional interdependence

The continuing education needs of professionals are being influenced by two almost contradictory impulses. On the one hand, there is the proliferation of specialised fields each with its own literature, its own culture and its own conferences and professional associations. In its most extreme form, this can actually give rise to new occupations.

On the other hand, professionals are expected to have a grasp of the interdisciplinary and interprofessional dimensions of their work. With respect to medicine, for instance, according to the Office of the Status of Women, Department of the Prime Minister and Cabinet:

Increasingly, doctors need to see themselves and to function as part of a multidisciplinary team of health professionals, able to recognise their own areas of expertise and deficiencies and to act as a reference point for others where appropriate. (Doherty, 1988, p. 160)

In medicine particularly, there are many instances of ‘problems that require professionals from different disciplines to collaborate’ (Queeney & Casto, 1990, p. 59). An example of this might be that of:

the elderly patient who may require the assistance of a physician, nurse, social worker, dietitian, theologian, psychologist and physical therapist... Working separately, these professionals cannot hope to identify comprehensive solutions to the problems being addressed, and in fact their actions may conflict. Collaboration affords them the opportunity to support each other's efforts as they work together toward a common goal... (Queeney & Casto, 1990, p. 57)

These alternating influences—specialisation and generalisation—have significant implications for education. On the one hand, initial preparation has to equip students with a sufficiently detailed background that they are able to pursue highly specialised postgraduate learning. Yet on the other hand, that same undergraduate training cannot afford to cut off professional skills and knowledge from their wider implications and linkages with other disciplines or other professions. It may prove that accommodating to these disparate pressures is one of the greatest challenges of education and training in the 21st century (see, e.g. Doherty, 1988).

Increasing internationalisation

The trend towards greater internationalisation impacts on the continuing learning needs of graduates in a variety of ways. At one level, many graduates find that their work brings them into contact with people from different cultures and, in order to fulfil their professional responsibilities adequately, they may need to learn about the social, cultural, religious, historical, economic and other aspects of different countries.
Secondly, in addition to this, because of the move towards a global information society, people in one country or region can often learn from the experiences of those in other parts of the world. A knowledge of other languages, customs, social structures and cultures can assist in communicating with, and learning from, people elsewhere.

Thirdly, since graduates commonly find themselves in relatively influential positions in business, government, defence, politics, religion, finance, science, the arts and other fields of human endeavour, they likewise find themselves able to exert an influence well beyond their local scene. Accordingly, an understanding of global interconnectedness is important to the appropriate exercise of their roles and responsibilities.

Fourth and finally, as opportunities for high speed international travel have increased exponentially in recent years, many graduates may not only tour, but even live and work, in countries often far removed from those in which they gained their education. It is therefore vital that they have a global perspective, as well as a sensitivity to the local mores and customs of countries and regions they visit.

Microeconomic reform and the changing workplace

In recent years, the combined effect of microeconomic reform and award restructuring has dramatically transformed workplaces. Along with that transformation has come the need for organisations to become—if they are not already—learning enterprises.

The notion of a learning organisation or a learning enterprise is somewhat fuzzy and contested, but essentially it is marked by features such as team- and network-learning, multiskilling, integrated career development, and continual skill formation which integrates on-the-job and off-the-job learning. In a grandly titled paper on ‘Organisational learning, tools and authority: A sociotechnical perspective’ Ford writes ‘A learning enterprise is one where individuals, teams and the enterprise itself are continually learning. This requires a shift away from the ‘bums on seats’ training mentality to innovations in interlacing work and learning; to the sharing of the development, transfer and use of knowledge and skills; and, to continual improvements in what is provided, how it is provided and when it is provided’ (Ford, 1991, p. 13)

Overall these various changes have important implications for all Australian workers, including graduates who, as Associate Professor Bob Cannon pointed out in his submission,

....will be operating in a world in which change is the norm and where, as a corollary, the intellectual capacities and skills for lifelong learning are essential for survival and satisfaction as well as success in that world. (S14, p. 7)

Such changes have implications for the frequency, nature, extent, form, and location of work-related learning and indeed for changing attitudes towards the relationship between formal and non-formal learning itself. In the next part of this chapter, attention is turned to the whole broad issue of what sorts of learning graduates have to, or choose to, undertake.
Categories of learning after graduation

As previously mentioned, it would be misleading to suggest that all postgraduation learning occurs in, or in relation to, the workplace. Like all other members of the community, graduates have pressures to learn which arise from pervasive social and technological change, from altering life circumstances, and from curiosity and interest. In the sections which follow, four major categories of postgraduation learning will be discussed, before moving on to a consideration of the sorts of attributes that graduates need in order to participate fully and actively in these different kinds of learning. These major categories are: workplace-based learning; continuing professional education; further formal (including postgraduate) study; and self-improvement and enrichment. It should be noted that to an extent these four different types of learning are arbitrarily distinguished from one another, and that in reality there may be considerable overlap in both the types of learning and their motivation. It was, however, considered useful to make this four-way distinction to emphasise the diversity of learning contexts that graduates confront.

Workplace-based learning

Although it is by no means universally the case, a significant proportion of graduates (a greater proportion than in the community-at-large) is either already in the workforce, or actually joins it at some stage after graduation. However, not all go directly into the field for which they were trained; some enter allied areas, and others again find themselves in domains that are only tenuously connected, if at all, with their undergraduate studies.

In the workplace, whether they are trained specifically for it or not, they embark on or continue with a kind of learning that differs markedly from their university experience. The nature and extent of workplace-based learning is a function of many things including: the size and complexity of the workplace; the ‘goodness of fit’ between the undergraduate degree and the field of work; the rapidity of change in the field; the attitude of the employer; the requirements of the profession; and the personal interests and motivation of the graduate himself or herself.

In many cases, the term ‘reality shock’ (Arnold, 1985, p. 308) accurately captures the sense of disjunction between the graduate’s expectations and his or her experience in the workplace. No matter how demanding and comprehensive an undergraduate program might have been, new graduates are often overwhelmed with the disorderly, rapidly changing and kaleidoscopic nature of the learning tasks they confront in the workplace (McTaggart, 1991; Singh, 1990).

Their initial confusion and discomfort in the new learning environment can to some extent be alleviated by the degree of assistance they receive from employers and colleagues alike. In a volatile field such as information studies or computer science, for instance, often the only way to learn is by immersion in the material and task at hand. A recent graduate whom we interviewed spoke of his token induction tour of the organisation he had recently joined:
It wasn’t much of an induction as such; it was a brief tour of what goes on, who does what—‘This is your role, wish you all the best. We don’t expect much of you in the first couple of months, but we do expect some return in, say, six months time.’

I knew I couldn’t learn anything in the first week; it was going to take me a long time. So what I did was sort of set myself some realistic goals that I thought I could achieve at certain times, and I sort of reflected back to my university studies, professional studies, where I had to actually develop realistic goals and objectives. I sort of went back and had a really good think about what I did then, and sort of applied that here and it worked. (T89)

A recent study (Candy & Crebert, 1991a) identified 18 major differences or discontinuities between the university and the workplace as learning environments. Whereas university learning is generally curriculum-driven, competitive, theoretical, abstract, long-term, and generalised, workplace learning tends to be more problem-based, collaborative, applied, immediate, and specialised. These differences have been cast into even sharper relief by the recent dramatic changes which have impacted, and continue to impact, on Australian workplaces. In a paper on ‘The Learning Enterprise’ Ford (1991) identifies trends such as internationalisation, the reduction of critical lead times, the implementation of total quality management, and workplace restructuring as major factors which are not only shaping the need for continuing change and adaptation but which are themselves altering the sorts of learning that graduates—along with others in the workforce—have to undergo.

Continuing professional education

Quite apart from the process of learning any job and keeping-up through the demands of practice, more formal opportunities exist for practitioners to upgrade, refresh or retrain through participation in various types of educational opportunities. These extend from complex specialised and often residential programs through activities of varying length, depth and format, to self-directed reading and practical programs. Those activities at the more formal end of the continuum are variously provided by Government agencies, advisory and regulatory bodies, professional associations, unions, employers, ‘for-profit’ companies, and universities themselves.

Increasingly the professions, through their associations or societies, are imposing the need for their practitioners to undertake regular, credit point-bearing continuing education courses to ensure that they are regularly brought up-to-date with new developments in technology, techniques, drugs, laws etc. Some, such as the Australian Institute of Agricultural Science, recommend that professionals should participate regularly in continuing professional education, primarily that which is quantifiable and consequently formally recognised:

It is recognised that the full range of structures and self-directed professional development experiences assist an individual to develop professionally. However, only structured activities which fall within the definition of ‘Continuing Professional Education’ can be easily measured or compared with each other. (S12, p. 7)
Others, including the Royal Australian College of Physicians' 'Maintenance of Professional Standards' program (RACP, 1993), have gone to considerable lengths to give appropriate support and credit for a variety of forms of continuing professional education, including self-directed learning. In many such cases, the expectation that people will engage in certain specified forms or amounts of continuing education is built into the periodic renewal of practice certificates as a mandatory requirement.

The development of mandatory and often formally recognised types of continuing professional education, along with the emergence of multiple providers, has led to the recognition of continuing professional education as a distinct entity, drawing its characteristics partly from the field of continuing education, and partly from professional education.

Universities are involved with continuing professional education on both sides of the equation; that is through the supply of and demand for continuing professional education opportunities. On the one hand, and perhaps most obviously, they may be direct providers of continuing education programs themselves. Moreover, they are often influential in determining the content and format of continuing professional education, especially in its relationship to initial professional preparation. On the other hand, universities can assist practitioners to be enlightened and informed ‘consumers’ of continuing education, as well as inculcating in their graduates both the habit of and skill for regular involvement in Continuing Professional Education.

With regard to the first of these domains, this research suggests that an explicit concern with lifelong learning is often built into the curriculum when a professional association or accrediting authority (a) specifically mentions this in their charter; or (b) insists on evidence of its importance in the accreditation and approval of undergraduate awards for certification. For instance, the Australian Medical Association’s submission to this study pointed out that its policy documentation concerning medical education specifically links the two areas of continuing education and lifelong learning. Medical practitioners are required to ‘maintain their professional standards... [which] in its broadest sense, include[s] any activity that facilitates lifelong learning and the timely adoption of proven innovations in medical practice’ (S6, policy no. 29/92).

It is, however, the second of these dimensions which is more closely related to the central purpose of this study; namely, how can undergraduate education enable and encourage graduates to undertake further formal and non-formal learning throughout their lives? Given the range of forms of Continuing Professional Education, this is a major challenge. Our study showed that voluntary participation by graduates in Continuing Professional Education is most likely when this sort of respect for continuing learning is modelled (not just enjoined) by the academic faculty of the institution concerned, a point that is dealt with in more detail in chapter eight.
Further formal study

Within the broad spectrum of possible learning that graduates may undertake, the most formalised is that which takes place in, or is organised by, educational institutions or professional bodies. This may include structured internships and ‘professional years,’ further study at the undergraduate level, participation in TAFE or other vocational courses, and postgraduate study, including diploma, masters’ or doctoral programs.

In many of these cases the student’s learning experiences are simply an extension (or even a repeat) of the undergraduate experience. Even graduate diplomas and coursework masters’ degrees which are unrelated to the student’s first degree (such as a diploma in education or in computing science) may be postgraduate in time, but not in level. As such, they commonly bear a distinct resemblance in their teaching methods and assessment practices to the undergraduate degree which provided the basis for admission.

Research-based postgraduate awards, on the other hand, commonly presuppose a greater degree of independence, of intellectual rigour, of subject-matter expertise, and of methodological sophistication than the student may have developed or found necessary at the undergraduate level. Fashionable as it may be to ridicule higher degree holders as ivory-tower academics, and even common as it is for holders of such degrees to denigrate their own accomplishments in many employment-related settings, the fact is that completion of a higher degree, especially by research, can provide a very sound grounding that fits people well for employment—even in unrelated fields. Possibly this is due to the type of learning that students experience in postgraduate as opposed to undergraduate study. Higher degrees tend to be more research-based than undergraduate degrees and hence the type of learning is necessarily of a more independent and self-directed nature. The Economic and Planning Advice Committee report, Education and Training in the 1990s suggests:

an employer might be looking for evidence of intelligence, ability to apply oneself or ability to perform within a system of constraints. A person who has successfully completed a number of years of post-compulsory education might be assumed to have such characteristics. The content of the study may be of limited use or relevance to the employer, but the fact of successful study is of considerable importance. (EPAC 1993, pp. 36–37)

It might be argued that in the past, in the era before mass participation in higher education, undergraduate degrees were often excessively geared towards producing graduates who would go on to further postgraduate work. Today, many degrees are exactly the opposite; that is they are more geared towards the bachelor’s program as ‘terminal,’ thus potentially creating difficulties in terms of inadequate preparation for those choosing to proceed to higher degree study in the field.

Self-improvement and enrichment

The fourth and most nebulous type of postgraduation learning is simply that great sea of personal inquiry through which we express and enhance our human longing to be, to become and to belong. It may be pursued in an infinite variety of ways, ranging
from enrolment in formal courses, through various short courses and inservice programs, a range of self-directed means and ultimately to incidental and adventitious ‘learning from living.’

This kind of learning is near-universal: certainly it is far from the exclusive province of graduates. Nevertheless, there are good reasons for supposing that undergraduate education enhances the total life experiences and learning orientation of its beneficiaries. According to Barnett (1990), higher education promotes abilities of personal value such as discrimination, respect for knowledge, independence, self-awareness, discipline in thought and action, constructive scepticism, creativity, imaginative perspective and acceptance of criticism. All these personal qualities are valuable in their own right and warrant developing on that count alone. Any educational process at university should hopefully demand a level of personal engagement such that each student ‘should be encouraged to make a personal response to his/her experiences’ and consequently ‘develop important aspects of his/her potential’ (pp. 6-7).

In their Australian study of the impacts of higher education on ‘adult’ students (i.e., over 25) West and Hore (1989) reported ‘medium’ to ‘large’ increases in students’ self-esteem, intellectual interests, social liberalism, feminist attitudes, altruistic orientation and overall life satisfaction. The authors claim ‘that some part, at least, of these changes can be attributed to the impact of higher education’ (p. 473).

Intuitively, it would seem likely that most graduates overall do have greater life chances and more rewarding existences than non-graduates, but this may be a consequence of their upbringing, their early schooling, or their life experience including employment, rather than specifically of their studies. This point was made by Professor Cameron Hazelhurst of Queensland University of Technology in his submission to this study:

> There is, for example, no body of research which validates the supposition that what goes on inside universities is likely to be as significant in conditioning future behaviour as what has happened to students before they arrive, what else happens while they are students, what may happen to them after they graduate, and what may have been determined by their genetic endowment. (S56, p. 1)

It is, of course, virtually impossible to establish categorically the benefits of a university education in terms of people’s ability and willingness to learn in the wider areas of life; to answer the question: would this same person have had similar learning experiences, or learned in the same way, had they not gone to university? Despite the lack of a satisfactory answer to this question there is a great deal of evidence (from Australia, Canada, the United Kingdom, the United States and elsewhere) to suggest that the higher one’s education, the more one tends to participate in all sorts of learning experiences.

In addition to evidence about the amount of learning, there is even some suggestive data about its type. A Swedish study (Borgström, 1985) confirms the suspicion that those who are already educated tend to engage in forms of further education which have a higher socio-cultural ‘payoff.’ This then becomes an important equity issue, because if a government is committed to more equitable access to and use of
educational opportunities, including those that are not specifically career-oriented, presumably more must be done to encourage and support those who have not had access to university level studies (e.g., TAFE graduates and school leavers) to further their own education in a range of ways (Aulich, 1991).

Profile of the lifelong learner

From the foregoing, it is clear that graduates have much the same learning needs as others in society at large. Admittedly, because of their experience at university, they may be more attuned to formal learning than others, but in the final analysis, most of their learning needs and indeed their learning strategies are comparable with the rest of society. After all, like everyone else’s, graduates’ learning needs can be met in a limitless variety of ways: reading, joining classes, attending lectures, talking to others, travelling and observing, watching television and listening to radio, joining clubs and societies, being members of families; in fact through the processes of living.

One major part of this study has been to attempt to adduce some sort of profile of the qualities and attributes that are possessed by the effective lifelong learner. In doing so, the challenge has been to identify those aspects of learning competence which seem to be applicable to all different sorts and contexts of postgraduation learning. On the basis of our study, including the submissions, the interviews, the readings, and our analysis of course documentation, we would suggest that the lifelong learner would exhibit the following qualities or characteristics to some degree:

An inquiring mind
- a love of learning;
- a sense of curiosity and question asking;
- a critical spirit;
- comprehension-monitoring and self-evaluation;

Helicopter vision
- a sense of the interconnectedness of fields;
- an awareness of how knowledge is created in at least one field of study, and an understanding of the methodological and substantive limitations of that field;
- breadth of vision;

Information literacy
- knowledge of major current resources available in at least one field of study;
- ability to frame researchable questions in at least one field of study;
- ability to locate, evaluate, manage and use information in a range of contexts;
- ability to retrieve information using a variety of media;
- ability to decode information in a variety of forms: written, statistical, graphs, charts, diagrams and tables;
- critical evaluation of information;
A sense of personal agency
- a positive concept of oneself as capable and autonomous;
- self-organisation skills (time management, goal-setting etc);

A repertoire of learning skills
- knowledge of one's own strengths, weaknesses and preferred learning style;
- range of strategies for learning in whatever context one finds oneself; and
- an understanding of the differences between surface and deep level learning.

Each of these characteristics—except for information literacy—is more fully illustrated by one or other of the Course Profiles which appear later in part three of this document. Information literacy is dealt with at length in chapter eight as well as being present, to a greater or lesser extent, in each of the courses profiled.

In offering this 'composite profile,' three major observations must be emphasised. The first is that these attributes will be embodied in different people in varying degrees and combinations, according not only to their individual backgrounds and fields of study, but also according to their construction of the demands of each particular learning situation. Thus there is no such thing as a 'one size fits all' profile of the lifelong learner; these characteristics are only generic or context-free to a limited extent.

The second is that overarching all these various attributes is the ability to act strategically as learning needs and opportunities arise. This was expressed very forcefully in one of the submissions we received:

Thriving, not merely surviving, in [a situation] where change is a constant and ever-present challenge—not an occasional, disruptive occurrence—is the most obvious sign of our lifelong learner. Not only does she possess the skills and knowledge to operate effectively and efficiently in this environment, she also has the creativity, intuition, and motivation to view this challenging environment as a vehicle for her own self-improvement. Our lifelong learner stands out from those who have similar skills and knowledge, and even the desire to learn, because she is able to strategically manage her own learning. (S52, p. 1)

The third major observation is that learning competence cannot be achieved in isolation, nor can it meaningfully be lifted out of the total context of the educational outcomes desired from any particular course of study, or for that matter from undergraduate education as a whole. This immediately raises the problem of what broader conception of education is embraced, a theme to which the report turns in the next chapter.
References


Building Lifelong Learning into Undergraduate Education

Introduction

Over the past century or so, consideration of the nature and purpose of the university—and in particular of undergraduate study—has attracted a great deal of scholarly attention. It is well beyond the scope of this chapter to review anything but a fraction of the considerable literature that these topics have spawned. However, given its central importance to this study, we considered it vital to place the issue of developing lifelong learning competence into the context of undergraduate study, and in turn to place the subject of undergraduate study into the broader context of learning more generally.

This study commenced from the conviction that undergraduate education itself forms part of the continuum of lifelong learning. Moreover it is assumed that it is capable of contributing to the quality of graduates' further lifelong learning by increasing their ability and willingness to continue learning throughout their lives. However, the development of a capacity for lifelong learning, vital as it is, is not the exclusive preserve of undergraduate education, any more than it is the sole purpose of undergraduate education. Other parts of the educational spectrum also contribute to the development of a capacity for lifelong learning, and moreover, undergraduate education has other purposes besides this development.

This chapter begins with a very brief consideration of the distinctive characteristics and features of undergraduate education as well as where it fits within the overall scheme of education. It must be pointed out that conceptually, if not organisationally, this is counterintuitive, as one of the foundational values of lifelong education is that it seeks to break down and eradicate boundaries between types of learning and levels of education and to create a seamless web of learning opportunities. The chapter then moves on to examine how undergraduate education fits in—if it does—with prevailing notions of ‘the educated person,’ and to a consideration of other factors or forces at work in shaping it.

Finally, the chapter provides a three-part model of the main components or aspects of undergraduate education, and it concludes with some observations about the central place of lifelong learning skills in the undergraduate program.

The place of undergraduate studies in the educational spectrum

Undergraduate education does not exist in a vacuum, either for the individual learner or for ‘the system’ as a whole. Virtually all people gaining admission to undergraduate study have already passed through primary and secondary schooling. In addition, some come to university via studies in the TAFE system or with credit for
other types of learning obtained elsewhere. Some carry on to complete postgraduate studies, and all, without exception, are immersed in a limitless sea of learning possibilities throughout their lives at home, at work, through participating in adult education activities, and in the community.

Thus undergraduate education, from the point of view of an individual learner, occupies a relatively small (but presumably significant) slice of his or her total experience of learning. Since no two people follow identical paths through life, it is safe to say that no two people experience exactly the same undergraduate learning; one needs only to compare the experiences of a full-time student living at home, a part-time student simultaneously attempting to hold down a job and manage a family, and another person undertaking the same studies through open learning to realise that there is no such thing as the undergraduate experience.

At another level, however, undergraduate education does fit a particular niche in the ecology of education. It is not the same as upper secondary schooling, nor is it interchangeable with enrolment in a TAFE course (even one in the same general vocational area). Generally the expectations which staff hold of undergraduate students are different from those they hold for postgraduates (although this is difficult when, as sometimes happens, they occupy adjacent seats in the lecture theatre and sit the same exam), and likewise a person who has graduated from university would generally be expected to exhibit a more thorough knowledge and a more intellectually-disciplined approach to learning than someone whose entire education had been in 'the school of hard knocks.' Where, then, does undergraduate education ‘fit’ in the overall array of learning contexts and opportunities?

One approach to the answer might be through considering that it is primarily concerned with people’s roles as adults and particularly as members of the workforce. In a recent discussion paper for the Royal Society for the Encouragement of Arts, Manufacturers and Commerce on ‘The Role of Post-Compulsory Education and Training’ in Britain, Ball puts forward an elegant, if somewhat oversimplified, conceptual model of education as comprising three components as follows:

- Foundation (up to 16 years of age)
- Formation (14 to 21)
- Continuation (18 and beyond)

Since each of these overlapping stages or phases has certain distinctive features, it is important to quote his description of them at length, before considering the place of undergraduate education within this framework.

Although this report is not primarily concerned with foundation, it is impossible to write sensibly about formation and continuation without setting out some of the key characteristics of the antecedent stage. Foundation should be concerned, above all, with helping young people to learn how to learn—or rather to develop their natural instinct for learning.... Since we can all learn successfully, if only we have motivation, confidence and a good example (and few learn without these), the establishment of confidence and the development of motivation are the first tasks of
the teacher, together with the living demonstration that success is possible.... The success of the foundation stage will be measured, first, by the degree of motivation to continue learning. The objective of those responsible for foundation should be 100 per cent participation in the voluntary formation stage. The second measure of foundation is the proportion of the age-group who master the national curriculum and proceed to the next stage with the basic knowledge, skills, attitudes and experience upon which all else depends.

Formation is concerned with the development of those who have moved beyond the dependency of childhood but not yet achieved independent adulthood. It is a difficult and dangerous period of life; people need much care and support at this stage—but are not always ready to receive it.... [To describe this stage], Americans use a term ‘workplace-readiness’—which they also describe as ‘the fourth R.’ It is a helpful concept which points up the central task of formation. It is a transitional stage. For many, probably for most, there will still be much to learn in order to secure a firm foundation of general education. But, at the same time, all will be developing specific and applied skills and knowledge (together with the appropriate personal and transferable skills and attitudes) to enable them to enter the workforce as effective members....

The third phase is continuation. Adults who have completed the foundation and formation stages will be self-motivating, independent and confident employees. For these adults provision [for learning] is needed both in employment and through other means. Increasingly these are likely to include open-learning workshops, distance learning, self-managed study and discussion groups, as well as traditional classes.

But even the most successful nations still find that about 10 per cent of adults fail to achieve this state. In a ‘learning society’ there would inevitably be a need for special provision for this group—slow learners, late developers, the long-term unemployed, eccentrics, drop-outs, the damaged, the deranged, and the desperate. This report recognises a collective social obligation to provide for their needs, and to offer them help and support without indignity. However, it is not primarily concerned with this peripheral group, but rather with establishing arrangements which will prove adequate for the majority, including the broad range of ability, attitude and aspiration which can be recognised as normal. Normal adults can be expected to take responsibility for their own continuing education and training. Recognising that ‘learning pays,’ both employers and employees will cooperate to create an effective ‘education and training market’ throughout the continuation phase. The role of government and public funding might be restricted to helping the short-term unemployed and those on very low pay, as far as this broad group is concerned. (Ball, 1991, pp. 15-16)

Within this schema, and although many mature-age students and those undertaking non-vocationally oriented studies might see their degree more as ‘continuation,’ there are, nevertheless, advantages in seeing undergraduate education as part of ‘formation.’ The first is that it might reasonably be expected that schools would already have performed some of the ‘foundational’ work—in terms of basic subject-matter knowledge, motivation and confidence to go on learning, and the possession of certain
'learning-to-learn' skills. The other principal advantage of viewing it thus is that it helps to fix the financial responsibility on the state, leaving the learner to pick up the tab for his or her 'continuation' stage.

This line of argument rests on the fact that an undergraduate degree is, for the most part, simultaneously a public and a private good. Clearly at one level, there are social, cultural and economic consequences from having a greater proportion of the population with degrees, and this is true whether those people are in the paid workforce or not. At the same time, the possession of a degree is a personal benefit, bestowing on its owner such advantages as a wider view, more cultural capital, and not infrequently greater mobility and earning power. This realisation has significant consequences in terms of who should pay. To quote Ball again:

...where the state makes education compulsory it has a duty to provide from public resources adequate schooling for all. Foundation is a task for the government and the taxpayer. As education becomes optional in the formation and continuation stages the argument for state provision becomes weaker. Nonetheless it is argued here that, because of the importance of this stage to the national economy and the need to care for those at risk in the formation stage, the state should take the leading responsibility in providing the means for all to complete their formation, and not just for the academic elite. In such a system, continuation could be safely left to the market and funded privately...[especially] once a true learning society has been established. (Ball, 1991, pp. 18–19)

Characteristics of an undergraduate education

It would seem, then, that undergraduate education fits broadly into the 'formation' stage of educational provision, but this raises a further question: how is it distinguished from other aspects of formation? In the utopian world of a fully fledged learning society, where lifelong learning is a reality rather than a slogan, boundaries between levels of education and types of learning would dissolve; formal, nonformal and informal learning would enjoy 'parity of esteem'; industry training would blend imperceptibly into publicly funded education; and the issue of how undergraduate education was distinguished—both from what went before and what came afterward—would be irrelevant, at least from the point of view of the learners themselves.

Indeed, although our world is far from utopian, we are already witnessing the collapse of formerly clear distinctions, with the sharp divisions between levels of education becoming increasingly indistinct. For instance, some postgraduate education is, as previously mentioned, not postgraduate in level and is effectively indistinguishable from undergraduate education. Likewise, the move for schools to offer Year 13 subjects, the existence of International Baccalaureate students in our schools who obtain exemption from parts of first year studies, and the credit transfer arrangements between TAFE and universities all do much to bring into question what is the core in terms of undergraduate studies.
But our world is not utopian, and until such time as we collectively embrace and endorse the concept of the ‘learning society,’ governments, employers, schools, professional associations, universities, TAFE colleges, private providers, and students themselves will continue to be interested in the boundaries between and among various components of the educational spectrum. Accordingly, in this chapter, an attempt will be made to identify the distinctive characteristics of undergraduate education.

It seemed to us that the question, 'What makes higher education higher?' while it could not be definitively answered within our study, could at least be approached in three ways. One is by examining how undergraduate education compares with other sectors of formal education, a second is by seeking to identify a core of learning outcomes or attributes that are commonly associated with university graduates, and a third is by asking lecturers, students and graduates what they understand to be the purposes of undergraduate education. Accordingly, in the sections that follow, these three different approaches are explored: comparison with other sectors of education, consideration of the ideal of the educated person, and the views of various stakeholders or participants in the process.

Comparison with other sectors of education

One approach to specifying the characteristics of an undergraduate degree is by contrasting it with other aspects of formal education, although, as mentioned above, there is increasing overlap between and among undergraduate, school, vocational and postgraduate education, and it is difficult if not impossible to place them into watertight compartments. Nonetheless, at the risk of oversimplifying the issues involved, an attempt is made in the following table to summarise the salient differences between school, vocational, undergraduate and postgraduate education.
### Differences between school, vocational, undergraduate and postgraduate education

<table>
<thead>
<tr>
<th>School</th>
<th>Vocational Education and Training</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>knowledge</strong>—broad general knowledge of our society and Western culture; major areas of knowledge in the major disciplines.</td>
<td><strong>knowledge</strong>—deep knowledge of a technical speciality but not necessarily a whole discipline.</td>
<td><strong>knowledge</strong>—broad outline of a whole discipline, including major concepts and theories and major proponents/practitioner(s)/theorists; knowledge of where the boundaries are—‘starting’ boundaries being the history of the discipline and ‘finishing’ boundaries being where current research is.</td>
<td><strong>knowledge</strong>—deep knowledge of a specialised area within a discipline specialised knowledge of one of the discipline’s areas of current research.</td>
</tr>
<tr>
<td><strong>skills</strong>—practice at medium level of major literary, numerate, creative and physical skills.</td>
<td><strong>skills</strong>—to the point of skilled independent practice in chosen technical speciality; good level of communication skills.</td>
<td><strong>skills</strong>—high level of communication skills; ability to conduct self-directed learning; ability to use the discipline’s major modes of inquiry, ability to recognise high quality professional practice.</td>
<td><strong>skills</strong>—to the point of highly skilled professional practice.</td>
</tr>
<tr>
<td><strong>attitudes/behaviours</strong>—ability and preference to behave within the range of socially acceptable ways.</td>
<td><strong>attitudes/behaviours</strong>—ability and preference to practise vocation ethically; preference for logical approach to problem analysis and decision-making.</td>
<td><strong>attitudes/behaviours</strong>—ability and preference to serve the community and assume community leadership; preference for a dispassionate intellectual approach to problem analysis and decision-making; inclination to continue learning in either a formal institutional setting or through following own intellectual curiosity.</td>
<td><strong>attitudes/behaviours</strong>—ability and preference to practise profession ethically, assist in setting standards of practice for others.</td>
</tr>
</tbody>
</table>
From this, it may be seen that undergraduate education is characterised as broad, rather than narrow; practical yet theoretically based; involving rigorous in-depth knowledge of some discipline or field of study; the attainment of high-level communication and other generic skills; and demonstrating a predisposition towards continuing personal and professional development.

In a response to a discussion paper prepared and distributed as part of this study, Professor Brian Low of the University of Technology, Sydney, made the following observations:

There is no simple answer to the question; 'What distinguishes undergraduate education from school education, postgraduate education and vocational education?' and it is not possible to cover all aspects in this answer. However, so far as the undergraduate courses offered by the University of Technology, Sydney, Faculty of Engineering are concerned, the following points apply:

- they deal with material in a generally agreed area or field of interest not covered by school education, although they draw on generic skills and information provided in school education;
- they generally require a greater understanding of scientific concepts and involve practical but more complex synthesis of these through the engineering sciences than is found in vocational education. They provide a stronger basis for handling ongoing developments than vocational education;
- they are generally not as advanced as postgraduate education which tends to be more narrow and deeply based. (Low, 1994, p.3)

Low also went on to point out that 'undergraduate education 'ideally' has to do with becoming independent, entering adulthood and forming a vocation.' However, as he points out, 'many students enter undergraduate education later in life, after forming their vocation, and establishing their independence.' For this reason alone we should be wary of any statement purporting to capture the essence of all undergraduate education, and hence the above table is intended only to identify some salient differences, rather than as a definitive statement about the nature of undergraduate studies.

The ideal of the educated person

An alternative approach to deciding the characteristics of an undergraduate education is to consider the overall outcomes that might reasonably be, and commonly are, expected from such studies. Although it is somewhat nebulous, and by no means universally agreed, a useful notion for this purpose might be what constitutes an 'educated person.'

The notion of the 'educated person' is itself subject to change. As Bouwsma (1975) points out in his useful review of 'Models of the Educated Man' (sic), there are numerous alternative views of what it means to be educated, and these have changed over time, according to the dictates of current taste.

In ancient times, definitions of the educated person were relatively succinct: Isocrates listed four essential qualities of the ideally educated person, Plato five, and Comenius three (Nash, 1968). As we move towards the present, not unexpectedly the conception
of educatedness becomes more complex (and, because of a diversity of views, more controversial). In 1930, and betraying the sexist world view of the times, Wiggam listed 18 ‘Marks of an Educated Man,’ including such quaint formulations as: ‘he never laughs at new ideas,’ ‘he knows that popular notions are always wrong,’ ‘you can’t sell him magic’ and ‘he lives a great religious life.’ Relevant to this study, Wiggam also included, ‘he knows it is never too late to learn.’

In 1953, Hutchins gave a minimalist definition, again of an educated man:

[He] must know how to read, write and figure. He must know and understand the ideas that have animated mankind. He must comprehend the tradition in which he lives. He must be able to communicate with his fellow men (sic). Through familiarity with the best models he must have constantly before him [a] habitual vision of greatness....(Hutchins, 1953, p. 95)

Another economical definition is provided by Dressel (1968), who states that the ideal graduate should:
- know how to acquire knowledge and how to use it;
- have a high level mastery of the skills of communication;
- be aware of his or her own values and of those of other individuals, and recognise the importance of accepting contrasting values to satisfactory interactions;
- have awareness, concern and a sense of responsibility regarding contemporary events, issues, and problems; and
- see his or her college or university experience as coherent, cumulative and unified, and recognise the relevance of those studies to his or her further development as an individual and a member of the community. (pp. 484–488, passim)

In 1978 the Carnegie Foundation for the Advancement of Teaching published the results of its compendious review of undergraduate education under the title Missions of the College Curriculum. Among other things, it reproduced and discussed at length, various conceptions of the educated person, including that advanced by Rosovksy, Dean of the Faculty of Arts and Sciences at Harvard. The educated person:
- must be able to think and write clearly;
- should have a critical appreciation of the ways in which we gain knowledge and understanding of the universe, of society and of ourselves;
- cannot be provincial in the sense of being ignorant of other cultures and other times;
- is expected to have some understanding of, and experience in thinking about, moral and ethical problems;
- should have good manners and high aesthetic and moral standards...the capacity to reject shoddiness in all its many forms, and to explain and defend [his or her] views effectively and rationally; and
should have achieved depth in some field of knowledge...Cumulative learning is an effective way to develop a student's power of reasoning and analysis...[and to] gain sufficient control of all data, theory, and methods to define the issues in a given problem, develop the evidence and arguments that may reasonably be advanced on the various sides of each issue, and reach conclusions based on a convincing evaluation of the evidence. (Carnegie Foundation, 1978, pp. 156-158)

As a result of its extensive review of various formulations, both of educatedness and of the role of undergraduate education, the Carnegie Foundation proposed a set of 'Goals of Higher Education,' which is reproduced at Appendix A to this report.

More recently, in an Australasian context, the Victoria University of Wellington's Draft Strategic Plan identified the goals of a university education in terms of a 'graduate profile'—someone who would characteristically:

- display a broad yet coherent knowledge in a discipline area;
- reason logically and distinguish fact from opinion;
- have skills in analysis, synthesis, decision making and creative thinking;
- appreciate other cultures and customs;
- communicate clearly and fluently in writing;
- be orally articulate and confident;
- value truthfulness, accuracy, honesty, ethical standards in personal and professional life and equity concerns;
- have learned to accept responsibilities and obligations as well as assert rights;
- have a desire and the skills for continued intellectual development and creativity;
- be numerate and proficient in the use of information technology;
- have an awareness of New Zealand's place in a global context;
- show initiative and leadership;
- possess interpersonal skills including the ability to work in a team;
- be self-disciplined and motivated; and
- be adaptable to change and flexible in approach. (Victoria University of Wellington, 1993, p.2, emphasis added)

Finally, in a submission to this study, the University of Sydney identified the following 'generic attributes of graduates' which it was recommended should form the basis of faculty-specific statement of outcomes:

Generic attributes of graduates of the University of Sydney

As a result of completing any undergraduate degree course at the University of Sydney graduates will be more employable, more able to cope with change and more developed as people. In specific terms, graduates of any faculty, board of studies or college of the University should have:
(1) Knowledge skills

Graduates should

(a) have a body of knowledge in the field(s) studied;
(b) be able to apply theory to practice in familiar and unfamiliar situations;
(c) be able to identify, access, organise and communicate knowledge in both written and oral English; and
(d) have an appreciation of the requirements and characteristics of scholarship and research.

(2) Thinking skills

Graduates should

(a) be able to exercise critical judgement;
(b) be capable of rigorous and independent thinking;
(c) be able to account for their decisions;
(d) be realistic self evaluators;
(e) adopt a problem solving approach; and
(f) be creative and imaginative thinkers.

(3) Personal skills

Graduates should have

(a) the capacity and desire to continue to learn;
(b) the ability to plan and achieve goals in both the personal and the professional sphere; and
(c) the ability to work with others.

(4) Personal attributes

Graduates should

(a) strive for tolerance and integrity; and
(b) acknowledge their personal responsibility for
   (i) their own value judgements; and
   (ii) ethical behaviour towards others.

(5) Practical skills (where appropriate)

Graduates should be able to

(a) collect, correlate, display, analyse and report observations;
(b) apply experimentally-obtained results to new situations; and
(c) test hypotheses experimentally. (S21, pp.6–7)

It will be noted that item 3(a) relates particularly to the issue of lifelong learning.
Views of various stakeholders

An alternative way of finding the perceived purposes of undergraduate education is to ask a range of people having some legitimate 'stake' in the outcome. Such groups include the professional associations which graduates often join when they have completed their studies. Such associations in turn frequently have policies which embody their official attitude towards education and continuing education. Thus, for instance, the Australian Library and Information Association:

through its policies on education for library and information professionals believes that one of the roles of undergraduate education is to provide students with the knowledge, skills and attitudes necessary for professionals to continue their education and their learning in both formal and informal settings throughout their careers. (S34, p. 2)

As part of our study, we asked all participants in the interview program to outline what they considered to be the purposes and outcomes of higher education. We put forward as the 'givens' knowledge and technical proficiency which we suggested were fundamental to any form of post-compulsory education. The interviews revealed that there is no uniform monolithic view of the purposes of undergraduate education within various groups of stakeholders, much less across them all.

We assumed that, for the most part, teaching staff and student support staff would be more concerned that higher education should develop students' higher order skills and transferable generic skills than would students and graduates, who might feel that the primary purpose of higher education was to prepare them and give them the requisite knowledge and skills for the job market. This difference of opinion is reflected in the three following comments, the first two from members of teaching staff, and the third from a final year student:

...students who leave our courses should be able to inquire into any issue that is important to them in their work or in their personal life. They should have the skills which enable them to define what it is they're interested in and a strategy to investigate that issue and find the information, and assimilate the information and then weigh up the information...and then come to their own conclusions and be flexible, in that if they come across somebody with more expertise or with a different view, they can take that on board too. (T47)

The ideal graduate is someone who has acquired here a fairly considerable range of technical skills on a purely craft basis. They can represent that world outside, they have abilities to use and [they can] represent it quite accurately if they wish...They are therefore process driven as much as, if not more than product driven. So rather than if they were a painter making another twenty red paintings of sunsets each one is...exploring new territory but is not necessarily totally radical in that their new territory might be like late Monet's Lilypads...Their experimentation is controlled, is based on technical skills but [always] driven by a sense of curiosity about the world and about themselves. (T18)
...students have certain expectations and there’s not a lot you can do about that because they’ve come through the system and lived in this economic climate and they want a job—that’s number one on their agenda. And no matter what sort of teaching skills you have or how good a syllabus you have or how flexible it is, if students don’t want to be a part of it they won’t, you know, and they’ll refuse to learn, refuse to participate...that’s a big problem regardless of what a great course you’ve got to offer. If people don’t want it, they won’t swallow the pill. (T111)

Not all the interviews, however, suggested such polarisation. Many final year students and graduates expressed a genuine concern that higher education should be fostering their sense of inquiry and broad vision, while some academics acknowledged that in the current economic climate higher education was becoming increasingly vocational in its purpose. For instance, graduates, with the benefit of hindsight and with their initial experiences in the workforce behind them, generally took a broader view of the purpose of higher education which they felt should be aiming to give students the necessary life skills as well as vocational skills:

I believe that the best thing we could do is to give people a well rounded education in undergraduate degree courses, and then further down the track tailor courses pertinent to the workplace, or, you know, specific job requirements. I think that’s what we’re really missing: we need to tap into creativity rather than turn people into robots before they need to become robots. (T38)

I think an appreciation of learning and a desire to learn, also an ability to learn. I think a university can never equip you with everything you need to know, certainly not at a professional level...I think an appreciation for learning is for always, and so I think the university should be equipping people for that. (T88)

I think they should be concerned with the individual’s own development, not just in a personal sense but in relation to their social responsibility...Actually implementing roles and what the consequences of various actions have on other groups in the community. I think those broader issues should be addressed. (T114)

There was, nevertheless, a note of cynicism in many student’s comments about the gap between the university’s rhetoric and the reality of their own experiences as undergraduates:

I’m not sure what the university actually aims at or even what it should aim at. It doesn’t seem to me...that the university as a sort of monolithic educational institution has any sort or broad aims...it’s never been made obvious to me...And as to what they should [be doing], I’m not real sure...it seems that the numbers speak fairly loudly in terms of a successful institution being one that would turn out x graduates in x time. (T62)

...one of the things that is happening for me is that I am coming away from the university with the attitude that if you really, really enjoy a subject [you should] never study it at university, because it ruins it, destroys it. So for me an outcome that would
be useful would be to enhance students' pleasure as a result of the course, rather than diminish it. I have talked to several other students, friends of mine, who have similar views. (T35)

Clearly there was no general agreement amongst the people to whom we spoke on the defining characteristics or basic purposes of undergraduate study. For every person who believed that on leaving the university the graduate should, ideally, be able to learn independently, possess a wide range of generic skills, have an open mind, a commitment to ongoing research and inquiry and a sense of social responsibility, there was another who had a more limited view of the ideal graduate and thus of the ideal education. While some academics hoped that their students would leave their courses as ‘graduates with wisdom,’ (T97), others took a more pragmatic view of the lifelong learner as someone who subscribed to journals (T26), who read newspapers (T24), who was an ‘autonomous professional’ (T85), ‘technically skilled at work’ (T105) or who, in some disciplines at least, ‘would know enough not to kill anybody’ (T20).

While recognising the legitimacy of those difference perspectives, in our view, a more detailed specification of the nature and extent of undergraduate education might have been helpful to this study, and accordingly it is recommended that a separate study be undertaken to determine precisely the boundaries and characteristics of undergraduate education and how it differs from other components of the ‘formation’ stage of education (R4.1).

Components of the undergraduate program

From the foregoing, it is apparent that not only is there no such thing as the undergraduate experience, but neither is there any such thing as the undergraduate course. Every course is shaped by its own history, by the interests and expectations of various groups—including staff, students, employers and professional associations—and by some amorphous yet nonetheless compelling considerations such as what society expects and wants from its universities.

In the next part of the chapter, attention will be turned to the various parts of the undergraduate program; the basic building blocks, as it were, of any course. There are various ways of categorising and classifying these components, but for the purpose of this study, a three-way clustering was considered appropriate. Undergraduate education includes, as Ball puts it, three components: ‘applied skills and knowledge,’ ‘a firm foundation of general education,’ and ‘appropriate personal and transferable skills and attitudes’ (p. 15). In practice, these three aspects will be seamlessly interwoven, with each component embedded unobtrusively into the total program of study. However, in the sections that follow, each of these three aspects will be considered separately, before proceeding to a discussion of how they are, or might be, related to one another in the total undergraduate program.

Applied skills and knowledge

Whatever else a graduate may attain from his or her time at university, there is a widespread expectation that it will include some high level knowledge and expertise. Precisely how detailed this material will be is a matter of different opinions. Disciplinary reviews in a range of subjects generally found that employers were
satisfied with the technical competence of graduates, and that they were willing to ‘top up’ any deficiency through their own internal training. As one librarian whom we interviewed expressed it:

I’m quite prepared to take a raw graduate because we’re prepared to put the money into training them. I’m really looking for communication skills, interpersonal skills, problem-solving skills, team skills, enthusiasm, motivation, those sort of things plus a good grounding in the theory of librarianship or library technicians. (T56)

It is to be expected that a large proportion of any particular degree will comprise a distinctive body of subject matter, and, especially in the professional schools, that this will represent a significant grounding in the area of practice. Perhaps the most significant problem in this domain is the rapid growth and frequent change in many technical fields. As Baldwin commented in *Higher Education: Quality and Diversity in the 1990's*:

Institutions, under pressure from many quarters, have often responded to the continued growth in specialist knowledge by trying to squeeze more and more into undergraduate curricula. This may have contributed to a narrowing of the focus of courses, as well as to continuing pressures toward course lengthening in some fields. (Baldwin, 1991, p. 43)

An alternative response to this may be to broaden instead the undergraduate curriculum and to move vocationally-oriented material into postgraduate awards. A corollary of this, however (apart from the obvious redistribution of costs to users) would be to place greater emphasis in the undergraduate degree on the skills of learning to enhance graduates’ ability to learn later. A similar point is expressed by Bouwsma:

As long as knowledge was limited, relatively simple, and not very technical, education could be fairly eclectic... Yet obviously the sheer bulk of knowledge now deemed necessary for an educated [person] has squeezed out of education—and for the most part even out of our understanding of it—everything but the acquisition of knowledge in some manageable form. One result has been a broad decline in the idea of a general education, which for all practical purposes has become little more than a nostalgic memory. Indeed the body of requisite knowledge has become so vast that no one can hope to master more than a small segment of it....

The need for knowledge, and above all for new knowledge, seems to be pointing to the formation of still another ideal. For the proliferating new specialities have at least this in common: that all are supposed to expand indefinitely through research, and a new conception of the educated [person] seems to be emerging precisely from this circumstance.... In this context, an educated [person] is above all one who is open to new knowledge and able to advance it. (Bouwsma, 1975, p. 207)

While this ability is clearly necessary, as Bouwsma points out, it does not go far enough: ‘although the research ideal clearly fits some of our needs, it leaves unanswered the question of what we are to do with all our new knowledge’ (p. 208).
Thus the notion of the educated person must necessarily also involve some element of criticism rather than just of unquestioning acceptance. In its submission to this study, the University of South Australia argued for the broadening of professional courses to include ‘contextual studies’ such that vocationally-specific material is encountered in a wider social, cultural and ethical context, with the intention that graduates will develop ‘a systematic and coherent approach to their social responsibilities as professionals.’ This then leads to a consideration of some of the other components of the undergraduate program.

A firm foundation of general knowledge

From the beginnings of the modern university in approximately the middle of the nineteenth century, there has been a tension between the ‘liberal’ and ‘vocational’ purposes of undergraduate education. In his oration at the inauguration of The University of Sydney, for instance, John Woolley (Foundation Principal and Professor of Logic and Classics) stated:

The idea of a university...is two-fold: it is first, what its name imports, a school of liberal and general knowledge; and, secondly a collection of special schools, devoted to the learned professions.... The former considers the learner as an end in and for himself [sic] his perfection as man simply being the object of his education. The latter proposes an end out of and beyond the learner, his dexterity, namely, as a professional man [sic]... (Woolley, 1862, p. 12)

In a sense, each of these paradigms has led to a different view of the desired outcome of the undergraduate degree. Those faculties and institutions which favour liberal and general teaching, talk of their graduates as ‘educated,’ whereas those faculties and institutions which concentrate on special or vocational teaching tend to refer instead to their graduates as ‘competent.’ To the extent that this is a genuine dichotomy, there are very strong forces at present in higher education for universities to concentrate on vocational outcomes. In recent years, the opinions of professional associations and employers have tended to exert a disproportionate influence on many university course committees. A few years ago it might have been fair to claim that ‘the academic curriculum...has largely been protected by provider issues’ (DEET, 1993, p. 38). In recent years, however, it might be argued that the reverse is true, and that universities have, if anything, been unduly influenced by the perceived demands and preferences of employers and professional associations.

The possession of a wide general knowledge is not simply an indispensable hallmark of the educated person, it also provides an intellectual vantage point from which specific professional knowledge and skill may be evaluated. In its submission, the University of South Australia refers to this component of the undergraduate curriculum as ‘contrasting studies.’

Personal and transferable skills and attitudes

Irrespective of the balance that is desired between the ‘liberal’ and the ‘vocational’ components of undergraduate education, there is another set of learning outcomes which it is reasonable to assume would be attained by virtually any graduate. These are those ‘generic’ or ‘transferable’ attributes which are not specific to any one
vocation, institution, program or workplace but which have application in a diverse range of settings or contexts. They include: communication skills, leadership, self-organisation, time management, analytical skills, critical thinking, team-work, etc. (see Smith, Wolstencroft & Southern, 1989). One of our final year respondents in Information Studies put it this way:

I’m looking for jobs now and I’m quite interested to see how most of them stress interpersonal and communication skills very high up...Instead of saying, you know, ‘Knowledge of contract law needed,’ they’re saying things more like, ‘interpersonal skills, good communication skills, good written or oral skills, ability to work in a team.’ Sometimes if it’s more research orientated they’re looking at analytical and synthesis and evaluation-type skills. They’ll often stress those over and above what you would consider to be the actual knowledge that they’re after. (T86)

Similarly, the Librarian working with a School of Agriculture and Rural Development we interviewed expected graduates to have other attributes besides a knowledge of library procedures:

I think gone are the days when you could become a librarian and hide behind a book in the back room, and gone are the days when you wore glasses, had your hair in a bun and said ‘sshhh’ all the time. We want people who will relate to the clients, market our services and [fulfil] a promotional role. (T56)

Attitudes towards generic or personal transferable skills are mixed. Some academics argue that it is none of their business to develop or enhance these skills, and limit themselves to providing subject matter expertise and technical skills. Others acknowledge that university graduates should manifest these dispositions and abilities, but that they are learned more through osmosis than through any direct instruction. Others again question even the notion that such capacities can be generalised:

The idea that skills are transferable is not proven and does not withstand rigorous intellectual testing. Generic competencies are domain specific; skills cannot be divorced from context. (Penington, 1993, p. 10)

While there may be some merit in the view that all skills have some sort of context, it certainly seems as if employers believe that graduates should exhibit some generalisable skills over and above their content-matter expertise. In 1991 the Business/Higher Education Round Table conducted a series of interviews with key education and business leaders to ascertain employer requirements of graduates in the workplace. It became evident that graduates were expected to have experienced ‘a professionally orientated tertiary education, with a very strong concentration... on the development of skills in communication, thinking, decision-making and team work’ (B/HERT, 1991, p. 29).

Comparable Business/Higher Education Round Table interviews carried out the following year (B/HERT, 1992) indicated that professional knowledge was considered less important than the development of skills in communication, decision-making, problem-solving, the application of knowledge to the workplace, working under
minimum supervision and the ability to learn new skills and procedures. In addition, during staff selection those characteristics considered most desirable were a strong academic background, communication skills, motivation to succeed, ability to work in a team, initiative and decision-making skills, interpersonal skills, and appearance and manner.

Similar surveys of employers from Queensland business and industry sectors endeavoured to determine the attributes, skills and knowledge thought to constitute an 'employable' graduate. The outcome was a graduate 'who in addition to specific subject related knowledge has good oral and written communication skills, common sense, an ability to apply theoretical knowledge, is capable of decision-making and problem-solving and capable of working cooperatively in a team' (Coopers & Lybrand, 1991, p. 7). This is similar to the findings of Candy and Crebert (1991, pp. 578-579) who summarise employer needs and graduate employability as:

an employee who has developed 'high order procedures' (abilities to acquire new skills and to develop expertise in them; abilities to treat new situations as problematic and reach solutions that accomplish unfamiliar goals), and who accordingly can display adaptability, critical, and lateral thinking.

The need for graduates to have well developed personal transferable skills is articulated consistently by employers across numerous different fields of study including, among others, accounting, agriculture and law. Surveys of employers of accounting graduates conducted by Zaid and Laing (1992, p. 17-18) found 77 per cent considered communication skills to be the primary reason for hiring and firing graduate accountants.

In a survey of agribusiness managers in the United States and Australia Fairnie and Dring (quoted in DEET & DPIE, 1991, p. 33) reported that employers considered interpersonal and communication skills to be of greatest importance in employee selection, followed by business skills and technical skills. The ability to integrate different technical areas was also considered a desirable graduate trait.

Graduates currently working in their chosen field of study described comparable employer/employee requirements. In the Pearce report (1987) law graduates were asked to rate a list of work skills and areas of knowledge according to importance in their current position. Those skills of a more general kind were consistently rated most highly: the ability to write clearly and effectively, to organise work, to make decisions, to ascertain relevant facts, to understand people's needs and viewpoints and give clients practical advice were all ranked above knowing legal practice and procedure.

Balancing the components of the undergraduate program

There is no definitive authority as to what should make up the undergraduate curriculum. Governments sponsor universities, students enrol in them, employers and professional associations are involved in them, and academic and other staff work in them for a complex range of reasons, some of which might actually be contradictory. The diversity (and possible incompatibility) of objectives sought by various groups is summarised by Dressel in his essay on 'The Meaning of a College Education':

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In all such statements, to satisfy the young faculty members, each of whom is convinced that the knowledge developed in his [or her] own discipline is the most important thing for a student to acquire, knowledge plays a big role. The student personnel staff, distraught by student demands for freedom, is concerned with citizenship and personal responsibility. Older faculty members and deans, no longer competent in their disciplines and no longer sure that these are the most significant things in life, are sure that critical thinking, attitudes, and values should be given a major place in statements of objectives. Humanists in literature and the arts still insist on the inclusion of such terms as appreciation and creativity, perhaps hoping thereby that their own self-acknowledged creativity will be more widely appreciated. No one really knows what university presidents hope for their undergraduates, other than that they leave their offices and return to ... classes, but private liberal arts college presidents continue to insist that, for the sake of their boards and benefactors, statements of objectives include religious commitments. (Dressel, 1968, p. 483)

While this statement applies to higher education in the United States, it seems likely that one would encounter a similar range of priorities in an Australian undergraduate degree; probably broader if the preferences and priorities of employers and professional associations are also taken into account. In addition, as we have seen, purposes are not fixed and immutable but may change over time, especially in the light of changing economic, social or political circumstances.

From the foregoing, it would seem that in the abstract, the components of the curriculum are shaped by often ill-defined notions of how undergraduate education differs from other types of education and by the prevailing notion of what constitutes an ‘educated person.’ However, in the case of any particular course, the balance of content across the three principal components is decided by the interaction of these abstract notions with various points-of-view held by influential groups and individuals with an interest in that particular course or program of study. For instance, in its submission to the study, the Royal Australian Planning Institute observed that:

The Institute, through its course accreditation process encourages a balance within the curricula between theory and process, knowledge and practice subjects. The Institute certainly discourages curricula which are overly knowledge orientated. However, in attempting this balance we are aware of desires of some employers and (especially in the present job market) students to increase the knowledge base to reflect current industry needs. Nevertheless because the institutional framework in which our profession operates is in constant flux, such pressures must be moderated. (S28, p. 1)

The purpose of this brief excursion into the undergraduate curriculum has been not only to highlight the many forces and perspectives that must be taken into account by course designers, but to recognise the fact that different stakeholders will have different views of what constitutes an appropriately balanced undergraduate program.
Integrating skills of lifelong learning into the undergraduate program

There is one additional consideration besides the balance of the three components, and that is which of the three is to be at the heart of the undergraduate course. Some might argue that it is the technical component, the applied skills and knowledge. Others would claim that a firm general education ought to be at the centre of all undergraduate curricula. Here, it is argued that personal and transferable skills and attitudes should comprise the nucleus of the undergraduate experience. Indeed, we would go one step further and claim that the skills of lifelong learning should constitute the foundation and essential core of any undergraduate degree.

Clearly, employers in business and industry want their graduates to come equipped with a range of transferable, generic skills. These include the ability to go on learning, to adapt to new circumstances and, in the case of employment, to acquire industry-specific or even firm-specific knowledge and skill. But even if a degree is seen as personally enriching rather than as a vocational qualification, there is still a strong argument for placing learning-to-learn skills at the heart of the program.

This vital competence alone addresses the challenges posed by the explosion of knowledge in all technical fields, the need and desire to go on learning for its own sake or in fields different from the main focus of the degree, and provides a central organising principle for other generic competencies. Alone it meets the ‘liberal’ and ‘vocational’ imperatives of the modern degree and alone it helps to prepare graduates for the vagaries of an uncertain future—whether as a postgraduate student, an employee or professional, or a contributing member of society and the community.

In the past few years, there has been a lamentable—but seemingly inexorable—tendency for universities to invert the priorities between what might loosely be called their ‘technical’ and their ‘general’ aims. Particularly, but not exclusively, in areas such as science, technology and engineering there has been a tendency for the ‘technical’ content of the degree structure to occupy more of the core of the curriculum, and for other outcomes—such as learning-to-learn—to be relegated to the periphery, where they are vulnerable in two ways. Firstly if staff and students alike come to see them as marginal to the ‘real’ purpose of the degree, they will be accorded lower priority and accordingly receive less attention. Secondly, as the body of technical knowledge in each field expands—which in many cases it has done—there is a strong temptation to inject more and more content into the ‘core’ with the consequent likelihood that material at the margins will be jettisoned to make way for it.

This point can be made diagrammatically. While no special significance is to be attached to the relative areas occupied by each component, the point of this illustration is to emphasise the possible relationship between lifelong learning and other aspects of the undergraduate curriculum.
Idealised models of the undergraduate curriculum

Learning-to-learn skills are a vital and overarching set of accomplishments which include and subsume many other generic skills. If they were to be placed in the centre rather than at the edge of the curriculum, they would provide a unifying principle for much of the content taught in any given undergraduate program, as well as providing foundational skills that would enhance learning throughout the rest of the course. Rather than being thought of as an accessory or a 'bolt-on' extra, whether designing a new course or revising an existing one, course coordinators ought to give primary attention to the ways in which graduates' competence for learning after the end of the formal studies should be enhanced.

Accordingly it is recommended that lifelong learning skills should form part of the core of any and every undergraduate degree, and that this emphasis should be spelled out in course aims and objectives (R4.2). In the next chapter, attention will be turned to the issue of how extensively and how well Australian universities have been addressing this issue so far.

Recommendations

It is recommended that a separate study be undertaken to determine precisely the boundaries and characteristics of undergraduate education and how it differs from other components of the 'formation' stage of education (R4.1).

It is recommended that lifelong learning skills should form part of the core of any and every undergraduate degree, and that this emphasis should be spelled out in course aims and objectives (R4.2).
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What Universities have been doing about Lifelong Learning

Introduction

While there is an abundance of information about what universities have done or are doing in general, little of it focuses on whether they do, or do not, intentionally promote lifelong learning in their graduates. One report which did take up this issue was the report of the Senate Standing Committee on Employment Education and Training entitled *Priorities for Reform in Higher Education* (Aulich, 1990). There the comment is made:

Australia is producing graduates who, all too frequently, are not familiar in any disciplined sense with the society in which they are going to practise their chosen profession, who are not analytical, creative thinkers, whose education does not provide the basis for adequate flexibility, who are not sufficiently attuned to the need for lifelong learning, and who are not good communicators. In short, Australia is producing highly trained technicians who are under educated in the broader sense of the term. (p. xiii, emphasis added)

To the extent that this assertion is empirically valid, one of two conclusions is possible: either institutions are not doing enough to encourage this orientation in their graduates, or alternatively what they are doing is failing to influence the attitudes and interests of their students. In order to explore what universities have been doing about lifelong learning, it would seem that several forms of evidence may be examined. Basically these include: mission statements and public documents; course documentation and internal policies; and disciplinary reviews and reports by employers and studies of graduates. The chapter then identifies a 'list of lamentable lapses'—practices which, from observation, interviews or submissions to the study, seem to be standing in the way of developing lifelong learners—before drawing some conclusions about the issue overall.

Mission statements and public documents

The first and most obvious source of evidence is the universities' mission statements and goal statements, which present the public face of the institution to the community. Through their mission statements, universities justify their own existence as centres of teaching and scholarship and hold up to public scrutiny what they believe in, what they do best, and what they offer to potential students. Although objections may be raised to the use of mission statements as a reliable form of information about institutional commitment to lifelong learning, they do reflect the values espoused, the goals and objectives set and often the strategies employed to achieve them.
If, by 1993, ‘the system’ had genuinely espoused the principles of lifelong learning in the undergraduate curriculum, it would only be natural to expect that university mission statements, which are constantly under review, would reflect their commitment. As part of this study, therefore, a survey was carried out late in 1993 to establish the number of institutional mission statements which made reference to lifelong learning. It was discovered that only six of the institutions explicitly mention lifelong learning as part of their mission, with a further eight making mention of the concept somewhere in their associated goals and objectives, or statements of vision and values. If we take into account those which mention lifelong learning by implication, the number rises to 25; in other words, based on this data, approximately two-thirds of Australian universities seem conscious of lifelong learning as a central part of their role.

One response to this finding is that lifelong learning may be thought of as so basic to the whole process of higher education that it would be redundant and superfluous to mention it specifically in a mission statement. Whether this is borne out in fact will be explored later in this chapter; however, on logical grounds it should be pointed out that simply because some activity or process is fundamental to an organisation does not of itself mean that the activity should be left implicit in the institution’s mission.

Simply counting the incidence of the term ‘lifelong learning’ or some synonym in mission statements does not, of course, tell us either what the university means by it, or whether it is influential in the actual life of the institution. From our reading of those documents, there appeared to be little consistency in the way lifelong learning is perceived by universities. While some see it as philosophically underpinning the whole of undergraduate education, and others view it as an educational outcome which will contribute to Australia’s economic recovery, in at least five cases the institution’s commitment to lifelong learning turned out to mean only that they provided continuing education programs for their graduates, or other members of the community. While this represents an important aspect of lifelong learning it is not anywhere near the whole story.

Institutional commitment to lifelong learning

Turning to whether mission statements really bear any relationship to reality, in our study, all staff, students and graduates who took part in the interviews were asked whether they felt that their institution was genuinely committed to lifelong learning. Many participants found the question itself hard to answer unless they were privy to university planning initiatives at senior levels, or were familiar with university documents and other forms of institutional rhetoric. Notwithstanding the difficulties associated with saying anything at all conclusive about an organisation as large and complex as a university (especially in relation to the subjective issue of its perceived philosophical commitment to a concept), the point was repeatedly made by respondents that mission statements are seen as artificial and bureaucratic contrivances, remote from the activities and values of the academics within the institution. What is more, the data showed clearly that relatively few participants believed in their institution’s commitment to lifelong learning. For example, a lecturer commented:
I have read some of the university publicity and I've read their mission and their objectives, and so on, and they do have those statements in them, but I don't always think that those statements get translated into any real policy...But certainly the university prides itself on the idea that it trains professionals and has a strong vocational basis, but I think that's a different thing from having a commitment to lifelong learning. (T82)

Instead, most felt that whereas individual faculties or schools might demonstrate a philosophical commitment to the concept (and often this showed itself in the teaching and learning approaches adopted, the degree to which continuing education after graduation was promoted or the degree of interplay between the professions and the faculty), it was extremely doubtful that it was shared by the university as a whole. Occasionally participants indicated that they received conflicting messages from their Vice-Chancellors about the relationship of lifelong learning to the university’s mission:

He [the Vice-Chancellor] might give a speech to a particular audience that might be suited to that, but then he might give an opposite view somewhere else...So you get different messages. The university's strategic plan is currently being developed and I think, through glancing at that, that there is some focus on it, but to me strategic planning is fairly meaningless unless there are adequate steps to enact those particular objectives. (T134)

In general, responses to this question suggested that even in universities which included in their mission statements or other public documents an espoused commitment to the concept, there was a clearly discernible gap between the rhetoric and the reality. Even where it was embedded in the rhetoric, it was very doubtful that the commitment filtered down through all the levels of the university community. Certainly, only a handful of students and not many more graduates believed that their university was promoting lifelong learning. Not one student had seen or read any examples of institutional rhetoric where this commitment might be expected to appear and most had a cynical attitude towards the value of such rhetoric:

These sorts of things are great for publicity, but they don't filter down to the minions who spend their days scuttling from one building to the next. (T106)

An important corollary of this, however, was that the universities did not appear to consider the role of the students in the lifelong learning process in any of their documentation. A lecturer commented:

One of the things that strikes me most about universities, and our university is no exception, is that they write almost nothing about students when they write about their universities. I hardly ever see anything about students and I suspect I have seen nothing about lifelong learning either. (T79)

Graduates, looking back on their universities with hindsight, made the following comments:
I think in terms of what they put out [the rhetoric], they are [committed to lifelong learning]. But I think the real dilemma...lies in the funding they're getting. I mean, there's a squeeze on, and while the rhetoric might be there, the fact of the matter is that the library’s being run down, they’re cutting back on journals, senior lecturers are having to do their own tutoring, there isn’t enough money floating around, class sizes are being squeezed, courses are being squeezed and until we have a more serious commitment towards that level of funding it is a real problem. (T38)

I’m not sure that they do [value lifelong learning]. I have a feeling that they want to churn people through these days. Perhaps a little while ago it might have been the other way, but I think with the volume of students coming through now... makes it very difficult...On a one to one basis I think they probably are [committed], but in a general sense, or perhaps in at the formal level, I don’t think that’s what comes across. (T66)

Where graduates were aware of some degree of institutional commitment to lifelong learning, they had generally picked this up through experiencing particular programs that promoted continuing education:

The only thing that I was really made aware of, when I come to think about it now, is that the coop program, the scholarship program that I was on, wants to promote continual involvement in the university, and I think tied into that would be continual learning...I can’t actually remember the exact words per se, but you know, you continue to evolve, you continue to associate with the people that you went to university with. (T140)

Students, too, reflected a general disenchantment with the university’s failure to create an ambience conducive to lifelong learning:

I think it depends on which level of the university you are talking about. I would say at the level of lecturers and tutors, yes. At the level of administration, I don’t think they could care less about it. (T35)

I think they’re on very shaky ground at the moment. It’s very easy to say, ‘Oh, [lifelong learning] is all very well in theory but we can’t provide a curriculum which gives that sort of empowerment to students. So just let’s get rid of it. Let’s take the easy way out and just get back to what we’re good at and that’s producing good aeronautical engineers, or whatever.’ (T111)

Overall, then, the picture drawn from the data we collected showed that in fact very few people—staff, students, potential students, or policy makers—actually use and rely on mission statements to distinguish one institution from another. Moreover, when they do, they often encounter a disappointing lack of focus on lifelong learning or, worse still, a disjunction between the espoused commitment and the reality. It is recommended that institutions use official documentation such as mission statements both to clarify to those outside the institution what they are doing and how they differ from one another; and as reference points within the universities to ensure that there is some congruence between scholarly endeavour and scholarly outcome (R5.1).
Course documentation and internal policies

Whether or not a concern with lifelong learning is embedded in the institution’s public stance, there is much to be learned by examining the detail of its documentation. Three broad types of documentation are possible: curriculum documents and course outlines; degree regulations which govern patterns of study and subject choices; and guidelines for the accreditation or reaccreditation of awards.

Curriculum documents and course outlines

This part of the study confined itself largely to available curriculum documents and course outlines, from the randomly selected courses (Appendix E). Those chosen for inclusion in the case studies are discussed in chapter six. Our examination of the course documentation is reported under four sub-headings:

1. course aims and objectives;
2. teaching methods;
3. assessment practices;
4. course development.

Course aims and objectives. Course aims and objectives tended to acknowledge the need for students to gain a broad understanding of the key areas of the discipline, and to place them in an ethical, cultural, social and international context. In many cases, references were made to the need for students to develop effective communication and research skills, problem-solving and decision-making abilities, independent learning techniques, and in one case to ‘imbue [in students] a lifelong habit of self-initiated learning.’

Teaching approaches. The most common teaching methods were lectures and tutorials and, if applicable, supporting practicals. Teaching approaches appeared to vary from teacher to teacher and consequently seemed to be a result of individual preference rather than course philosophy. Those universities whose course aims were reflected in their teaching approach used more traditional didactic lecturing in the first years and progressed to more innovative practices, such as small group work, demonstration lessons, student-led discussions, problem-solving discussions and simulations in the later years when smaller student numbers allowed it.

Assessment practices. As with teaching approaches, assessment practices varied according to individual teacher preferences and university commitment to course aims and objectives. In general, assessment was continuous and took the form of mid-semester and final exams in short answer and/or essay format. Other forms of assessment included field-based and contract-based assessment, logbooks, seminars, multiple choice exams, vivas, class participation, and computer assignments. In only one case was student choice in the assessment mode or feedback from staff to students mentioned.

Course development. Course development appeared to be more comprehensive for the vocationally oriented courses. Course reviews took place every five to ten years, and the committee members were drawn either from within the faculty, or from inside and
outside the university. Only one course mentioned specific outcomes relating to course development and these related to decreasing the number of student contact hours to encourage independent learning in students.

In summary, evidence about a concern with lifelong learning competency may be of two types: direct and inferential. The material supplied contained only one explicit or direct reference to lifelong learning; moreover, the documents showed that, while courses differ sharply from one another in the quality of their documentation, their structure, their major teaching approaches and their assessment practices, few of those selected for this study had even an implicit concern for post-graduation learning beyond the university. The major exception was in the area of course development and review, where the use of external members on course committees could be construed as providing tangible links between university learning and its real-life counterpart.

Degree regulations and course structures

Degree regulations and course structures from randomly selected courses were examined to ascertain whether a widening of students’ perspectives was allowed for or encouraged, and in addition, whether a notion of ‘curriculum’ existed such that there was promotion of a progressive course of study.

Degree regulations outline the way in which students must progress through a degree. The regulations from most courses included features such as mode of study (full-time and/or part-time), compulsory attendance at prescribed lectures, practicals and participation in assessment procedures, combined degree regulations, exclusion procedures, subject exemption, admission requirements, and limitations on subjects taken.

The degree regulations and course structures examined indicated that most courses had a clearly articulated course structure, there being a definite progression from first through to final year. In many courses, particularly those more vocationally orientated, this progression was prescribed around a rigid structure which required students ‘to maintain the progressive structure of the course.’ Those wishing to enrol in additional or unspecified subjects frequently required permission from academic staff (e.g., Dean, Sub-Dean, Course Coordinator, etc.). Unless the course in question had specifically adopted an interdisciplinary approach, degree regulations and course structures appeared to restrict students from participating in subjects capable of widening their perspective.

If the degree regulations did allow students to enrol in unspecified subjects, in most cases the number was restricted. For example, a computer science course articulated that of a total of 72 credit points needed to complete the degree, 51 were ‘required units,’ 12 were ‘specialisation electives’ (to allow students to choose a stream or major), and only 9 were ‘general elective units.’

In general, courses were organised into a number of compulsory and recommended elective units. The recommended elective units were more prevalent in later years when students were responsible for choosing their major or stream. It was only in the more generalised courses that students had the option to undertake electives from different (unrelated) disciplines.
In contrast with this, admission requirements for most courses functioned to aid indirectly in the development of lifelong learners. Although the regulations did not specify active promotion of continuing/lifelong education, they did allow for wider access to education. Possibly in an effort to improve student transition to the course, one of the seventeen courses stipulated that, prior to enrolling, students must have already completed a year of tertiary education. Another university had included four ‘foundation’ year subjects in the course structure. While studying these subjects students gain an understanding of oral and written communication skills, computing and data skills, cultural and ethical or moral values and management and decision making skills.

Of the 11 courses which supplied degree regulations, eight discussed a number of alternate avenues of entry for applicants other than school leavers. Included here were special admissions, credit for other tertiary and TAFE courses, access for mature age students, acknowledgment of specific international qualifications (e.g., International Baccalaureate Diploma), MATES scheme (Malaysian government scholarship), and opportunities for mature aged and Aboriginal and Torres Strait Islander entry.

Cooperative education programs, sandwich courses and practical components also featured in some courses, particularly in those with a vocational emphasis.

Guidelines for accreditation or reaccreditation of awards

The study did not explicitly seek out information about institutional policies and practices with respect to course accreditation and reaccreditation. Nonetheless, two universities—the Queensland University of Technology and the University of South Australia—did submit extracts from their relevant policy documents as part of their response to the study’s terms of reference.

The Queensland University of Technology has a detailed procedure for the accreditation of new and reaccreditation of existing courses, which is spelt out in the Manual of Policy and Procedures. In Section 4 of its policy on ‘Academic Matters,’ the following statement appears:

Through its teaching objectives (see section A/2.2.1) the University seeks to promote inter alia the pursuit of excellence in the attainment of skills and knowledge; the development of curricula relevant to its mission; the commitment by its graduates to professionalism, ethical practices and lifelong learning; and the participation of industry, government and the professions in its educational programs....

The processes which the University has adopted with regard to the development and accreditation of its courses are designed to ensure the achievement of these outcomes and, specifically, to improve its educational programs and enhance the quality of its graduates. (emphasis added)

Elsewhere, in the appendix that specifies the main headings to be used in documentation for new course development, it is made clear that the documents must include a statement of the main aims and objectives of the course, emphasising the attributes which graduates from the course should have acquired [including] a commitment to professionalism, ethical practices and the fostering of lifelong...
learning....’ As these procedures have only recently been introduced, the submission makes no claim as to the success or otherwise of this approach in ensuring that courses actually take account of this imperative.

The University of South Australia provided two sets of documentation: a policy statement on ‘Broadening Undergraduate Education’ (No: A-33.0) and a set of ‘Guidelines for Course Development and Rationalisation’ (Appendix A, Policy A-35.0). While neither explicitly mentioned lifelong learning, both seem to be aimed at the development of ‘broader, generic knowledge, skills and understanding.’ Between them, these documents provide a rationale for course development which, in seeking ‘to educate students for the 21st Century,’ feature common core elements, specialisation at later stages in the program, and maximum flexibility.

If they do not already have such explicit documentation, it is recommended that universities consider the desirability of developing and promulgating guidelines to remind course teams, subject coordinators and teaching staff of a coherent set of principles regarding lifelong learning that should undergird all undergraduate subjects and programs (R5.2).

Disciplinary reviews and reports by employers

Internal documents, study guides and mission statements constitute a class of self-generated evidence which may or may not reflect the perceptions and experiences of others. Accordingly, as part of this project, every disciplinary review or other major national survey of higher education conducted in Australia since 1980 was examined for evidence of courses focusing on developing lifelong learners (see Appendix D). Most of these reviews were merely descriptive of particular courses rather than evaluative, and few commented specifically on the issue of lifelong learning. Nonetheless, across all disciplines reviewed, a great deal of inferential evidence is available about the adequacy or otherwise of various courses’ attention to the lifelong learning capacities of their graduates.

In many of the reviews, criticisms from both employers and graduates focused on the poor quality of graduates’ generic skills. For instance, in the disciplinary review of engineering (Williams, 1988) submissions from employers of engineering graduates included frequent criticisms of graduate performance and undergraduate curricula. Engineering science course content was thought to be emphasised at the expense of problem-solving projects, and discontent was also expressed with the perceived level of written and oral communication skills, and the lack of emphasis on work experience. This was considered particularly important at a time when there was pressure to increase the numbers of engineering graduates in response to a labour market demand. As Williams himself commented:

The nature of the criticisms of the engineering schools certainly implied that changes in the curricula and attitudes and activities of the staff, could increase productivity of graduate engineers and make them more sought after. (Williams, 1988, vol 1, p. 35)
The disciplinary review for agricultural science, in discussing the standard of graduates’ skills, cited the Agrimark Survey carried out in 1991. Here employers of agriculture graduates pinpointed teamwork, interpersonal and communication skills as those areas in which employers felt graduate ability was deficient. Private sector employers wanted graduates with technical ability, communication and interpersonal skills and practical ability.

Submissions from consumer, community and employer groups to the review of Australian medical education (Doherty, 1988) all expressed comparable concern with competencies central to medical practice: communication skills, counselling skills, teamwork, and interpersonal (patient care) skills, and social awareness. Employers’ concerns with the inadequacy of graduates’ practical skills were reflected in Doherty’s recommendations that medical graduates must not only be provided with the basic skills and understandings, but must also achieve a flexibility of mind and capacity for self-learning and problem-solving which will allow them to cope with inevitable future changes in the professional, scientific, economic, social and political aspects of their profession (1988, p. 77).

Similar complaints, this time from graduates themselves, were discussed in the disciplinary review of Australian law schools (Pearce, 1987). In this report between a third and a half of law graduates who responded felt that law schools’ emphasis on the ability to write clearly and effectively, the ability to innovate and solve problems, the ability to negotiate, and knowledge of the social context of the law was deficient. Indeed:

a significant number of respondents claimed that their law school had in fact failed on both counts: it had managed to provide neither a worthwhile academic experience, nor an adequate background to professional practice. (Pearce, 1987, vol 4, p. 176)

In the disciplinary review for accounting, 50 per cent of graduate accountants, 47 per cent of employers and 37 per cent of academics expressed a belief that the accounting curriculum within Australian universities is primarily responsible for problems encountered following employment. In particular, concerns expressed by graduates included:

the use of lectures to present factual material which is readily available from reference sources, instead of for the purpose of developing concepts, argument and methods of analysis...the separation of theory from procedures and practice...the use of tutorials to give solutions to problems and assignments rather than to discuss issues and develop oral communication skills; failure to question conventional ideas and practices and to develop a sense of intellectual curiosity in students. (Matthews, 1990, vol. 1, p. 207)

Suggestions for reform were made in each of the disciplines reviewed. Some of the recommendations to emerge from the disciplinary reviews can be related to the need to incorporate lifelong learning into the undergraduate curriculum, in particular those concerned with the need to foster in students the development of generic skills such as written and oral communication skills, interpersonal skills, decision-making and problem-solving abilities and the encouragement of closer links with employers and professional associations.
This leads to consideration of another form of evidence regarding the degree to which universities are addressing the need for lifelong learning to be incorporated into the curriculum; namely, the opinions of graduates' employers.

In 1991, a survey by the Business/Higher Education Round Table established the general consensus of key business and educational leaders to be that university graduates are deficient in oral and written communication, making decisions, solving problems and the ability to apply knowledge to the workplace (B/HERT, 1991, p. 29). One pleasing outcome of the study was that the business respondents ranked graduates marginally more highly than university respondents did on their 'capacity to learn new skills and procedures.' This however is no cause for complacency. For a start, scores overall were disappointingly low and the score for learning skills was only barely better than 'adequate.' Secondly, as Powell pointed out in his research on post-graduation learning, there may be a major difference between graduates' 'capacity to learn new skills and procedures' within their discipline or field of study, and their ability and willingness to learn entirely new subjects unrelated to their previous studies. Since much postgraduation learning is of this latter type, an inability to learn outside of one's field of study would have to be viewed with some alarm.

In 1992, Business/Higher Education Round Table's study Educating for Excellence, once again interviewed education and business leaders throughout Australia in order to establish key areas of concern within undergraduate education. Results indicated general dissatisfaction with the standard of generic skills shown by graduates. Graduates were considered to have attained very low standards in oral and written communication skills, logic, teamwork and the ability to relate to others (1992, p. 12); skills which, as one submission identified, 'point to the importance of the principles of lifelong learning in the workplace' (SI, p. 1).

A similar study by the National Board of Employment, Education and Training in identifying employment selection criteria used by employers, found graduate performance to be deficient in communication skills, social skills and the ability to apply academic learning to a work environment:

The results of our study suggest that the higher education system should provide greater opportunities for students to develop their communication and social skills, and their ability to apply academic learning to the workplace. For this to be successful, employers and the higher education system need to consult on how this might best be achieved, and to agree on areas of responsibility for training and development. (NBEET, 1992, p. 19)

Finally, as a result of a 1993 survey, the Australian Association of Graduate Employers advised Vice-Chancellors of Australian universities to incorporate communication competencies in their curricula in order to address 'major deficiencies' in the communication skills of graduates. The association surveyed 150 of the largest private and public employers of university graduates. Results indicated that although graduate performance was generally high, the quality of graduates' written, oral and interpersonal skills was considered to be poor (Australian Association of Graduate Employers, 1993, p. 21).
It would appear that, regardless of field of study or the vocational component of the course, the incorporation of generic skills not simply within, but at the centre of the undergraduate curriculum is vital if there is to be an improved interface between education and employment. Although it is imperative to avoid portraying the universities as little more than training grounds for employment-related skills, the fact remains that if graduates are consistently failing to meet employer requirements and expectations, it is possible that their favourable position within the labour market may be lost.

Studies of graduates

Whatever the strengths and weaknesses of documentary sources, the true and enduring value of a university education can best be judged by examining both the immediate and long-term effects of higher education. Clearly it lies outside the scope of this study to comment on the effects that education has, or might be considered to have, at the broadest level; on the cultural, social, intellectual and economic life of a country or a community. However, even if we limit our view to its impact on the individual, the question of what difference education makes is still one of the most vexed, perplexing and ultimately intractable faced by educational researchers.

The problem manifests itself at several different levels. First, are we interested in the short-term or the long-term (and how are these defined anyway)? Second, how are these effects to be measured: through their impact on earning power, career trajectory, family life, intellectual interests and pursuits, cognitive abilities, attitudes and values, or something else entirely? Third, what sources of data should be utilised: observational studies, anecdotal self-reports, published biographies, questionnaires, interviews or surveys and censuses?

Even supposing that satisfactory answers can be found to these various questions, it is impossible in real life to separate out the effects of education from a range of confounding variables including family background, basic ability (sometimes expressed as ‘IQ’), socio-economic status, occupational complexity, and even geographic location. Overall, attempts to assess the ‘value added’ by undergraduate education confront formidable obstacles—both philosophical and methodological.

These difficulties, however, have not deterred a number of researchers from attempting to identify, and at times even to quantify, the enduring effects of undergraduate education. Articles on various aspects of the impact of higher education include those by Bisconti (1978), Dressel (1968), Graham (1986), Härnvist (1984), Heath (1976), Mishler (1983), Sandberger and Lind (1979), Saunders (1980); and Wolfle (1980). In addition, entire books on the subject have been published. These include: Four Critical Years: Effects of College on Beliefs, Attitudes and Knowledge (Astin, 1977); Investment in Learning: The Individual and Social Value of American Higher Education (Bowen, 1977); College: The Undergraduate Experience in America (Boyer, 1987); Education and Identity (Chickering & Reisser, 1993); The Impact of College on Students (Feldman & Newcomb, 1969); The Enduring Effects of Education (Hyman, Wright & Reed, 1975); Measuring the Outcomes of College (Pace, 1979); Forms of Intellectual and Ethical Development in the College Years

By far the bulk of these studies have been concerned with changes in employability, or in socio-political attitudes and values. Only a relatively few have focused on the ‘cognitive residue’ of a university education, and an even smaller proportion on how students come to change their understanding of what constitutes knowledge and how it is generated. Not unexpectedly, there has been negligible attention to the specific issue of whether, and in what ways, undergraduate education contributes either to the predisposition towards, or skills for, participating in lifelong learning.

Ideally, this study should have followed graduates from their undergraduate program into postgraduate studies, the workplace, or whatever else came after their studies. Unfortunately this sort of longitudinal research is extremely rare in any case, but it is a regrettable limitation of this study that it was simply out of the question given the very short time line on which the project had to operate. Accordingly, we have had to make use of research data that has been collected for other purposes, and to rely on information that is inferential rather than directly focused on the topic of this study. We have identified only a few suggestive reports of research.

The first derives from studies conducted in the United States into the career effects of a liberal educational background, and published in 1986 under the title: *Educating Managers: Executive Effectiveness Through Liberal Learning*. The results were interesting, in that they revealed a ‘sleeper’ effect of liberal education. In brief, the finding was that those with more technically-oriented undergraduate education tended to enjoy relatively rapid career advancement early after leaving university, but just as often their career progression came to a sudden halt after a few years. Those with a liberal arts background, on the other hand, tended to enjoy a slower and less spectacular start to their careers, but often rose ultimately to greater heights and to more influential career positions. The clear implication is that those with a liberal background rather than just technical competence seemed to have some generic competencies which did not manifest themselves until later in their careers, in positions which demanded thinking skills, communicative competence, interpersonal effectiveness, and the ability to go on learning.

A second set of data is to be found in a series of papers published in the mid to late 1980s by John Powell, formerly Director of the University of New South Wales Tertiary Education Research Centre. His research is limited in three ways: firstly, it was concerned with graduates in engineering and science and did not seek to examine the experience of graduates in the liberal arts and humanities; secondly, it was based on self-report data rather than any ‘objective’ measure of long-term retention; and thirdly, it was collated more than a decade and a half ago, when the higher education system was very much smaller than it is today. Nonetheless, the results are enlightening.

Powell was interested in the residual effects of higher education; focusing on what graduates get, or say they get, from Australian universities, and on how this relates to their personal and professional learning after graduation. He explains his interest in this topic in the following terms:
Although immense sums are spent every year on the provision of formal education, remarkably little is known about the extent and nature of the long-term residues of what is learnt at schools and universities... At present decisions about the curriculum, methods of teaching, and the most appropriate milieu for learning rest almost entirely upon untested assumptions and lack any substantial empirical base. We know very little about the relationships between the rhetoric of educational aims, the daily realities of learning, and the long-term effects of educational arrangements. (1984, p. 192)

The following year, 1985, Powell published a paper entitled 'The residues of learning: Autobiographical accounts by graduates of the impact of higher education.' This included some treatment of significant non-formal and other extra-institutional learning which graduates had undertaken and it emphasised the vital significance of such learning, especially during professional life. Powell concluded this part of the paper with the observation that:

Studies of the enduring effects of programmes of professional training would greatly benefit from complementary investigations of what is learnt in the course of professional practice. The results of such studies would clarify the relationship between these two areas of learning and thus assist with improving the design of formal initial programmes. (1985, p. 138)

A couple of years later again, in 1987, Powell followed this up with an interview-based study of 24 professional scientists 'in order to seek their views on the long-range effects of their initial training.' He probed aspects of their cognitive development, attitudes and values, the influence of teachers and the environment of learning during the undergraduate years.

He claims that, if pressed, most science educators, in answer to the question 'what are the general characteristics that should emerge and remain from a scientific training?' would agree to the following 'rough sketch':

some ability to reason in a scientific manner; some knowledge and understanding of fundamental principles; a commitment to objectivity, criticism and the search for truth; a respect for evidence, rigour and exactness; and an abiding interest in scientific matters. (Powell & Cracknell, 1987, pp. 117–8)

If these are the salient objects of scientific training, then one would expect both the learning environment and the methods of teaching to place a premium on ensuring they are achieved. Unfortunately, however:

the teaching of science often fails to reflect these aims adequately and there is much testimony to this in the interviews. Science Educators are sometimes strong on rhetoric but weak when it comes to incorporating their aspirations into the realities of the classroom... Serious engagement in such an exercise by teachers cannot fail to result in a substantial reduction in curriculum content, less emphasis upon factual material and greater opportunities for students to practise higher order intellectual skills. (Powell & Cracknell, 1987, pp. 117–8)
It is however in his 1989 paper with Banks, 'Learning During a Professional Career,' that Powell focuses quite specifically on the relationship between initial preparation and continuing development. He begins by stating:

One function of any program of professional training must...be to equip the graduate with sufficient knowledge to enable entry into the work field with an acceptable minimal level of competence. Much more important, however, is the role of training in preparing students for the task of learning on the job throughout a career extending for some 40 years. (Powell & Banks, 1989, p. 35)

How adequately do universities do this? For this study, Powell interviewed 16 scientists. All had completed a PhD and most also had substantial publication records. According to Powell:

Nobody expressed dissatisfaction with their postgraduate training but there was a number of criticisms of undergraduate science programmes. Deficiencies mentioned included: nothing on the philosophy of science, too theoretical, insufficiently analytical, nothing on writing or oral presentation skills, and no preparation for working in groups or exercising interpersonal skills. (Powell & Banks, 1989, p. 36)

It is interesting to note that these points were made again a few years later in a pair of reports on undergraduate science teaching in American universities (Tobias, 1990; 1992). To the extent that these skills may be called into service in learning after graduation, their absence in the undergraduate curriculum would seem to be a significant oversight. However, somewhat confusingly, Powell and Banks also state:

The undergraduate and doctoral programs experienced by the respondents appear to have provided a good base for subsequent learning on the job as far as scientific work was concerned. The ability to tackle unfamiliar tasks and to acquire new techniques was also presumably facilitated by the more generalised intellectual skills acquired at university. (1989, p. 39)

At first sight, this would seem to be good news, at least as far as these particular graduates are concerned, but the authors warn:

....We need to be cautious, however, in attempting to make firm links between the residues of prior training and subsequent learning because of the long interval between the training period and data collection. (1989, p. 39)

To which we should add the complication posed by the intervening postgraduate training obtained by this highly select group. One interesting feature of this particular study is that all the respondents had moved from laboratory work into managerial positions and as such had been obliged to master entirely new sets of skills that had not been part of their undergraduate experience. Interestingly, back in his 1987 paper, Powell had speculated that there may be two kinds of residual effects: 'those that are used at work...and are continuously built upon throughout a professional career, and those which are never directly used in employment but which nonetheless remain
throughout life' (p. 118). Accordingly, he had called for 'further studies which look
at a variety of disciplinary backgrounds and concentrate upon graduates who work in
fields unrelated to their training' (p. 118).

By coincidence, while we were undertaking this study, an article appeared in the
journal *Australian Educator* which profiled several successful Australians whose initial
preparation had been as teachers, but who now have quite different careers. In
discussing the 'transferable skills' that had allowed them to learn to act, and indeed to
excel, in new positions, the subjects identified attributes such as stamina, confidence,
presentation skills, teamwork, the ability to relate to a wide variety of people,
patience, the ability to think on their feet and flexibility. As one of those profiled said:

'I have also found my ability to prepare work in advance, to present that work and to
be well organised is invaluable. I did feel when I first took the job that I did not know
enough about [my new field] but I was willing and able to learn. There is an intellectual
rigour about teaching that you never lose.' (Burger in Clark, 1993, p. 13)

If much of the foregoing seems impressionistic and anecdotal, there is also 'hard'
evidence about the impacts of university on graduates. In 1989 West and Hore, both
of Monash University, published a two-part article on 'The Impact of Higher
Education on Adult Students in Australia.' Part I concerned 'Employment' and Part 2
'The Person.' This study is significant because it focused on mature-age
undergraduates—people who were 25 or older at the time they enrolled in
university—rather than the traditional undergraduate straight out of school.
Significant findings include 'a predictable increase in more intellectual and a decrease
in less intellectual pursuits.... The adult student was more likely to be found browsing
in a bookshop or library, or in an art gallery or museum. She/he was also more likely
to read daily newspapers or weekly news magazines, watch non-commercial television
or listen to non-commercial radio' (1989, pp. 480-1). While this is not directly
evidence of lifelong learning, it does tally with other evidence about the learning
pursuits and interests of graduates, and suggests that undergraduate education, on
balance, has beneficial impacts on the learning orientation of graduates.

This leads to one final, and arguably quite compelling, piece of research evidence.
Little's excellent and comprehensive psycho-social study of students at the University
of Melbourne was published in 1975 under the title *Faces on the Campus.* Based on a
1967 study of both arts and science undergraduates, it included not only a broad
survey of 120 students but also, intriguingly for its vintage, 14 detailed case studies of
particular students. Little explored the perceived impact of university not only on
their subject-matter knowledge, but on other characteristics such as tolerance, general
knowledge, intellectual curiosity, cultural pursuits and social responsibility.
Interestingly, on average, *all* students claimed that the most important effect of
university had been to make them more tolerant, but for arts and arts honours
students, the second most important impact had been on their general knowledge with
technical competence rated sixth or eighth respectively, while for science students,
technical competence rated second, and general knowledge was only fourth.
These differences between disciplines, interesting as they are, fade into insignificance beside the differences that Little discerned between ‘climates’ in the university and their impact on individual students. He proposes a four part typology of learning climates which he names ‘Cultivating,’ ‘Indulging,’ ‘Training,’ and ‘Neglecting.’ Of these, ‘Cultivating’ alone has the potential to develop (or in the case of those already so inclined, to support) autonomy which includes by implication, the capacity for lifelong learning.

Little begins with the proposition that each student enters the university with a pre-existing ‘style,’ shaped by his or her previous experiences including schools and family environment. He then examines the evidence for the impact of university, demonstrating that existing personal styles are either reinforced or challenged by the climate of the institution. Only the ‘Cultivating’ climate acts beneficially on all different styles; only the ‘Cultivating’ climate has a claim to be able to move each student in the desired direction, namely of going through his or her life ‘in a more thoughtful and less parochial’ way. But even here, the gains are small and the successes unspectacular because of the ‘restraints of family experience and the earlier construction of personal styles’ (p. 279).

Overall, Little’s work provides an invaluable counterfoil to simplistic assertions about the impact of higher education. It introduces the notion of ‘climate’ and points out that climate exists independent of the discipline or field of study. It explores the components of different climates, and discusses what goes to make them up and how they can be influenced. It emphasises that students—even young undergraduates—are not tabula rasa, and thus the impact of higher education on their subsequent development will always be influenced by the subtle and complex interactions between climate and the personal ‘style’ and predispositions they bring with them to the institution.

A list of lamentable lapses

As we have demonstrated in chapters six, seven and eight, there are many alternative ways in which universities can, if they choose, promote the ideal of lifelong learning in their graduates. Accordingly, it is impossible to say definitively what any given institution should be doing to pursue this goal. On the other hand, our research pointed out a range of practices which militate strongly against the likelihood that graduates will internalise the values of lifelong learning. Basically, these are as follows:

Failing to mention lifelong learning in the mission statement or values

Mission statements, despite the widespread practice of ignoring them both inside and outside the institution, do have an important role to play. As an overarching statement of intent, they provide a reference point against which individual courses and activities may be measured; they offer a goal towards which programs in all disciplines might strive; and they signal to the outside community both the distinctive features and underlying ethos of the institution. To neglect to mention lifelong learning at this broad level is to fail to recognise a vital feature of undergraduate education in Australia, or to capitalise on the symbolic significance of emphasising this goal.
Ignoring statements of missions and goals or treating them as irrelevant

Again our study demonstrated that enshrining high level objectives in mission statements and then ignoring them is to isolate the actual scholarly work of the institution from its public image. Worse, it creates a gulf between the rhetoric and the reality, between the publicly espoused vision and values of the university and the reality as experienced by students and staff. This sort of dichotomy is not only injurious to the institution, its staff, students and other stakeholders, but in the increasingly complex and competitive world of higher education, it prevents the institution from the full realisation of its mission and potential.

Overloading the curriculum

In a world of constant change and increasing complexity, there is a very strong temptation—even an imperative—to load more and more into the curriculum in the belief that this will adequately prepare graduates to practise, and to maintain currency. In fact, heavily loaded curricula often leave students with a fragmented and disjointed view of the field rather than an understanding of the essentials. The following are typical of comments we received during our interviews:

I guess the historical difficulty always returns to the expectations of what a doctor will know, and the body of knowledge keeps on increasing, so the tendency is to keep packing more and more into the program, and that needs to be resisted because you really don’t want people swamped by having to [simply] learn knowledge. (T79)

I think it [the curriculum] is far too crowded, so there isn’t enough time for students to think or for staff to think about what it is that they’re doing. In our last revision of the undergraduate degree we dropped from 31 subjects to 24 by consolidating… but I still think we could trim it more. However, that would involve a whole lot of negotiations and discussions with professional associations and perhaps, to some extent, a change in their understandings of what undergraduate education can do. (T84)

Imposing too much detail at too advanced a level

Very often, staff feel obliged to prove the complexity or scholarly worth of their field and tend to introduce concepts and skills for which students do not have the basic preparation, or indeed which may not actually be needed in the world of practice. Sometimes, ironically, the pressure to ‘upgrade’ courses comes from the profession itself, even though the graduates often lack the basic skills to make them employable. Hence the following comments:

I would like to see us get away from some of the complexities, the more sophisticated areas of our course which have a tremendous emphasis on technology, and also on some of the basic sciences which are probably given in too much detail for students to remember or apply. So [we should get rid of] any areas where you have a lot of technical detail which can only more or less distract students from getting on with learning. (T119)
My feeling is that [we need] much less structuring, and much more exposure to larger issues, externally sourced problems and experiences. Possibly you could...shift twenty, thirty or forty per cent of the learning experiences into some sort of outward context. It's the contextual setting of the learning that I think is probably the most significant...We could probably use a lot less content and a lot more process and a lot more linkages between subjects. (T95)

Making excessive use of lectures and other didactic approaches

This is arguably the most difficult feature of any institution to change, because it is the most private and inaccessible aspect of academic work, and it is also that part where academics feel most aggrieved at any intervention. Nevertheless, it is patently clear that lectures—especially poorly presented lectures—do little to develop in students a ‘deep’ approach to learning, an abiding love of learning or of their subject. In chapter seven, particularly, we identify a range of strategies that have been used very successfully in Australian institutions in place of the conventional lecture:

I don't think the lecture approach is at all appropriate to support lifelong learning, particularly for our students here, who have very poor note-taking skills, particularly first years. I think they get lost and students are also exposed to such a range of things these days that you really have to be a song-and-dance person to be able to capture their attention full length. Other teaching approaches [work better]—open classroom learning, experimentation, going out into industry, learning to manage their own process, learning to work in teams—no matter what a headache that may be, those sorts of approaches. (T134)

Failing to connect learning with the world of practice

Even though many undergraduate degrees do not prepare students for a specific career, nonetheless most degrees connect with enhanced employment prospects in some way. Even the most esoteric studies can prepare graduates—if not through their content then through their process—with some field of application. This has been demonstrated very convincingly in Britain through the Enterprise in Higher Education Scheme, in fields such as classics and ancient history.

What I would like our courses to be doing is to have a lot more avenues for experiential work for students so that they can explore organisational settings. Not so much in role playing, but in actually being part of organisational settings within a learning environment and to be able to explore and challenge their views about organisations and about themselves within that context. (T134)

Using forms of assessment that encourage ‘reproductive’ learning

There is little doubt that assessment exerts a disproportionate influence on what students actually choose to learn. Since at least the early 1970s, there has been an accumulating body of knowledge that demonstrates that students focus their learning efforts on what they believe will be assessed. In particular, even though course descriptions and study guides may indicate that critical thinking, high level analysis, synthesis, and evaluation of ideas are rewarded, often the focus of assessment
emphasise instead rote learning or uncritical regurgitation of orthodoxies. If we want graduates who are capable critical thinkers and lifelong learners, then forms of assessment must be used which emphasise such accomplishments.

Not giving students timely, useful, intelligible feedback on their work

Time and again, students and graduates lamented the fact that they received little or no feedback on work they had submitted. If students are to become lifelong learners, they must first of all understand the rules that given discourse in their field—for instance what makes for adequate evidence, how to construct a convincing case, or how to undertake a problem diagnosis. This skill is refined through feedback on their various attempts, including those that might have been less-than-successful.

Ultimately, if they are to be self-correcting as professionals, students need to be able to evaluate their own work, and this implies the progressive development and internalisation of standards against which to judge their own and others’ efforts. Thus engaging students in self- and peer-assessment is a vital step on the way.

Viewing the library as just a storehouse of books

In by-gone days, students used to ‘read’ for a degree. At places like Oxford and Cambridge, they still do. One of our respondents commented:

I think the greatest thing I would like to change would be a greater emphasis on reading. That sounds very old fashioned in this modern day of technology...but they can think while they are reading, pause, evaluate, compare, so that they can continue to read wherever they are without a computer, throughout their lives. I think sometimes we have gone too far in the other direction. I would like to see students reading more books, learning to love reading. It shouldn’t be painful; I don’t think we read enough.

(T74)

The claim that ‘we don’t read enough’ may come as a shock to students who feel that they are forever poring over course notes or waiting for items to become available at the Reserve Desk. But the point being made here is vital to our conception of lifelong learning. Firstly, the true learner is voracious in his or her reading habits, and quite spontaneously reads ‘off the course,’ in the process often coming up with fresh insights that elude the slave to the reading list. Even more vitally, information is increasingly available through electronic data bases and retrieval systems, on CRDoms and computer networks. Libraries and other information professionals must be viewed as full partners in the design and delivery of courses. As one submission to our study stated:

An institution’s library has particular significance for the development of life (or career-) long learning in the context of professional practice. [It also provides] an understanding of how professionals learn from their own experiences as learners practitioners, and an appreciation of the demands of the world of work for professional development. (S34, p. 1)
Viewing the university experience as nothing more than vocational training

In the current climate of public accountability, and perhaps even of economic rationalism, there is a strong temptation to view universities as little more than vocational training centres. Admittedly their role in professional preparation is a vital one, and admittedly, too, a great deal of public funding is directed to universities for the express purpose of providing high quality work-based preparation for graduates. But universities have other roles, including that of repository and transmitter of culture, and social critic. Likewise graduates have a right to expect that their university experience will broaden their education. Thus perhaps the most serious error is to forget that universities are really about the world of ideas, and about growing human beings, and how these interact:

Higher education is not a factory...nor is higher education a business...nor is it a bureaucracy...To reverse what is judged to be a distorted inversion of values we need to develop more humane and organic analogies and models. The relevant analogies and models are biological, ecological, organic, psychological, sociological and philosophical. A...university is a habitat, a society, a community, an environment, an ecosystem. It should be judged by the quality of life that it fosters, the opportunities for experience and exploration it provides, the concern for growth, for enrichment and for culture that it exemplifies. The question is not just ‘What does your machine produce?’ but also ‘how does your garden grow?’ (Pace, 1971)

Conclusion

The foregoing is not intended as an exhaustive listing of the ways in which universities can—and often do—fail to develop lifelong learners. Indeed such a catalogue would not only be futile but depressing too. However, from this survey of different types of evidence, one would have to draw the conclusion that, for most universities in Australia, there is much more that could be done to promote lifelong learning and to enhance graduates’ skills for learning after they graduate. Relatively few institutional mission statements demonstrate an explicit concern with lifelong learning; of those that do, many seem to have a limited understanding of the term as referring largely to the provision of continuing education programs. Most of our respondents in any case, even when they knew of an institution’s ostensible commitment to producing lifelong learners, were unconvinced that it was a genuine and deeply held institutional value.

Internal documentation for the most part betrayed little serious attention to the quality of post-graduation learning; teaching methods and assessment practices were frequently quite conservative and course aims failed to mention the enhancement of learning as a course goal, much less as a central or fundamental one. While degree regulations have definitely changed to make access for higher education easier for ‘non-traditional’ students, in many cases the amount of free choice of subjects was severely limited, with courses frequently being dominated by large numbers of non-negotiable requirements to study course units taught within the school or faculty concerned.
Looking at the opinions of reviewers and employers, there is a remarkable consistency in the finding that Australian undergraduate degrees across the board are failing to develop in graduates a range of personal transferable skills including, but not limited to, those of learning. While several surveys gave a reasonable response to graduates’ ability to learn new skills and procedures, more often than not this refers to new technical material in the graduate’s field, rather than the ability to learn in entirely new domains, to grow and to develop, in line with increasing maturity, career changes or promotions.

Finally, reviews of graduates confirm this impression. While liberal arts students seem to have a slight advantage in terms of their general ability to continue learning after graduation, and all graduates clearly acquire some broadening and deepening from their university experience, the culture of the institution (and more particularly of the school or department within the institution) seems to be quite pivotal in determining how graduates feel about the need for continuing learning. Even here, the pre-existing beliefs and predispositions of the learners are quite influential and many students may arrive at the university with their attitudes towards lifelong learning significantly shaped by what has gone on earlier in their lives.

From this part of the study, it is evident that most institutions could do considerably more than they currently are doing to promote lifelong learning. In the next part of the report some of the alternatives will be considered with illustrations drawn from a range of courses, institutions and locations across Australia.

Recommendations

It is recommended that institutions use official documentation such as mission statements both to clarify to those outside the institution what they are doing and how they differ from one another; and as reference points within the universities to ensure that there is some congruence between scholarly endeavour and scholarly outcome (R5.1).

It is recommended that universities consider the desirability of developing and promulgating guidelines to remind course teams, subject coordinators and teaching staff of a coherent set of principles regarding lifelong learning that should undergird all undergraduate subjects and programs (R5.2).
References


Part Two

Putting Lifelong Learning at the Heart of Undergraduate Programs

It is evident that developing in their graduates a capability for continuing lifelong learning is one of the fundamental missions of modern universities. Indeed it may turn out to be one of the few features which has passed down almost intact from their distant progenitors—the universities of Bologna, Paris and Oxford—over the past 900 years. But it is easier said than done. The explosion of knowledge in most fields is such that there are enormous pressures to include more and more content in the curriculum. Likewise, the pressure of undergraduate numbers has led to large and growing classes and, because of severe resource constraints, any hope of a return to the relative intimacy of small tutorial groups (much less the Oxbridge ideal of one-to-one tutoring) seems distant indeed. Thus universities are confronted with the dual pressures of having to cover more content, as well as having to deal with larger and more diverse student groups.

The question confronted in this study was therefore: what can modern Australian universities practically do if they seek to build lifelong learning skills into their undergraduate programs? In order to attempt to answer this question we conducted interviews with more than 160 individuals—staff, students and graduates—from a range of disciplines, different types and sizes of institutions, geographically spread across Australia. This aspect of the study shows that with determination, support, and a clearly articulated working philosophy, it is possible to move much closer to the ideal of a concern with lifelong learning.

In particular, the Project Brief requested that attention be devoted to five features: the content of the curriculum; the structure of the curriculum; teaching approaches; assessment practices; and student support services. As the study proceeded, it became increasingly apparent that, no matter how well-considered, lavishly-resourced, widely-supported and thoroughly implemented a strategy may be, it will not succeed if learners themselves do not regard the attainment of lifelong learning competence as a valued outcome of their studies. Accordingly, we have added to our terms of reference some reflections and observations on the vital, but often neglected question of how students may be influenced to value these particular outcomes of undergraduate study: a dimension which we have labelled ‘The Climate of Intellectual Inquiry.’

Whereas the first part of this report was predominantly theoretical or at least based largely on various forms of available documentation, this second part is primarily empirical. It derives largely from the submissions that were made to the study, and even more substantially from the transcripts of interviews with staff, students and graduates. Along with the course profiles which appear in part three of this volume, the following three chapters provide, we believe, both a challenge and an encouragement to universities throughout Australia to give lifelong learning the central place it deserves: in their curricula, in their teaching and assessment and most importantly in their institutional ethos.
In writing up the results of this empirical component of our study, it seemed to us that the responsibility for encouraging lifelong learning resided at three different levels: the way the curriculum is structured and comprised; the way in which students are taught and assessed; and the overall ambience of the institution, including provisions that are made for supporting learning beyond or outside the classroom. Accordingly, we report our findings in three separate chapters that correspond to this division, but in doing so we recognise the essential interconnectedness of all those domains, especially as they impact on the student's experience.
Structuring the Curriculum for Lifelong Learning Competence

Introduction

For many academics, the concept of 'curriculum' in higher education is an unfamiliar one. Until relatively recent times, it was not uncommon for individual academics to develop and teach subjects (also sometimes referred to as 'units', 'courses' or, in the case of New Zealand, as 'papers') which simply reflected their own research interests. Little attempt was made to ensure that these subjects formed any coherent sequence, or even that they had identifiable aims or objectives. Increasingly, however, there has been a professionalisation of curriculum issues; many universities have course development centres or instructional design units, and greater attention is now paid to the relationship between subject objectives, teaching methods and approaches, and modes of assessment.

If the promotion of lifelong learning is to occupy a central position in all undergraduate programs, this will have inevitable consequences for both the content and structure of curricula. Accordingly, this chapter provides examples of issues that will need to be taken into account to ensure both external coherence—with the university's stated mission—and internal coherence—between the content, presentation and assessment framework (Hall, 1992, p.4).

Content of the curriculum

It is widely acknowledged that the content of the undergraduate curriculum expands in direct proportion to the explosion of knowledge occurring in the information age. Courses whose very existence is based in change, such as computing science, medicine and accounting, to mention just a few, must continually address the issues of review, currency and relevance of the curriculum.

Of particular concern to many of those who made submissions or who took part in the interview program was the seemingly obsessive focus within many institutions and professional accreditation bodies on loading the curriculum with more and more content at the expense of learning-to-learn, information literacy and other generic competencies. Comments like the following were typical of those made about course content:

At least in the disciplines I have been associated with, there has been a tendency to expect students to assimilate an increasing amount of knowledge that has accrued from the research effort of the world wide community of scholars. I call this the 'jam jar model' where there is a tendency for students (the jars) to be filled with an increasing amount of knowledge (the jam). Students are exposed to a more sophisticated level of knowledge at earlier and earlier stages in their learning careers, with more sophisticated teaching aids facilitating the cramming process. (S26, Statement 1)
Lecturers set out to fill students’ heads with all the information they will need for life. Anderson refers to this as the ‘front-end loader’ concept of education. Loading up students with all the information they will need for life is impossible of course due to the rapid growth in knowledge which leaves curriculum, and students, far behind...The problems students face in coping with the academic culture are being exacerbated by the slowness of the higher education sector to recognise those problems and take responsibility and leadership in fixing them. (S25, p. 5)

I think what is most in need of change is a move away from the obsession with coverage. I have had contact with all sorts of different faculties [and there] is this real anxiety that has spread that while knowledge is exploding you have got to stuff more and more into undergraduate courses. I see that it is much more important to do a few things well than lots of things badly. It would be an infinitely better education if staff concentrated on doing a few things in depth and well so that students really understand, as distinct from some wallpaper model of university teaching. (T94a)

It is impossible to continue cramming material into four year degree courses without sacrificing something elsewhere, although this does seem to have been the tendency in some universities in recent years. It often appears that some places of higher learning are trying to produce the ‘all knowing’ graduate who upon graduation should be able to manage a design office or job site, prepare fully costed feasibility studies and then carry out a design of the most complex project. This of course is impossible and the experience of many employers is that the ‘all knowing’ graduate flounders when confronted with the most simple task. (S17, p. 1)

From the interviews we conducted it was apparent that academic staff in general were more concerned at the problem of content overload than were students, who, somewhat unexpectedly, seemed rather more comfortable with the content density of their courses. Where problems arose, both students and staff proposed similar ways of dealing with them: they became selective in what they learned and taught; they prioritised and streamlined what they had to learn and teach; and they tried to eliminate overlap and redundancy. A lecturer in Veterinary Studies told how he overcame the problem:

I think you have to be very selective in what you present students with. Certainly in my area of anaesthesia, there is no way in the world I can tell them how to anaesthetise every animal that comes through the door in private practice. I can't do it and I admit it in the very first sentence of the course and periodically throughout. So what I do, I hope, is give them sufficient information, so that if they have to anaesthetise an animal...hopefully they will stop, look, think, choose the most appropriate drugs and proceed using basic principles that I have tried to impress upon them. (T26)

Certainly, students whose learning styles focused on ‘deep level’ outcomes, so that they could deduce principles to be applied wherever and whenever necessary, felt much more confident that they would develop into lifelong learners than their counterparts who relied on rote learning to pass examinations. This point was emphasised in a submission from the Centre for the Study of Higher Education at The University of Melbourne:
Lifelong learning is promoted when students are exposed to tertiary teaching environments which encourage deep approaches to learning...A ‘deep’ approach involves the active search for meaning, leading to an outcome of a more complete understanding, while a ‘surface’ approach involves learning by rote and relies on memorising. (S33, p. 1)

Teaching staff too, recognise the need to address the problem of rapidly expanding course content. To quote further the above submission:

In order to encourage students to adopt deep approaches, teachers require an holistic strategy of attending to all fronts of the interface between the learner and the learning environment. (S33, p. 1)

In fact most of the lecturers interviewed felt that the aspect of the undergraduate curriculum most in need of change was the content currently clogging their courses. The revised Bachelor of Laws degree (introduced in 1994) at the Queensland University of Technology places student understanding and application of course material centrally in the course design. Traditionally, studying law at university has involved the regurgitation of large volumes of repetitive legal material. In this way more importance has often been placed on successfully recalling this material rather than actually understanding and subsequently applying it. The Faculty of Law hopes to change this by aiming to:

...set some overall framework that students can refer to and which tries to give them some overall understanding of the legal system and relationship between various parts. We are now trying to bring home to them that legal education is not just simply sitting down and learning a whole lot of rules. (T7)

Consequently instead of trying to cover every conceivable aspect of law, the Faculty of Law has instead chosen to expose students to the principal areas of law while simultaneously helping them to develop legal skills which assist them to understand and apply this legal knowledge.

In chapter four, it was argued that any undergraduate curriculum will have three components: the technical knowledge and skills relevant to the particular discipline or field of study, a general education or broadening component, and some generic or personal transferable skills. Further, it was argued that no two courses will necessarily have the same balance among those three aspects, as each course is uniquely shaped by its own history, the culture of the institution, and the perspectives of various stakeholders including staff, students, graduates and employers.

Accordingly this report cannot, and indeed should not, advise on the specific content of any particular undergraduate program. Nevertheless, from this study, there are certain issues that should be taken into account in the design of any course, and which need to be dealt with if the course is to truly contribute to the development of lifelong learning competence. Four issues are raised in particular: learning-to-learn programs; information literacy; Australian studies; and recognition of prior learning and credit transfer.
Learning-to-learn programs

Over the past couple of years, 'learning-to-learn' has become a major concern of all sectors in the education spectrum. It was the subject of two major international conferences held at Northern Illinois University in 1986 and 1987, and has given rise to a considerable body of literature, including Theory Building for Learning How to Learn (Smith, 1987) and Learning to Learn Across the Lifespan (Smith & Associates, 1990).

Despite its central importance, however, it is a term which is not widely known within higher education, and indeed many academics would regard it as preparatory or bridging rather than as a vital component of their work. However, there is considerable research evidence to suggest that each discipline or field of study has its own unique rules of discourse, and that part of the process of learning that discipline or field of study is to internalise those rules; to become academically literate.

According to a submission from the Australian Chamber of Commerce and Industry, 'learning-to-learn' should be a central part of all university courses:

In the first place there needs to be a strenuous attempt to enable and encourage university staff to teach undergraduates how to learn, consistently and systematically. This should become a standard duty. The second is to make these processes open, to discuss them fully with the undergraduates and to build an expectation in the student body which can be measured for success over a period of time. (S13, p. 3)

Despite the central importance of this concept, however, very few of the courses profiled included any formal means of teaching students how to go about learning. Some course coordinators (e.g., Law at QUT) indicated that in the revised 1994 curriculum students would undertake an introductory program in learning at university, in which the focus would be on the learning process rather than on any substantive content. Others (e.g., Nursing at Griffith University) admitted that they needed to address the issue more directly in their courses, but, for the most part, learning-to-learn was felt to be implicit in the way the courses were designed and conducted:

Now there's no particular lecture or learning exercise where they say 'Now we're going to study learning how to learn,' but my experience with the design tutorial groups is that that is really what we were doing. We're showing them how to go about learning the solution to the problem whatever the problem was and whilst we didn't call the subject 'learning how to learn' I think it would be part of everything we do. (T97)

It was just a continual process of learning. It wasn't segregated and compartmentalised in the classroom. It ties in with reflective and interactive [learning]. (T94)

Learning-to-learn involves more than learning how to study. It involves the higher order skills of analysis, synthesis and evaluation, the ability to think critically, to construct meaning and reconstruct understanding in light of new learning experiences.
Courses where reflective practice is central inevitably help students develop into independent learners much more readily than those whose focus is on the acquisition of a large body of knowledge.

Most students are unaware of how they learn and why they learn in their own particular ways. Most simply transfer the tried and tested learning approaches that have got them through secondary school to the tertiary environment. They rely on note-taking, summarising and revising and generally skate along the surface, making sure they know a little about everything likely to appear in the examination paper. Few recognise the need to understand how and why they learn and unless they are confronted with a particular problem or issue that requires such understanding, are likely to leave university with no more interest in the learning process than they had when they arrived.

There are many different ways, however, in which students can learn how to learn and which will enhance their undergraduate experience. Perhaps one of the most effective involves self-observation and assessment of personal learning, by using video recordings, observation sheets or computer analyses (Candy in Boud, Keogh & Walker, 1985, p. 115). The Department of Community Medicine at Monash University makes video recordings of student consultations with patients to help them understand why and how they develop their communication and interpersonal skills. Students are encouraged to explain why they behaved in a particular way and how they could have improved the interaction, and they quickly learn to become critical and evaluative of their own behaviour.

Students in the BApplied Science (Systems Agriculture) course at the University of Western Sydney, Hawkesbury reflect at all stages of their course on their own learning processes:

I think it really makes you think about where you are going and where you have come from [with respect to learning]. I’ll certainly be racking my brains over the next few weeks trying to work out where I was six or seven months ago and where I am now. (T57)

In the School of Information Studies at the University of Technology, Sydney students use concept mapping based on individual learning preferences as a way to come to terms with a body of complex readings:

We were able to develop a program which recognised that people learn in different ways. At the beginning of the unit over a series of weeks we have taught the students the [concept mapping] technique... What students come away with is not just a sense of mastery over the difficult readings...that’s an obvious outcome, but what students also have is a learning technique or process that they can take with them wherever they go. (T85)

In courses which outline in their documentation their commitment to helping students to learn how to learn and to continue learning after graduation, students are much more likely to accept responsibility for directing their own futures: they leave university confident in their own ability to continue learning throughout their lives;
they are far more likely to adopt ‘deep’ rather than ‘surface’ approaches as they have
learned how to seek out, analyse and ‘make meaning’ out of information; they have
developed higher order ‘metacognitive’ abilities and are able to transfer the strategies
and learning skills they have gained at university into their personal or work
environments; and they are able to determine what it is they need to know in order to
perform particular tasks or to draw meaningful conclusions.

Information literacy

As discussed in the previous chapter, the content of any undergraduate course should
include knowledge and technical competence fundamental to the discipline, without
which the graduate is unable to function as a professional in his or her field. But
equally important is the awareness of how knowledge is created in that discipline, of
the limitations—both methodological and substantive—of that discipline, of how it
interconnects with other fields, and of how information in the field is stored and
retrieved. Because of the rapid rate of growth in most professional areas, a graduate
cannot be considered to be, even embryonically, a ‘well-rounded person,’ unless he or
she possesses a degree of ‘information literacy.’ As the American Library Association
states:

Information literacy...is a means of personal empowerment. It allows people to verify
or refute expert opinion and to become independent seekers of truth. It provides them
with the ability to build their own arguments and to experience the excitement of the
search for knowledge. It not only prepares them for lifelong learning; but, by
experiencing the excitement of their own successful quests for knowledge, it also
creates in young people the motivation for pursuing learning throughout their lives.
(ALA, 1989, p. 2)

These days, when much knowledge has at best a shelf-life and ‘use-by’ date of less
than five years (in some areas less than a year), it is no longer sufficient for graduates,
or indeed any other member of the community, to be able simply to make use of
library reference collections, manual catalogues and the odd bibliography. The idea is
expressed powerfully in the Final Report of the American Library Association
Presidential Committee on Information Literacy (Appendix 9):

We are living in a post-industrial era. The driving force in this new age is not
manpower [sic], machines or manufacturing, but ideas, innovations, and information.
People’s ability to find and use information (their level of information literacy) is
fundamental to the decision-making skills of our graduates, the subsequent quality of
their personal and professional lives, and their ability to comprehend, analyze and
propose solutions to societal problems.

In the information age, mastery of all manner of electronic databases, indexes and
networks is essential just to keep in touch with current developments in the field and to
be familiar with information retrieval systems which enable the new graduate to
function both as a competent professional, and as a member of the community. It is
important, therefore, that graduates leave university equipped with the skills and
strategies to locate, access, retrieve, evaluate, manage and make use of information in a variety of fields, rather than with a finite body of knowledge that will soon be outdated and irrelevant. Mastery of these skills:

provides the potential for lifelong learning—learning which will no longer be dependent on a lecture centred exposition of knowledge but which provides the student with an awareness of the relevance and purpose of their own learning. (S35, p. 1)

During the interviews it became clear, however, that for the majority of teaching staff information literacy was not an issue of concern. In many instances, they believed that students either already had the necessary skills of information retrieval and management or that they would 'pick them up' in the course of their studies. Often they opposed vehemently any incursion by librarians or other information specialists into their slice of the curriculum, although it is hard to resist the conclusion that frequently this was because they lacked the confidence to retrieve and manage information themselves.

For librarians, on the other hand, information literacy was absolutely fundamental to the design and delivery of every course. In a submission to the study, a librarian at Queensland University of Technology claimed:

If information skills are valued one would expect to see this reflected in the curriculum in that course aims and objectives would specify information skills, student tasks would incorporate information building strategies, reading lists would be minimal and [would] encourage use of alternative sources, reserve collections in libraries would be of minor importance although library usage would be of primary importance, and assessment would encompass information skills. (S31, p. 1)

Some university libraries have written into their mission and policy statements their own commitment to information literacy and lifelong learning. Increasingly, librarians are becoming change agents in the university culture, working closely with academic staff to bring about a change in attitude:

It is a long job. I think first of all we have to convince the academics of the benefits of having these students information literate. We have to convert the academics before we can really get committed to what we in the nineties would like to see the sort of skills a graduate has. Of course some academics are right on our side and there all the way, and others just don't appreciate what they don't know, I guess. So you get a range, some academics will make all the time we need in their courses for you to have access to instruments to teach, and others just scrape through on the windmill with that amount of exposure. (T8)

Librarians were keen to become more involved with course planning committees and to have input into designing resource-based courses. However, it was clear from the interviews as well as from the submissions that this is currently happening only in a few isolated cases:
To date, the Library’s vision of the centrality of information resources in lifelong learning processes has not been wholeheartedly shared by the entire academic community. If this were to be the case, this and other tertiary libraries could be serious partners in the developmental process necessary to encourage and enable lifelong learning. (S31, p. 3)

Librarians suggested that many academics still believed that a ‘session in the library’ will ‘fill in one lecture period’ and ‘get it out of the way’ (T101). Librarians are well aware of the futility of ‘teaching’ library skills out of context in orientation week or early in the semester, to large groups of students who are unmotivated and generally more interested in extra-curricular activities. This kind of comment was frequently made by librarians:

Well, we do orientation because that’s part of what you do, but it means nothing. For the learning to be effective it has to be integrated into what they’re doing. The students have to see a reason for it and an end product. In orientation it’s new for the students, the campus is new, they’re away from home and they’ve got lots of pieces of paper. All the student bodies, the rugger club and the netball etc. are talking to them about all of these things and it’s just too much.

We do give them a handout, we do bring them in and walk them through. All we really want them to know at that stage is where the library is and that we are friendly people who care about them and they should come and ask, because I don’t think you can achieve much more at that stage. (T41)

Conversely, librarians spoke very positively about the learning outcomes likely to result when staff linked research methods to information literacy and included an assessable component of library research in their assignments. By timing sessions on information retrieval to coincide with assignments throughout the course, teaching staff could be guaranteed of increased student commitment and motivation:

I think [student attitudes to a library component] depend very much on the timing of the course. If it is given to them early, before they can see why they need it, then it is a completely boring one hour, and they sit there and yawn their way through it. Then a couple of weeks later, when they get their first assignment, they come in and say, ‘What was that you said?’ I think students’ attitudes depend on whether your timing is right. (T8)

Gradually, however, university libraries are becoming the focus of the undergraduate curriculum and academic staff are beginning to draw more on the resources at their disposal when they design their course content. The role of the librarian is assuming far greater importance as change agent/staff developer and less as mere custodian or even reference person. Evidence of the concern of university librarians at the need to equip students with learning skills to last a lifetime was evident in the number of submissions that they made to this study and their underlying concern with a firm philosophical commitment to the role of information literacy in this process.
Australian studies

Is there, or should there be, anything distinctive about graduates from Australian universities? Some people would respond in the negative: the university experience, they would claim, is an initiation into the great inheritance and broad tradition of international scholarship. By focusing on Australian issues, examples or approaches we would reinforce our sense of parochialism and perhaps make Australians less able to deal with international issues, to live and work abroad, or to study for advanced degrees in foreign universities.

An alternative response, and one which to us seems at least as compelling, is that for too long Australian higher education has been derivative and that, notwithstanding the existence of a large and growing body of distinctively Australian literature and experience, graduates are all too often unfamiliar with the social, cultural, historical, political and other dimensions of the country in which most will spend the greater part of their adult lives. This point was made forcibly in the Aulich report (1990, p. xiii) and it also substantially underlay the formation, in October 1984, of a Committee to Review Australian Studies in Tertiary Education (the Daniels Committee).

Because of a variety of considerations—both practical and ideological—there would seem to be excellent reasons to ensure that courses of professional preparation contain a significant Australian content (not simply by including a few tokenistic subjects or tacking the word ‘Australian’ onto existing units) and that they be taught from a distinctively Australian point of view (Daniels, 1987). If one takes account of the mandate to produce lifelong learners, this imperative becomes even more pressing. Whether one considers postgraduation learning from the perspective of formal postgraduate studies, of workplace-based learning, of participation in continuing professional education, or simply of learning in everyday contexts and through self-directed means, it is reasonable to expect that graduates of Australian universities would have more than a passing familiarity with Australian scholarship and practice in their field. This point is well made in the ‘Ideas for Australia’ discussion paper entitled ‘How Australian is Professional Education in Australia?’:

It is incumbent upon universities to give students the skills to acquire communication and learning capacities that will serve them in their professions and to evaluate the values and attitudes of their professions. It is equally incumbent upon institutions to ensure that students acquire their professional knowledge in an Australian context since, if they are Australians, that is the context in which they will work. It is also incumbent upon them to ensure that students acquire a lifetime interest in understanding the society and environment in which they live. (Ideas for Australia, 1992, p. 10)

Overall, there would seem to be excellent grounds for ensuring that all Australian degrees provide a systematic overview of Australian perspectives on, contributions to, and uses of, various fields of practice. The establishment of a Centre for Research in Professional Education at the University of Canberra is one step in this direction, but the principle should be extended outside that institution, and indeed beyond the domain of professional education. Accordingly, it is recommended that, where appropriate,
both existing and new courses should include an Australian perspective, with a view to encouraging a lifelong interest in and commitment to understanding Australian society, and the place of the graduates' profession or discipline within that context (R6.1).

Recognition of prior learning and credit transfer

Of all the pressures and changes that are impacting on Australian higher education, one of the least well understood—yet potentially most influential—is the move towards recognising and giving academic credit for prior learning. The importance of this cannot be overestimated, as it brings into question not only the comparability of content between universities and other learning experiences but also, to some extent, the issue of institutional autonomy as well.

Whatever the strengths of the traditional three-year undergraduate course structures, they tend to ignore the needs of a large proportion of the population who want or need a university education to redress earlier lost opportunities, to update existing skills and qualifications or to gain new ones. In its submission to this study, the Australian Association of Adult and Community Education Inc. stated its belief 'that while the Government's current policies on higher education are generally sound, they are too focused on the participation of school leavers' (S38, Summary). The same submission went on to claim that 'Authentic ‘lifelong learning’ will only develop if those in the workforce who wish or need to return to study have a greatly expanded range of choices as to what, when, where and for how long' (S38, p. 2). Much the same point was made by the Northern Territory University in its submission:

Mixed mode or external mode delivery of courses, mature age entry, minimising pre-requisites for units, allowing flexible pathways through courses, timetabling after-hours classes, providing for part-time progression, all enhance opportunities for returning to study, or in some areas, enrolling for a first degree, while maintaining employment. These provisions enable students to observe others who are at very diverse points in their work and professional lives, and who demonstrate a stance toward themselves as lifelong learners. (S26, p. 1)

It is evident that access and entry to tertiary education must accommodate the needs of a diverse community, not all of whom are able, or ready, or wish to undertake further study immediately upon leaving school. In 1990, the Higher Education Council's report, Higher Education: The Challenges Ahead presented a vision of Australia as 'the clever country' and foreshadowed significant changes in access to university education:

The expectations of the Australian people will be for the country to become cleverer and hence more prosperous. They will wish to have an accessible higher education system, open to the community as a whole and committed to providing opportunities for lifelong education, to retraining and the upgrading of skills. (p. 5)

However, only a year later the report of the Senate Standing Committee on Employment, Education and Training, entitled Come in Cinderella: The Emergence of Adult and Community Education, recognised the flaws in a higher education system that precluded entry on the basis of advanced standing and prior learning:
As a nation we seem to have accepted the validity of the concept of lifelong learning. Yet lifelong learning cannot be adequately delivered by an education system that is structurally static and operationally slow to adapt. (Aulich, 1991, p. 9)

Late in 1991, the Australian Vice-Chancellors' Committee set up a working party on both recognition of prior learning and credit transfer. With respect to the first of these two categories, it commissioned two discussion papers. The first, by Topley and his associates, dealt with the recognition of formal courses provided by industry and private providers. The second by Cohen and her colleagues, addressed the recognition of learning gained outside formal courses.

At one level, the relationship between recognition of prior learning and lifelong education is perfectly clear: the opportunity for students to obtain academic credit for learning obtained elsewhere is central to any comprehensive system of recurrent education. This provision is especially vital in the case of mature-age or non-traditional students who seek admission to undergraduate programs on the basis of, or at least with consideration for, nonformal and informal learning they have done elsewhere. But how does it relate to the theme of this study; to the ways in which undergraduate education facilitates lifelong learning?

The answer is that if graduates are assumed to have mastered certain content as well as certain learning skills in order to undertake postgraduate studies, or even to participate in formally provided continuing professional education, then institutions must give special care when considering the equivalence—in both depth and extent—between what they teach and what they give credit for (Storan, 1993). This phenomenon has been confronted by many institutions overseas—in the United States, for instance, by the City University of New York, Antioch College, and Alverno College—but few universities in Australia have had much experience in deciding how to give credit for prior learning without prejudicing the integrity or rigour of their programs.

Credit transfer is a better known concept. It involves 'the granting of advanced standing by institutions (either in the same or a different sector) to students on the basis of previous study undertaken in another institution' (DEET, 1993, p. 230). The arguments in favour of enhanced credit transfer include advantages for individuals and institutions:

- increased educational opportunities;
- better educational choice and clearer pathways;
- enhanced career options;
- greater equity of treatment for students; and
- enhanced efficiency since resources now devoted to wasteful duplication of teaching would be available for other purposes. (DEET, 1993, p. 230)

For more than a decade, concern has been expressed about the ad hoc and unsystematic approach to credit transfer and articulation of awards within the tertiary education sector. Since the mid 1980s, several national research projects have been conducted to enquire specifically into the transfer of students from TAFE into higher
education. The most recent of these is the joint Department of Employment, Education and Training/Australian Vice-Chancellors’ Committee project on credit transfer, the Phase 1 report of which was handed down in September 1992. In its advice to the Australian Vice-Chancellors’ Committee, the Working Party concluded:

that there was sound evidence that students admitted to university level courses after undertaking post-secondary studies in TAFE were likely to perform at least as adequately as, and perhaps better than those admitted through conventional pathways, either direct from Year 12 or through delayed-entry schemes, such as those based on mature age or special entry criteria. (AVCC, 1992, p. 6)

In some cases, the principle of credit transfer has been extended and formalised into ‘course articulation’ which is defined as ‘the specific design of education and training programs in ways which facilitate and maximise opportunities for credit transfer and/or for students to proceed from one level of education or training to the next’ (DEET, 1993, p. 233). The Department of Employment, Education and Training National Report on Australia’s Higher Education Sector provides details of several such cooperative linkages, but it also makes the point that, despite progress in the whole area of credit transfer and course articulation, arrangements are still relatively random and inconsistent. Perhaps more importantly for the present study, the point is made that ‘for the most part, credit transfer and course articulation arrangements have been in one direction only and little attention has been given to streamlining arrangements for students wishing to gain credit in a TAFE course for studies previously undertaken at a university’ (DEET, 1993, p. 235). This may prove to be a significant impediment to lifelong education in the case of students wishing to complete a generalist undergraduate qualification followed by a more specific vocational program through TAFE.

Some universities, however, are making significant inroads into the vexed question of credit transfer and course articulation. At the Victoria University of Technology, for instance, where both TAFE and higher education share the same campus, the Pathways Project has established a permanent infrastructure for the promotion and implementation of articulation between the two sectors. Students are provided with printed material ‘matching up’ equivalent levels of credit in TAFE and the Victoria University of Technology courses and they may apply for exemptions from particular units in either sector on the basis of work completed in the other. In this way, students are encouraged to move freely between sectors without jeopardising their futures. The Project Officer described the infrastructure as a ‘means of jumping in and out of education as and when you need it’ (T138), and said that:

Most of our TAFE students do very well when they move into higher education... People should be able to move backwards and forwards... if we can document and publicise pathways for higher education into TAFE as well as the other way we will get that flow-around of students. (T138)

Whether under the rubric of recognition of prior learning, credit transfer, or course articulation, this whole area has significant implications for lifelong education. At one level, of course, obtaining credit for learning obtained elsewhere is vital to any
functioning system of lifelong education, and accordingly it is essential for such structures to be in place. But there are other, perhaps more subtle implications as well. These relate to the attitudes and self-concepts of learners. If they are granted academic credit for learning experiences outside the university, then they are likely to develop a more robust concept of themselves as learners. They are likely to view all sorts of life experiences as potentially educative, and are more likely to want to engage in such learning in future. In either case, having in place mechanisms for recognising prior learning and giving credit for study undertaken elsewhere is facilitative of a system of lifelong education and the development of an ability and willingness by graduates to continue both formal and informal learning throughout their lives.

Summary

In the first part of this chapter, attention has been focused on the content of the curriculum or, in other words, on how institutions decide what to put in and what to leave out of any given undergraduate degree. This decision is becoming more difficult not only because of the rapid rate of knowledge growth in many specialist areas, but because various stakeholders, such as employers or professional associations, are expecting degrees to equip graduates with a range of non-specialist or generic outcomes as well.

The net effect has been to place near-intolerable burdens on some programs of study—basically to fit more and more into a container (i.e., a course) of fixed size. Responses to this pressure vary. Some institutions have responded by narrowing their courses, tightening their regulations, and reducing the freedom of choice to a narrow range of optional subjects. Others have taken the opposite tack, redefining their undergraduate programs as essentially preparatory; moving towards modular structures; allowing credit for work completed elsewhere; reducing the strictures imposed by major sequences of study or concentrations; and pushing more detailed vocational material into post-graduate awards.

In his ministerial statement Higher Education: Quality and Diversity in the 1990s, Mr Baldwin, the then Minister for Higher Education and Employment Services neatly summarised the issue as follows:

Institutions, under pressure from many quarters, have often responded to the continued growth in specialist knowledge by trying to squeeze more and more into undergraduate curricula. This may have contributed to a narrowing of the focus of courses, as well as to continuing pressures toward course lengthening in some fields.

In many cases, the most appropriate response would be to broaden the undergraduate curriculum, move some current undergraduate course elements into specialist postgraduate offerings and expect employers to meet many of their employees’ industry-specific and, especially, firm-specific information and skill requirements.

This would mean that undergraduate study would be seen more explicitly than at present as a rigorous foundation for lifelong learning. (1991, p. 43)
Structure of the curriculum

In this part of the chapter, attention switches from concentrating on what to put into a degree program, to how to organise and structure it. This, however, is a somewhat arbitrary and artificial decision. In particular, if it is decided that Australian undergraduate degrees should provide graduates with a range of generic skills that at present many of them lack, and that there simply is not room to include these in the framework of a three-year degree program, it must point to one of two conclusions. Either more of the ‘technical’ content of the degrees will have to be postponed to postgraduate awards, or else the undergraduate programs will have to grow; probably to four years in length.

Either of these alternatives will have serious repercussions. Pushing vocationally specific material into postgraduate awards would not only lengthen the time that most students spend in obtaining their ‘licence to practise,’ but it would transfer the financial burden of vocational preparation to the learner in the form of fees. Extending the length of the undergraduate degree would also attenuate the training process, but the costs would substantially fall to the public purse, so long as undergraduate degrees continue to be paid for largely by the Federal government.

Obviously this is a matter of great financial and political gravity. Although we have ventured a few comments under the heading of ‘A core curriculum’ later in this chapter, it lies well beyond the limits of this present study to make specific recommendations on such a weighty issue. For the purpose of this study, therefore, we have assumed that undergraduate degree lengths would remain unchanged, but it is recommended that a separate study be undertaken in the context of evaluating the nature and purpose of undergraduate education, into the desired length of undergraduate degrees and the likely changing relationship between universities and other providers, notably TAFE colleges (R6.2).

In considering the structure of undergraduate programs, research has shown that students are more likely to adopt a ‘surface’ approach to learning when they experience university courses which are based on ‘a heavy workload, relatively high class-contact hours, an excessive amount of course material, a lack of opportunity to pursue subjects in depth, a lack of choice over subjects and a lack of choice over the method of study, and a threatening and anxiety provoking assessment system’ (Gibbs, 1992, p. 154). Conversely, students who experience courses in which they have greater control over content and learning mode, scope for intellectual independence, motivation, interaction with others in an active learning process and a well-structured knowledge base (Gibbs, 1992, p. 154) will, in all probability, become self-directed, lifelong learners.

In this study, therefore, we concentrated on identifying the sort of curriculum structures which embody the positive qualities articulated by Gibbs and which, to quote Baldwin, would provide a ‘rigorous foundation for lifelong learning.’ Based on the information collected during this study, we believe that an ideal undergraduate curriculum would:

- provide a systematic and integrated introduction to a discipline or field of study;
• offer a comparative or contextualised framework for that discipline or field of study;

• encourage the broadening of the student, and the progressive development of certain generic skills;

• allow some freedom of choice and flexibility to meet the needs of a range of students; and

• have a structure which explicitly devolves to learners a greater responsibility and opportunities for self-direction.

In the sections which follow, each of these five characteristics is discussed, drawing particularly on the various programs we identified for use as case studies.

Systematic and integrated introduction to the field of study

In designing any particular program of study, it is possible to allow students too much freedom, or too little. Either extreme has its drawbacks.

In many generalist degrees, especially those in the arts and sciences, the days of widespread logical and sequential progression through a prescribed order of subjects are long gone. Nowadays, graduates often leave their universities with little more than a superficial understanding of what constitutes and informs a particular body of knowledge; an approach which some have described as the ‘patchwork’ degree. While this may be acceptable—even desirable—for the undergraduate student with considerable life experience and a ‘wide-angled world view,’ it can have the opposite effect on a young student straight from school.

Other courses of study, notably those with an explicitly vocational focus, may err on the side of over-prescribing the structure and sequence of study, thereby permitting too little freedom of choice. These days, students in vocational courses whose structures and content are significantly influenced by accrediting bodies are more likely to have progressed through their courses sequentially and incrementally than are students in generalist arts and science courses.

Inevitably, courses that are prescribed by professional associations or which are employer-driven will have relatively limited scope for optional studies, or for an interdisciplinary or interprofessional focus. However, if learning for life is to be a goal of undergraduate education, then accrediting bodies need to rethink their priorities for both the content and the structure of university courses.

One approach to the development of courses that are neither too fragmented, nor too prescriptive, is the use of an integrated curriculum, which differs from the familiar curriculum based on a vertical sequence of subjects through year levels (e.g., English 1, 2 and 3). In this traditional pattern, whole fields of study are explored incrementally, according to regulated progression through established orders of prerequisites. Integrated curricula, on the other hand, operate on two levels of linkage: subjects are linked horizontally across broad strands while they are simultaneously developed vertically with a specific discipline focus. Thus students
progress vertically through a prescribed sequence of subject areas which are themselves taught horizontally through their integration with other, broader focus areas.

Submissions to the medical disciplinary review (Doherty, 1988, pp. 154-155) from both teachers and students emphasised the value of ‘bringing together material from different parts of the course into a personal synthesis by processes of integration within years (horizontal integration) and between years (vertical integration).’ One such submission from Dr J Young criticised the separation of undergraduate medical courses into ‘distinct subjects’:

[This] does not allow for coalescence of all the facts and issues relating to the clinical management of a patient with a health problem. The basic sciences are divorced from clinical medicine; hospital medicine is separated from community medicine; public health is separated from clinical medicine. The curriculum is in need of integration in order that the student considers all the ramifications of the health state. This is essential for both health promotion and patient management if the health system is to achieve its goal as stated in the definition. (Doherty, 1988, p. 155)

By explaining how various subjects are related both to one another and to unifying themes, students have a better understanding of the broad picture. Thus, when selecting options, they can select optimal subjects not only according to their individual interests, but with a better knowledge of how those subjects relate to the whole.

The curriculum in place for some decades in the Faculty of Medicine at The University of Newcastle, for example, is organised in a matrix pattern integrating the vertical subject disciplines (anatomy, physiology, etc.) within five horizontal domains (Professional Skills; Critical Reasoning; Identification, Prevention and Management of Illness; Population Medicine; and Self-Directed Learning). This integration is achieved in practice through the extensive use of problem-based learning (for details of which, see ‘Problem-Based Learning’ in chapter seven). Course documentation for the undergraduate curriculum outlines how the integrated system works:

The various basic, social and quantitative sciences upon which clinical medicine is based are learnt in the course of these problem-solving exercises. There are therefore no separate courses of, for instance, anatomy, physiology, biochemistry, pharmacology, etc. Instead, Faculty members in those disciplines contribute to the biomedical problems by identifying topics for study, and are then available as resources for students to consult, either in prearranged seminars, fixed resource sessions, demonstrations or individual and group consultations on selected topics. From the beginning, students learn from contact with patients and communities and this contact becomes increasingly important as they progress through clinical rotations in the latter part of the curriculum. (1993, p. 3)

Veterinary Science students at Murdoch University study the basic science and clinical practice disciplines within an integrated curriculum. Through this they learn to make the necessary connections between subjects. By focusing on a common organ system (e.g., the renal system) and studying it through anatomy, physiology, and
biochemistry, for example, students learn to identify clinical problems and solve them by integrating their knowledge of the three disciplines. One member of staff described this process:

I take over a whole lot of X-ray films and I say, ‘Here is a dog that has swallowed a squash ball. What is going to happen now? The dog is going to die unless you do something about it.’ This is all related to anatomy, physiology and biochemistry. They have to integrate the three disciplines to come to an answer. (T24)

Although some students experience initial difficulties with an integrated course structure, most recognise the benefits involved in an incremental approach to curriculum design:

Some of us at the start thought, ‘Why can’t we start with the anatomy and just learn it all, and then learn all the pathology?’ But after a while we realised where we were actually going. They used to talk about this learning spiral which we hated, but looking back there was a lot of real wisdom in it. In the lower bits of the learning spiral you picked up more and more and more, so you were constantly reviewing things and building on that knowledge. (T75)

Students who had only experienced partial or patchy implementation of an integrated curriculum, however, were generally dissatisfied with the lack of synchronisation between subjects and topics. Often the tutorials became uncoupled from the lectures to which they referred and students became frustrated:

If you looked at the histology of the renal system and then the physiology and then the anatomy all at once, then it would really be good. You would learn the system from...scratch. I know they try to do it but they all get out of sync. You could be doing lungs in histology and kidneys in physiology and anatomy of the limbs, after a while they don’t seem to be related at all. (T25)

I sometimes wondered where they were going. I know they worked around a set passage, but you think they could have brought them all in together. I found it very wishy washy sometimes. They would go from one thing to another thing to another thing, and I would be thinking, ‘I don’t know where I am, I am confused. Why do you go from the ovaries to the brain, why not start from the brain and work yourself down?’ Then in second year you would go back to the ovaries or the brain or something and you would be learning more in depth and you would think ‘Why didn’t you just do this all at once?’ That was very confusing. (T10)

Reservations about integration were not limited to students. A lecturer in medicine made the observation that:

One of the down sides of this sort of program is that it brings with it some uncertainty. If that uncertainty is too much it becomes overwhelming and you are going to have a problem that doesn’t work. If it is containable it does work. Now somehow you have to set up the structure so that there is a matrix there for them to work their way through
rather than a maze which they can't work their way through. We are not promoting the 'Far West Course for Medicine by Correspondence'; there has to be more of a structure to it than that. (T79)

Overall, however, staff, students and graduates of courses based on integrated curricula felt that they had acquired a breadth of vision, a sense of the interconnectedness of fields of knowledge and an awareness of how knowledge is created in at least one discipline. However, integrating the curriculum within one discipline area is generally acknowledged to be insufficient to give students the broad perspective and helicopter vision of the lifelong learner. Traditionally, the provision of higher education:

has been characterised by consecutive studies, a focus on a single institution only, a focus on the discipline with linear sequences of study with few options available, and the single measure of achievement being the final award. Curriculum designed upon [this] 'holistic' model emphasises the totality of the course of study and the single institution within which it is taught. Interrelations with other courses and institutions are seen to reduce the cohesiveness and independence of the award. (Mathers, 1981, p. 351)

Recent debate in Australian higher education has seen the call for a fundamental shift in attitude towards curriculum structure. For example, a recent article by Dr Jan Bruck, Acting Director of the Centre for Liberal and General Studies at the University of New South Wales, called on academics to build on their existing faculty structures to give all discipline-specific knowledge a common focus:

To achieve a proper integration of knowledge, it is not enough to create more or less expedient connections between academic fields. What we need is a more general, integrative perspective, which reaches beyond the disciplinary boundaries altogether.

A truly integrative approach would require a fundamental shift, a kind of Copernican revolution in the way we perceive the object and focus of knowledge...

To reach a more integrative perspective, we need to go beyond the disciplinary abstractions and remember that, despite their obvious differences, all faculties ultimately also deal with common objects, situations and concerns. (The Australian, November 10, 1993, p. 16)

Despite the strength of this argument, it appears unlikely that changes in attitude of this dimension will happen in the immediate future. Nevertheless, there is a growing impetus for interdisciplinary studies to be included in the undergraduate curriculum, either in general studies programs or foundation years.

Comparative or contextualised framework

The 'well-structured knowledge base' to which Gibbs refers cannot be underestimated. In today's often randomly-structured undergraduate courses, it is doubtful if students leave university with a thorough understanding of their own field of study, let alone of
the connectedness of different fields of study. Yet an interdisciplinary perspective is an essential quality of the lifelong learner or of the ‘educated person.’ Marginson (1993, pp. 129-30) lists the main benefits of cross-disciplinary study as ‘the potential to deepen and broaden the capacity to structure and manipulate systems of knowledge, which has direct spin-offs in the form of generic academic skills, as well as a broadened social and cultural outlook.’ Many of those interviewed were in favour of giving a broader interdisciplinary focus to course structures by including subjects such as sociology, economics, politics, Australian studies, geography, history, environmental science and computer science, etc. Some universities, for example Murdoch University, included in their foundation courses a wide range of electives with an interdisciplinary focus.

At the Royal Melbourne Institute of Technology and the University of New South Wales students are required to undertake compulsory interdisciplinary general studies subjects which form part of their degree structures and which are aimed at complementing the subjects in the professional or major disciplinary courses. More specifically, the programs aim to develop the students’ ability to examine interdisciplinary issues, communicate across disciplines, question inherited assumptions, challenge existing knowledge and increase understanding of areas outside their particular field of study.

Not only do these courses offer a ‘broad’ program of study, but they promote learning-to-learn skills and articulate this clearly in their aims and objectives. For example, the 1993 handbook for the General Studies program at the University of New South Wales states that students ‘will be expected to learn not only the content of the subject, but also to learn how to learn in the future.’ (p. 8)

At the Royal Melbourne Institute of Technology, the Context Curriculum program (currently under review), has been in operation since 1983. Students undertake four Context subjects at varying stages of their degrees, usually at the discretion of their ‘home’ departments. At the University of New South Wales, the General Studies Program offers a range of subjects structured in three categories. All undergraduates are required to choose subjects from the first two categories, and students undertaking degrees of more than four years’ duration must in addition, study subjects from a third category, which is concerned with social and environmental responsibility.

An important aspect of these kinds of courses, and one which the students appreciate, is the opportunity to exchange ideas and interact with people from other discipline areas. In many instances, students commented on the stimulating discussions they had enjoyed and the friendships they had made as a result of attending these courses. As well, the broadly based subjects present the students, often for the first time, with an appreciation of the historical and social contexts in which various bodies of knowledge have developed.

There are difficulties associated with implementing general studies programs within mainstream university courses. Frequently faculties or individual staff resist what they see as ‘irrelevant’ subjects encroaching on their already over-laden timetables, and problems may sometimes arise in the more traditional disciplines in which critical thinking is seen as a threat to the accepted wisdom. Particular departments require
students to study all the 'general' subjects in final year rather than sequencing them over the three year degree, and problems exist in the unequal weighting given to general studies subjects as opposed to core discipline subjects.

In addition, general studies courses must constantly counter the perception commonly held by staff and students, that such programs lack the intellectual rigour of discipline courses, or that they detract from the vocational 'purpose' of undergraduate education (the 'learning-to-earn' syndrome):

I think there is a big problem with what students perceive it to be... They don't want to know about lifelong learning, they want to know about the sort of skills that are going to further a job in the long run or are going to help them being a citizen in the short term... A lot of students feel that something which should be tacked on top of the degree should be learning typing skills or other immediate job skills... Students aren't really interested in the lifelong learning, however you'd interpret it. And that's got a lot to do with this economic climate; it's got a lot to do with the secondary school system. (T111)

Whatever the difficulties might be, however, the interviews we conducted suggested that there was an overall appreciation of the benefits to be gained from including an interdisciplinary component in the undergraduate curriculum.

Opportunities for students to study interdisciplinary subjects within a prescribed degree course exist in the Department of Computer Science at the University of Tasmania. Within a structure that requires students to undertake compulsory subjects in mathematics and computing in first year and computing in final year, there are options for students to choose a range of interdisciplinary subjects from other faculties. Students from other faculties make up approximately half of the Department's enrolment so to a large extent an interdisciplinary focus prevails. One member of staff described the advantages of this system:

A student wanting to study computing, Japanese and accounting... It is a very sensible combination yet it could not be done in the University because Arts says you can only do one subject outside of Arts, Commerce says you can only do one subject out of Commerce... So this combination essentially allows students to do computing and other subjects within the University. (T160)

Constraints associated with university degree rules and regulations necessarily limit the interdisciplinarity of courses offered, the breadth of the undergraduate curriculum in general, and the range of multiple skills which the students are able to acquire in courses where particular generalist subjects (e.g., communication skills) cannot be fully accredited because of stringent degree regulations. Other constraints which impact on interdisciplinary courses are teaching and resourcing 'service' subjects offered to outside faculties and the limited time available to include interprofessional studies such as those built into Computer Science at the University of Tasmania and Information Studies at the University of Technology, Sydney.
Broadening the student and developing generic skills

Any institution which does no more than provide technical competence to its graduates—no matter how comprehensive the coverage—is hardly worthy of the title ‘university.’ It is essential that graduates have a broader vision, and a more comprehensive world view, than if they had never been to university. This view was put in a submission to the study from the University of Sydney:

Universities should remain committed to undergraduate education as a broadening experience. Teachers are mindful that students only pass this way once. This may be the only time that students sit at a table focussed on the excitement and meaning of a novel, a formula, or a specimen. On this one level, the experience is an end-in-itself. (S21, p. 2)

While most stakeholders—students, academics, graduates and employers—might agree with this proposition, they are divided as to what it might mean in practice. This is especially the case in those technical and professional areas where there is continuing pressure to include more and more specialised content, simply because of the rate of knowledge development in those fields. Recognising these pressures:

The ‘Broadening Undergraduate Education Policy’ of the University of South Australia ‘seeks to ensure that students in professional degree programs acquire skills and critical awareness in areas related to liberal education as well as in their area of professional study...Exposure to different professional and disciplinary paradigms is intended to allow students to: deepen their general critical faculty; develop a broader view of knowledge; and develop a consciousness of the limitations of a narrow disciplinary focus and the advantages of a broader awareness of the context of discipline-based learning. (S1, p. 2)

One obvious solution to the excessive specialisation that has occurred in recent decades in the undergraduate curriculum may be the introduction of a compulsory foundation course at first year level. Indeed, some universities in Australia have taken or are considering such a step with the aim of giving students a broad introduction to university studies and offering them a range of options from which a later selection of specialisation can be made.

Whether or not such foundation courses should be university-wide or faculty-specific is a matter currently under debate in Australia, and opinions are divided over the outcomes likely to result. By canvassing opinions during the interviews it was clear that staff, students and graduates generally favoured its introduction and only a few were against the idea (at least in the form of a university-wide model along the lines of American college education). However, a considerable number of staff and students favoured some kind of modified foundation year that met the needs of the particular discipline.
Employers of graduates and graduates themselves generally supported the introduction of a foundation year on the grounds that today's graduates are usually deficient in the generic skills, especially communication skills, and have not acquired the breadth of vision that comes from an interdisciplinary focus and which they felt was essential for today's professional. Increasingly, teaching staff believe that:

There is a reluctance among students to read more widely than they are required to. Even their required reading is hard pushed to get finished. Students are very focused on their immediate environment and their immediate experiences. Their goals are quite limited in many ways. There is a need for them to broaden their experience, to enable them to cope effectively with any environment. We are living in a global world in which we have to be able to deal with people from many different backgrounds, and many different experiences. I think a broader education does try and change students' views, and it enables them to function as more fully rounded people. (T133)

Foundation courses, which may include subjects on learning how to learn at university, information literacy, academic literacy, communication skills and computer literacy, together with an elective component of interdisciplinary subjects would appear to offer an appropriate solution. However, both students and staff expressed doubts about the intellectual rigour of generalist foundation courses:

Subjects which address specifically the development of some generic skills, most commonly communication and social and teamwork skills, do run the risk if not taught well that they are not seen by students as academically respectable. Such an experience would devalue the importance of these skills and demotivate students for further skills development. (S15, p. vii)

There are a number of foundation courses that you can choose from and I have heard from people from all of them, that they are all a waste of time. I think they are geared for people of low intelligence. I know that sounds scathing, but it doesn't really take much effort to realise what they are going on about. I think they also emphasise things like how to write the analysis of a particular article, etc., and those sorts of skills I had in year 12. Basically just 'airy fairy' subjects which are designed to cover a broad aspect of something. If you were to pick up any book on that you could read it in twenty minutes and get the gist of it.

I think also it is meant to lead you gently into university life and it did that very gently—you almost didn’t know you were there. (T23)

In addition, students expressed numerous reservations about a higher education system that would delay the choice of career specialisation; that would require them to undertake subjects in which they had proven weaknesses; that would lengthen the duration of the normal undergraduate degree; that would have the potential to add an additional financial burden on them and their families; and that would impose an additional competitive entry point, at the end of first year, into the specialised degree course.
Freedom of choice and flexibility in structure

Partly to accommodate rapidly changing knowledge bases, partly to facilitate alternative attendance and delivery patterns, and partly because of the varied needs, interests and backgrounds of students, in recent years there has been a significant shift in the way some undergraduate courses are structured.

Not only are courses more flexible in terms of their entry and exit points, but there has been a move towards greater modularisation, so that students need only to study those components for which they have a specific need, or for which they do not already have evidence of appropriate prior learning. In its 1990 report *Higher Education: The Challenges Ahead*, the Higher Education Council proposed the increased use of modules, or sub-sets of complete subjects:

Such modules could be designed to meet explicit objectives, so that students can choose those which meet their particular needs. Some institutions will be likely to permit the aggregation of modules so that when an appropriate number has been studied, the students may, if they wish, satisfy degree requirements. This approach to course design is likely to become common because lifelong learning presumes that students will enter and exit from higher education institutions several times in their lives. They will on each occasion take from the higher education system the knowledge and skills that meet their needs as they see them at that time. Course structures and progress rules should not inhibit this process. (HEC, 1990, p. 33)

Such an approach has definite strengths. It is more efficient through reducing redundancy and repetition, it enhances motivation through putting more control in the hands of learners, and it allows for readier articulation between universities and other providers of education and training. On the other hand:

The Council realised that there were pitfalls in a modular system, as students may well receive a superficial and piecemeal education, without consolidated and rigorous exposure to a discipline or field of professional study. Courses therefore needed to be both balanced and flexible and preserve quality. (DEET, 1993, p. 175)

In many respects, the move towards a more flexible, responsive, efficient modular undergraduate education is both a recognition of students’ rights as ‘clients’ or ‘consumers,’ and a significant step towards building a functioning system of lifelong education. However, it requires a major reorientation in thinking by course developers and academic staff members and, if taken too far, could lead to a lowering of academic standards through fragmented and disjointed learning outcomes.

Incremental development of self-directed learning

In an incremental course structure, students are gradually weaned from dependence on their lecturers and encouraged to become independent learners. As the various levels within course structures become more complex, so too do the demands upon students to take increasing responsibility for their own learning. It was clear from the interviews that those courses which promoted incremental development in both the student’s content knowledge and learning autonomy proceeded sequentially and
integrated the various content areas into a coherent whole. In courses which were based on an underlying philosophical commitment to lifelong learning, students were more likely to experience a deliberate progression through the various stages of independent, self-directed learning. In Information Studies, for example, the Professional Studies strand moves:

from the first subject in which they have classes, formal classes and formal assignments, to the final subject in which...they actually plan their own program and their own activities and carry them out...So they move from, say, a class situation to independence by the end of the year. (T82)

The course structure of the BA (Visual Arts) degree at Edith Cowan University is another example where incremental course structure, assessment and independent learning are tied closely together:

It progresses very much from that foundation studies course towards being really, honestly, entirely self-motivated in the third year, so that students are working on a contract basis in a sense, and they negotiate with their lecturer about what they are meant to be doing, rather than having a firm, defined course outline...By the time they are in the third year, or by the time they are leaving, they are able to be totally self-motivating in their learning pattern, and the staff’s task is to make that possible. (T18)

The assessment practices also encourage independent learning because:

when we assess a first year student we are really looking at the ability to be able to experiment and take risks and learn skills; in other words, develop language, a common language which is a visual art. As you move through the second year, you are talking really about developing a personal attitude, and in third year you are perhaps looking more at the product of what has happened.

So there is a different emphasis and different criteria for each of the years, and it does [move] from a studio staff responsibility in first year through to a self-motivated, self-supporting attitude in third year. (T21)

In general, staff and students believed that the advanced level subjects in their courses had developed incrementally from the introductory subjects. However, many pointed out the difficulties involved in structuring courses where the weaning process had been too abrupt, and students were unceremoniously ‘thrown in at the deep end’ in the early stages of their courses and left to find their own way out. A lecturer commented that:

It sometimes works, it sometimes doesn’t. You know, some students treat it as a holiday, some students take it seriously, some resent it bitterly and they think they’re not getting their money[’s worth]. If we’re not up there giving them a class every week they think it’s some sort of devious cost cutting in the university. (T82)
Clearly, courses that develop incrementally at the same time as they foster independent learning equip students to go on learning throughout life: they can learn autonomously in both formal and informal contexts; they respond to change by taking responsibility for keeping up-to-date; and they know and understand their own strengths and weaknesses in the learning process.

A core curriculum

As we undertook this study, it became increasingly evident that many of our respondents—staff, students, graduates, employers and others—had various misgivings about the adequacy of undergraduate degrees in Australia. Few, however, identified a lack of concern with lifelong learning as the problem. For most, it was the nagging suspicion that many Australian graduates are not educated in the full sense of the term. One lecturer in information studies to whom we spoke said:

I guess if I ruled the world I would have a common first year for all students in all programs in all faculties in all universities where they didn’t study things related as much to their professions, but they studied or engaged in learning about subjects which would develop some of those intellectual skills I’m talking about, and I guess I’m thinking more the arts type things, whether history, philosophy, psychology, English, politics, sociology, a range of humanities subjects where they would think and have questions and solve them and critically analyse and learn those sorts of thinking and reading and perfecting skills. (T82)

While a common first year is perhaps one solution to the problem of excessive vocationalism, it has some negatives. A graduate from the same program commented:

I think that the concept behind it is useful in that it gives everyone a general basis. I think it might also be useful in that the pressure isn’t on people to decide straight out of school where they want to go so they focus on developing general skills to start with and then can aim at other things. On the negative I think it might be hard to apply yourself when you can’t see the end point. I think because the skills often aren’t specific it’s hard to see where they’re heading and I tend to think if they’re incorporated as part of your degree, the motivation for learning might be higher. (T88)

Picking up on the final part of this interview quote, we looked into the notion of some sort of core curriculum or common requirements that might be incorporated as part of any degree. Needless to say we found that others—particularly Americans—had got there before us.

In July 1990 a conference sponsored by the Texas Higher Education Coordinating Board entitled ‘Core Curriculum: Making the Connections’ was held in Houston. The keynote address, by James Veninga of the Texas Committee for the Humanities, started with some comments that sounded uncomfortably familiar:

Critics have recognised growing public disenchantment with higher education. Public concerns have centred on the apparent cheapening of college and university degrees; on the inability of large numbers of graduates to have the writing, reading and
analytical skills needed in today's economic marketplace; on the abundance of narrow and sometimes esoteric scholarship; and on the growing isolation of the university from community needs and public issues.

Building on these public concerns, the critics have argued that higher education is beset with major problems. For too long we have witnessed the decline of the liberal arts and the ascendancy of professional and vocational programs. The undergraduate curriculum appears fragmented, lacking an overriding coherence based on a vision of what a college-educated person should know. Introductory classes in our larger universities, frequently enrolling hundreds of students, are most often taught by graduate students, part-time lecturers, and young assistant professors rather than by experienced faculty members. (Veninga, 1990, p. 13)

To tackle these problems, and the many social pathologies to which they seem to be linked, the suggested solution is a core curriculum; a basic diet of courses from, say, five core areas: literature and the arts; history; social and philosophical analysis; science and mathematics; and foreign language and cultures. Such an approach was pioneered at Harvard in late 1979 and while it has not escaped criticism, it does raise important questions about how all undergraduate degrees should be structured for excellence.

The implementation of such a scheme is fraught with difficulties. How is it to be fitted into a program already filled to overflowing with discipline-based content? Who is to do the teaching—senior staff or more junior academics? Do we need interdisciplinary generalists, or can specialists collaborate on shared teaching? How can the concept of a common 'core' be reconciled with the notion of freedom of choice that is also central to the development of lifelong learners? And what steps can be taken to ensure that students view the requirement as a legitimate and vital part of their program rather than a wasteful irrelevance?

These and other questions have vexed educators for decades, though principally since the late 1970s. The attempt to introduce core curricula have not only absorbed huge amounts of time, but have led to quite different strategies for its achievement. One of the most common has been to develop an abundance of elective or optional courses, and then insist that students must select a number of them as part of their degree program. In the United States, this is generally referred to as a 'distribution requirement.' An unanticipated consequence of this attempt to meet the needs of staff and the interests of students has however, been to lead to fragmented programs of study which, instead of having a common core, in fact comprise an amorphous collection of unrelated subjects which undergraduate students are usually unable to integrate for themselves.

Despite the development of a strong literature base about core curricula (see e.g. Boyer & Kaplan, 1977; Campbell & Flynn, 1990; Cheney, 1989) not everyone is convinced that it is desirable, or for that matter that it is possible. Perhaps the most detailed critique is contained in a book entitled In opposition to core curriculum: Alternative models for undergraduate education (Hall & Kevles, 1982), but more recently others have also been asking 'Is a core curriculum best for everybody?' (Jones, 1992).
There are of course dangers in comparing the United States model of higher education with that in Australia. Apart from the obvious difference in scale and the proliferation of specialist institutions with quite distinct missions in the United States, the difference in the length of degrees must be taken into account. Is it realistic to expect Australian degrees of three years' duration to produce graduates of comparable standard and breadth as their American counterparts who have a basic four year degree?

The whole question of core curricula and of foundation years was necessarily raised by our study. Based on experience in the United States and, to a lesser extent, in Australia, we believe there are strong grounds for considering a national study comparable to the Association of American Colleges' Committee on Redefining the Meaning and Purpose of Baccalaureate Degrees (1985) or the report of the National Endowment for the Humanities entitled To Reclaim a Legacy: A Report on the Humanities in Higher Education (1984). However we have framed our recommendations within the existing parameters of Australian higher education, rather than considering the possibility of a general lengthening of degrees, which would clearly have considerable financial, organisational and political ramifications.

Conclusion

This chapter has explored what goes into the undergraduate curriculum and how it is structured. In a sense, there is nothing more fundamental than these questions. For the purpose of this study, they have been viewed from the vantage point of just one issue; the way in which undergraduate education enables graduates to go on learning throughout their lives. However it is recognised that undergraduate education has other functions (for instance preparing graduates to contribute productively to the economy or to society, equipping them with skills of actual analysis, or ensuring the cultural transmission of certain knowledge and skills through producing another generation of scholars), and accordingly that other factors have to be taken into account in developing undergraduate curricula.

Irrespective of their substantive content, all undergraduate degrees should equip their holders with certain generic accomplishments, and all should exhibit the same basic characteristics. It is recommended that, in addition to providing a systematic and integrated introduction to a discipline or field of study, all undergraduate programs should:

- offer a comparative or contextualised framework for that discipline or field of study;
- encourage the broadening of the student, and the progressive development of certain generic skills;
- allow some freedom of choice and flexibility to meet the needs of a range of students; and
- have a structure which explicitly devolves to learners a greater responsibility and opportunities for self-direction (R6.3).

Our study has shown however that there are numerous alternative ways in which these characteristics may be developed, and in no way should all undergraduate programs be forced into a common mould with respect to how these characteristics should be
achieved. In the next chapter, the issue of alternative methods of teaching and assessment is approached, again with the intention of providing a range of models from which academics may select, or which they might adapt or modify to suit their particular purposes.

Recommendations

It is recommended that, where appropriate, both existing and new courses should include an Australian perspective, with a view to encouraging a lifelong interest in and commitment to understanding Australian society, and the place of the graduates' profession or discipline within that context (R6.1).

It is recommended that a separate study be undertaken in the context of evaluating the nature and purpose of undergraduate education, into the desired length of undergraduate degrees and the likely changing relationship between universities and other providers, notably TAFE colleges (R6.2).

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Teaching and Assessing to Promote Lifelong Learning

Introduction
If we want our university graduates to be characterised by inquiring minds, 'helicopter vision,' information literacy, a sense of personal agency and an extensive repertoire of learning skills, are we sowing the seeds within the classroom? Can the learning that takes place in the cloistered—some would say rarefied—atmosphere of a tertiary institution be realistically transferred into other, more rough and tumble learning contexts? What are the connections between how students are taught and assessed at university and how they continue to learn when no longer under the supervision of their lecturers and tutors? The purpose of this chapter is to explore both teaching approaches and assessment practices in courses which explicitly seek to improve students' capacities to go on learning after graduation.

Teaching approaches
Traditionally, most undergraduate courses in Australian universities have relied on lecture-tutorial teaching, supplemented, where appropriate, with laboratory practicals, seminars, design and performance studio teaching, and other approaches peculiar to the discipline. Traditionally, too, such approaches have tended to be teacher-centred rather than student-centred with most of the responsibility for the content and structure of the curriculum resting with the teaching staff. However, there is plenty of evidence to suggest that these traditional 'didactic' approaches are giving way to more 'interactive, problem-based, and independent approaches' (SI4, p. 1) and methods that support the student while he or she grapples with the difficult problem of assuming personal responsibility for learning.

In the course of conducting interviews for this study we received many comments from students, graduates and teaching staff themselves on the adverse, and in some instances, highly constraining effects of the 'traditional' approaches upon the students' potential to learn. Whether they affected students by their monotonous delivery or their repetitive material, students were highly critical of boring lecturers:

the lecturer was up the front of 150 students with an overhead projector and a certain number of slides and he had 10 slides to get through in that hour and [he was going to] get through them, come Hell or high water. (T106)

I mean there were times when you just dreaded to go to a formal lecture. That's what it boiled down to—it was the style of the lecturer. Just the amount of interest which they actually showed. I mean, if you're trying to learn something and the person...teaching you showed considerable lack of interest, how would you feel?
Deterred, bored, not interested, talking to your mate? What's everybody going to do on the weekend? So I think if they showed a bit more of an interest and a bit more of a focus and interest in teaching then more students would be interested. (T89)

We asked staff, students and graduates to nominate particular teaching approaches which they felt did most to promote learning outcomes that translated into lifelong learning skills. From the data it was clear that these kinds of learning outcomes were most likely to result from teaching approaches based on:

- self-directed and peer-assisted learning;
- experiential and real-world learning;
- resource-based and problem-based learning; and
- reflective practice and critical self-awareness.

In addition, because of the rapidly changing nature of learning in the 'real world,' some observations are offered about:

- open learning and alternative modes of delivery.

Self-directed and peer-assisted learning

In any endeavour, the sense of personal satisfaction and empowerment that comes from taking control of and seeing through to the end a process, an initiative, an innovation or a challenge is one of the most fulfilling and rewarding experiences imaginable. No less with learning. Self-directed learning is the kind of learning which takes place when the learner assumes responsibility for specifying individual learning needs, goals and outcomes, planning and organising the learning task, evaluating its worth and constructing meaning from it. It contrasts sharply with:

The stereotype of Mr. Gradgrind from Charles Dickens's novel *Hard Times*, who corrects every word and every deed of students, makes students dependent on teachers and disables students for [after] graduation when no teacher will be available. (S21, p. 4)

Instead, it enables the learner to accept or take over control from the teacher whose role becomes one of resource and support person, a facilitator of learning who guides the learning process according to the needs of the learner at any one time in a collaborative process.

Self-directed learning is sometimes contrasted with teacher-directed learning, as if these two ideas were dichotomous. In practice, however, various teaching and learning situations can represent different balances between the teacher and the learner. In fact, these two views may be thought of as 'extreme cases' on a continuum, with a range of positions spread out between them; each position representing a different proportional balance between the teacher and the learner. In the following diagram a gradual relinquishing of control can be discerned as the learner assumes more and more responsibility.
A Hypothetical Learner-Control Continuum

Exercise of control by the
teacher

Exercise of control by the
learners

(adapted from Candy, 1991, p. 9)

Not everyone believes that self-direction is possible, or that it is desirable. Some academic staff members, for instance, might feel that students are not capable of exercising control, or indeed that this represents an abdication of their responsibility. Others might believe that they would lose control over the students and that their authority would be threatened if they were to allow students to take greater responsibility for certain instructional decisions such as the content, sequencing or pacing of a course or program. Others, while committed to the ideal of self-direction, may feel daunted by the prospect of making it happen, or may believe that it is fundamentally incompatible with the ever-rising numbers in undergraduate courses. These and many other difficulties in changing from ‘traditional’ teaching approaches to more self-directed approaches are dealt with in Candy (1991, pp. 227-231).

Despite these misgivings there is evidence to show that there are significant gains in learning outcomes to be derived from increasing learner self-direction. The student who learns independently and who, to quote one of our interviewees, fills his or her ‘own empty bucket’ (T58) takes from the university experience the ability to continue learning through life. A student who has developed the skills of being self-directed in the process of learning about something, not only ends up with the knowledge, but also with the confidence to be able to ‘do it again,’ to be able to apply the skills acquired in one learning context to another.

Learning contracts. There is no single way to guarantee self-directed learning. We spoke with practitioners who have implemented, to varying degrees, a range of different teaching approaches all designed to foster independent learning. In this chapter, however, we deal with just one of those approaches: the use of learning contracts.

A learning contract is a device used to structure an individual learning activity. It is a formal written agreement between a learner and a member of teaching staff...which details what is to be learnt, the resources and strategies available to assist in learning it, what will be produced as evidence of the learning having occurred and how that product will be assessed. It also specifies a commencement and completion date for the activity. While not legally binding, the contract provides a focus for learning activities which are largely self-directed but which may earn credit towards an academic award. (Anderson, Boud & Sampson, 1992, p. 1)
It is important to stress that the use of learning contracts does not imply that learning is some sort of undirected free-for-all or, as mentioned elsewhere in this report, 'that no standards of disciplinary discourse should apply.' Rather, learning occurs within a highly structured framework, but it is the student who has constructed the framework, in consultation with, not at the direction of, the teacher. Learning, therefore, is highly individualised, strongly focused and personally meaningful.

In the School of Agriculture and Rural Development at the University of Western Sydney, Hawkesbury, Systems Agriculture students are catapulted into a self-directed approach to learning from the very first day when they learn that they will be responsible in their first two semesters for initiating a sizeable proportion of their project work. In the course of their degree, students experience a gradual increase in their own areas of responsibility until, in final year, they act as consultants for clients in the outside world, designing projects that will have direct bearing on their future careers.

Problems in designing curricula that include even some component of contract learning are often very different from those in 'traditional' curricula, as each student researches an individual topic. Rather than worrying over what can be left out of the curriculum, staff are faced with the problem of what has to go in to ensure professional competency. In Systems Agriculture, the course changes dramatically every year so that no two cohorts of students experience the same curriculum. Both students and staff were enthusiastic about the resulting learning outcomes from a contact-based curriculum, particularly in terms of the students’ interpersonal and communication skills development.

In all their projects, students negotiate contracts with their facilitators specifying what will be learned and how it will be learned. The kinds of problems addressed in the projects are real-world problems, which become increasingly complex as the course progresses. As their projects advance, students draw on the resources of the facilitator (a staff member) and a facilitation group (students), as well as on the expertise of practitioners outside the university.

Staff in the Systems Agriculture course have seen students struggle to come to terms with a form of learning totally alien to their previous experiences. They have seen them rebel, become disheartened, fail, give up and leave. But they have also seen them succeed. Those who survive the trauma of the first year usually make it to the end—many students admitted that it was not until half way through second year, after their period of work experience on a farm, that the pieces fell into place.

As previously mentioned, in the Faculty of Medicine at The University of Newcastle one of the five domains which comprise the integrated curriculum is dedicated to self-directed learning. This is described in course documentation as ‘the ability to take responsibility for evaluating one’s own performance, implementing one’s own education and contributing to the education of others.’

By formalising the importance of individualised, self-directed learning within the curriculum, the faculty signals to the student the value it places on such learning outcomes as a sense of inquiry, personal agency and the acquisition of a repertoire of learning skills.
Contract learning is used in Domain 5, Self-Directed Learning, in two main ways: in classroom discussions, where students set their own learning goals which they contract to meet, either individually or in groups; and in the elective program, where students use learning contracts to choose topics, set goals and assess their achievement of them. Before the contract is signed, students must justify to their supervisors how their project will benefit their medical education, and after the contract is completed, students reflect on the extent to which the elective has been a rewarding learning experience.

Most students choose to fulfil their learning contracts by working outside the university environment in accident or emergency wards, hospitals, ambulance centres, acupuncture centres, or surgeries, either in Australia or overseas, and in so doing, they go through the various stages of 'exploring the boundaries between what doctors do and what nurses and physios do...flexing their muscles and testing themselves out as doctors...[and] calibrating themselves against the rest of the world...' (T79).

In all situations inside and outside the university, identification and realisation of learning goals and outcomes and reflection on the results are assessed using a satisfactory/not satisfactory system in which as much emphasis is given to the process as the product of learning.

The School of Adult and Language Education at the University of Technology, Sydney, bases its courses explicitly on a philosophy which recognises that:

- learners have the right to participate in decisions made about their learning;
- learners are necessarily creators of knowledge as well as consumers of knowledge created by others;
- notwithstanding differences of roles and responsibilities, students and staff are peers as educational practitioners;
- independent learning is developmental and students have different requirements at different stages;
- educators need to develop and be able to articulate their own theoretical and value bases;
- theory and practice inform each other, interrelate and are in a continual state of tension;
- effective practice needs to be critically reflexive. (Quality of Teaching and the School of Adult and Language Education, 1993, p. 1)

Enabling students to direct their own learning effectively is fundamental to the degree program, and manifests itself in a number of different teaching approaches, among them learning contracts. Students can choose on what and how to focus their energies, but teaching staff still play a major part in the learning process:
Rather than us saying to the students, ‘This is a body of knowledge to be learned; we have determined the aims and objectives quite clearly in advance; just knuckle under and get on with it,’ we say, ‘There are basic goals to this course; there are some competencies that we would hope, that we would expect you would develop, but in the particularities of what you do and how you do it we are very flexible, and we are open for you to suggest to us ways in which you might be able to do that.’ (T94a)

A final year student described how she came to terms with independent learning in the following way:

I was unfamiliar with this unstructured method of learning whereby you identify what it is you want to learn and you take responsibility for your own learning. It was totally new to me and I felt uncomfortable with it in the beginning because I expected something to be clearly black or white, this is the way to go, this is what you need to do, and so on.

But it all started to fit into place in the first year and subsequently it has been wonderful having that opportunity to identify what I want to learn rather than someone setting a curriculum and just having to pass various subjects to get a qualification at the end. I could see what was required for my personal development as well as my professional development, and the course helped me structure my goals more clearly. (T92)

The School of Information Studies, also at the University of Technology, Sydney recently won the University’s annual award for excellence in supporting student learning. Like the preceding courses in Systems Agriculture, Medicine, and Adult and Language Education, this course relies heavily on reflective practice, contract learning and other teaching approaches designed to foster lifelong learning skills.

In the Professional Studies strand students explore the career options open to them upon graduation and in their final year they negotiate a contract with an external client to research and resolve a particular problem. Students were enthusiastic about the experience they gained in goal setting and goal attainment and particularly welcomed the opportunity it gave them to explore areas relevant to them. One student spoke of her contract to investigate medical librarianship:

I worked out how I would go about doing that and how I would go about equipping myself if I wanted to achieve that, so in the contract we had a goal and a statement of what our objectives were, and a list of activities we planned to undertake to achieve that. We had to set our assessment criteria and how we wanted our assessor to assess us. We actually could nominate our assessors and we set a due date. And actually, in our last professional studies course, we actually assessed ourselves against our own criteria. (T88)

Despite the initial confusion that students commonly faced in courses based on contract learning, those we spoke to shared their lecturers’ commitment to a teaching approach which developed their lifelong learning skills.
Peer mentoring/Supplemental instruction. Peer mentoring, or supplemental instruction, is a process of linking mastery of course content with learning-to-learn skills. There are many variations on the theme, but basically the idea is always the same: advanced students help beginning or less advanced students who may be having difficulty with the subject or unit to approach their studies with confidence and to integrate the learning process with the course content.

At first sight, peer mentoring might seem to have little in common with self-directed learning. However in both cases there is a considerable shift in the locus of responsibility from the teacher to the learners. Peer mentoring programs have been introduced in a number of Australian and New Zealand universities (Higher Education Research Office, 1993), among them Queensland University of Technology, whose Peer Assisted Study Sessions Program is modelled on the Supplemental Instruction program run by The University of Missouri-Kansas City. The program targets at-risk subjects, notorious for high failure rates and student dissatisfaction. Trialled initially at Queensland University of Technology in units in Nursing and Information Technology within the Faculty of Science, the scheme will be extended in 1994 under Committee for the Advancement of University Technology grant funding to the Faculty of Law.

Faculty of Law staff at the Queensland University of Technology believe the Peer Assisted Study Sessions program engages students actively in the learning process and in addition, makes use of the valuable learning resource that students represent to each other. According to one lecturer, the program is also:

> essentially about using students to help other students learn and also assisting them to make the transition from high school to university. Most students are in that situation, and it makes it easier for them to cope with a university environment. The third thing that we are looking at is assisting the students to work together as a team. (T5a)

The information handout for students states that the program is supported at the institutional level 'because it is believed that [its] use will promote students adopting cooperative approaches to learning, will increase students’ autonomy and assist in the development of lifelong learning skills.'

Importantly, participation in peer mentoring is voluntary, both with respect to selection of mentors and student participation. Currently, students are able to attend peer mentoring sessions in either or both of two substantial full-year subjects. The peer mentoring sessions are scheduled into the Faculty’s timetable so that students perceive them as an important part of their study. Selection by lecturers of peer mentors from among advanced students is based upon interpersonal skills, academic competence and successful completion of the at-risk subjects in previous years. One staff member commented on the selection procedures:

> Students were not appointed because they had really good marks, [but] they needed to get a credit to give them credibility. The brightest students aren’t necessarily the sort of students who have the skills that you need. We put the students through a two day workshop which went very well, but they still had to have a certain skill level to begin with, in terms of communication skills and interpersonal skills. (T5a)
The leaders of each small group, through their supervisors, liaise with academic staff to improve the quality of teaching and interaction with students. Not only do the mentors gain enormous confidence from having to teach others, but they also acquire valuable organisational, interpersonal and communication skills, and they gain experience in working collaboratively with peers—all skills which can be transferred readily to the workplace. Staff were enthusiastic about the rapid development of these skills in a context where learning takes place in an all-student environment:

[We want] to be getting students to actually think about the law in an environment which is not threatening. A lecturer there can be threatening for students, especially when they want to ask 'dumb' questions. Despite how good the lecturer is there is always that gulf, and we are hoping that that gulf doesn’t exist when it is students on students...[We are] getting students to think about the law and to appreciate how the law works in a non-threatening environment working with each other. (T5a)

One staff member also commented on the way in which this type of learning encouraged learning for life:

One of the problems with students’ learning is that, especially in Law, they tend to see it as very static, which of course it isn’t. Lawyers are required to keep learning forever. In order to be able to do that you need to be able to talk about the law and share ideas with other people and reflect upon your own ideas on the law. In the student peer mentor groups the students appear to be doing that. (T5a)

Experiential and real-world learning

In their attempts to bring down the barricades which for decades have separated learning at university and learning in the workplace, 'teachers in higher education have made increasing use of guest presenters, 'sandwich' courses, internships and practicums, site visits and field trips, self-directed project work, collaborative learning teams and a variety of other devices to make learning tasks more comparable with those encountered in the world of work' (Candy, 1993, p. 12).

Diverse as they are, what these initiatives have in common is that they require students to undergo experiences similar to those they would encounter in the real world, or indeed to learn outside the university classroom. As a result, they become acculturated into work environments which develop skills and abilities that they can transfer to their own professional practice after graduation. For instance, in its submission to the study, the Institution of Engineers (Australia) took the view:

that collaborative, and effectively supervised, work over an extended period should be an integral part of any undergraduate course; and such work will typically involve students in working with senior engineers...who are also committed to continuing professional development. These factors should help to create an environment in which participation in lifetime education is motivated by the example set by successful practitioners. (S32, p. 2)
In line with this sort of recommendation, course coordinators are increasingly including a component of experiential learning in their curricula, using a range of teaching approaches such as role playing, clinical practice, field trips, work experience and cooperative education.

**Role plays.** Role plays are among the most widely used approaches to experiential learning. They provide an opportunity for the learner to experience the realities of a particular situation, but without the complications or the potentially adverse implications of errors in judgement in a real-life situation. The Department of Community Medicine at Monash University was among the first medical courses in the country to use role plays. Dozens of scenarios have been constructed on the basis of real clinical examples where particular difficulties or problems have arisen. By acting out assigned roles students gain first-hand understanding of doctor-patient relationships. A male student described his experiences as follows:

I think they were very useful...It is hard to accurately play a role. ...I often thought I would much prefer to play the patient. [But] it was much easier to play the doctor because it is something you have been training for...you don't really know how to play the patient...I got to play the pregnant lady! That was classic! It gives you an insight into the other end. (T116)

Role playing gives students the ability to understand and empathise with the experiences of others by asking them to ‘be’ those others for a short time and to share their experiences. Initially, many students feel threatened at the prospect of assuming a role and enacting a situation:

[Students] find it very threatening and very difficult at first, but by the end they become very good at it and they all rate it as one of the best, very best programs. They felt it prepared them very well for life. (T117)

As learning experiences, role plays encourage students to be self-critical and to work collaboratively with their lecturers during replay of the video-recordings of performances to identify areas of strength and weakness. The use of role plays—especially of role reversals—can sensitise a learner to his or her biases and assumptions, as well as preferred modes of learning: invaluable insights in preparing for unanticipated learning in the future.

**Clinical practice.** In their final year, medical students at Monash University participate in a six-week clinical rotation at the Clayton Campus Department of Community Medicine during which they spend time in a metropolitan general practice and a fortnight living and working in a rural practice.

While working in the rural practice, students develop their communication and interpersonal skills as well as their technical skills and knowledge, and learn how to solve problems 'on the spot':

I think anything dealing with real life situations [enables a student to learn]. I think the best practices are where we have patients with real problems and clinical cases where they are dealing with people...The more we can get students away from learning
text books cover to cover, doing strange multiple choice questions and mechanical projects the better. They have to talk to people know how to cope with people, explain things, show empathy, and then examine and analyse them and so forth. It makes sense that this is the way to learn, this is real life and learning about people. (T117)

Third year medical students at The University of Newcastle also spend time in rural clinical placement. The faculty appoints clinical supervisors in each of the country centres, pays them and supports the hospitals with library materials. Assessment is conducted by local doctors within the hospitals and teaching staff from the faculty who travel to the various centres. One staff member mentioned the importance of this assessment procedure in clinical placement:

To us that sends a pretty important message in terms of how much we value these. We think they are important enough...to travel to these centres...I don't think there is any doubt at all that the way we organise our rotations in third year is much more an intrinsic part of the curriculum and supported by the curriculum than any of the other medical schools. (T79)

Students and graduates interviewed were enthusiastic about their time spent in clinical placements. Not only did the experience enable them to develop their technical and interpersonal skills but for some it provided an opportunity to assess their futures:

I think really that the focus on face-to-face and getting into hospitals was my favourite experience...You would follow [your specialist tutor] around, do what they did, and attend when they did. So you really got to know the patient and had that feeling of being on a team. You also got to know whether you liked it or not, whether you really liked looking after these sick people who had problems that weren't easily fixed. It often took a long time to sort out. I found that rewarding. (T75)

Field trips. Both clinical practice and field trips give students intense, though brief, periods of exposure to real-world work environments. Students see practising professionals as they learn and as they make mistakes. They see evidence of continuing professional education in nonformal and informal contexts and they gain an understanding of how formal education meshes into the broader picture of lifelong learning.

Visual Arts students at Edith Cowan University participate in a variety of work experience programs and are encouraged from first year to extend their experience of the arts through contacts offered by the course with visiting artists and crafts-persons and through visits to artists' studios, galleries and craft workshops.

One such experience involves a first year camp with academic staff and the artist-in-residence, who is generally one who works in the 'bush' or whose work has an environmental perspective. The artist-in-residence, along with a bush expert, a poet, a geographer and a geologist all participate in the camp. In this camp setting inevitably the students' work reflects the influences of these mentors and, as well, students develop their sense of worth and self-confidence. As a lecturer put it:
If you have to set up tent with somebody and work out what you are going to cook for a week you get to know them very well. So the big advantage of that, I think, is allowing people to make mistakes and allowing people to get out of holes. People can build an atmosphere of trust not just between myself [as a lecturer] and a student but also within the studio area. (T19)

Work experience. In contexts as disparate as farms and factories, studios and surgeries, students in many courses in Australian universities are undertaking extended periods of unpaid work experience. For instance, students in the BApplied Science (Systems Agriculture) at the University of Western Sydney, Hawkesbury and in Veterinary Science at Murdoch University spend six week periods living and working with farming families. At Murdoch University, as a lecturer explained:

Most of the people coming into the Vet. course are city orientated...So we make our students go and live on a farm during the first three years of the course, we actually pay the farmers to take them and feed them, pay them enough to cover everything. They are not out there just to answer to farm labour, they want the farmer to take them to the market and show them what it is like living in the country and what their problems are. (T24)

By placing the theoretical aspects of the course in a practical context students and lecturers felt that these experiences were invaluable in bridging the gap between the two learning contexts of university and the world of work:

We’re learning things that we don’t forget, because we’ve experienced them. We’ve learnt through that experience and so we’ve kept that knowledge. We haven’t crammed it for an exam and lost it the next week. (T52)

The Faculty of Law at the Queensland University of Technology has trialled a clinical legal experience program involving a combination of formal instruction and practical work at the Legal Aid Office. A final year student who was participating in the clinical legal experience subject, which previously was not a compulsory part of the course, was very enthusiastic about its merits, particularly with regard to improving graduates’ transition to the workplace:

When you get thrown into a solicitor’s office you are going to be useless for the first six weeks. [This subject] is the most valuable in terms of just seeing how everything works. (T3)

The Business/Higher Education Round Table has, in a series of reports and surveys released over the past few years, recommended a closer relationship between industry and higher education, especially in the provision of work experience and cooperative education opportunities which contribute to lifelong professional education.

Cooperative education. Cooperative education programs, though a relatively recent innovation in Australian universities, have existed in the United States and Britain for many decades.
In Australia, although details differ from one program to another, the basic idea is that students undertake some part of their learning—usually a semester or perhaps a full year—through internships in government, industrial, commercial or voluntary organisations. In some cases they are granted academic credit for this work and at other times it is simply seen as a practical component with perhaps the possibility of enhancing their employment prospects on graduation. The level of direction provided by employers varies from very little (the 'sink or swim' approach) through to elaborate, tailor-made induction and training programs designed to assist the students to fit in. Likewise, expectations vary from those situations where the student is a mere observer, through to settings where they are expected to make a real contribution to the projects and activities to which they have been assigned. (Candy, 1993, p. 13)

Most cooperative education programs are optional programs of study, in which students, either alone or in groups, undertake work-related projects while under academic and shared work/industry supervision. Often the services of a program manager or liaison officer are utilised to ensure the aims and objectives of students, academic staff and client company are met successfully.

In this study we spoke to staff, students and graduates who were involved in cooperative education programs at the Victoria University of Technology, the University of New South Wales, the Royal Melbourne Institute of Technology and the Queensland University of Technology. Although the number of opportunities for students to take part in cooperative education programs has been limited by the recent economic climate, there is still scope for students to design and implement real-world projects for client companies.

The Victoria University of Technology offers cooperative education programs for students undertaking the BBusiness (Management) degree. Here students are encouraged to spend the equivalent of an academic year (40 weeks) working in industry after they have completed two full years of study. The outcomes of such experiences were summarised by a lecturer:

[We see it as] developing the ability to learn outside the traditional classroom...students are out there working in an area that they want to be their field of study, and they’re able to draw from the content that they learn in the classroom and are able to apply it in a very different way.

...they have some control over what they are learning, they have the ability to make some assessments on decisions that they are making in the workplace, and they are able to anticipate change and perhaps develop skills which allow them to be better professionals in the long run. (T135)

At the University of New South Wales, for example, students in Accounting are offered scholarships which are funded by industry sponsors on the basis that in the course of their degree, the funded student will spend ten months working in industry, in two organisations which need not be directly related to the student's field of study. The number of sponsoring organisations in the University of New South Wales' cooperative education program has been hard hit by the recession, with the total reaching only ten in 1993. 
One graduate who had been on a cooperative education scholarship at that university reported how his first experience had been in a factory and his second in the finance department of a major industrial company:

The good thing about it was that I would never have chosen those two companies at university. I always thought that I wanted to work in the finance field at school. Got put out at Liverpool and worked in a factory, and I found it so much fun, like, you know, this is the real stuff. The second one, I was actually working in the Head Office of a manufacturing company so I was seeing how that runs in comparison, and I was doing finance things, accounting things, but I was also learning about how they all operate. (T140)

Holiday periods are used to fast-track the semester's academic work in order to complete the degree within the three year period. A lecturer said that he found the 'fast-track students' capable of out-performing full-time students although they were not necessarily 'brighter' than the others. Their leadership and time management skills had been honed by their experience in industry and they were more capable of achieving their academic and career goals.

A graduate from this course felt that one of the most rewarding aspects of the cooperative education program in place at the University of New South Wales was the 'Operation Challenge' program for final year cooperative education students. Run by Kellogg, the program is similar to an Outward Bound course for managers and the students felt privileged to have taken part.

In Communication Engineering at the Royal Melbourne Institute of Technology, cooperative education programs are organised so that the 15 months engineering design development component of the degree is placed in a competitive business context. The client company provides a real-life problem and funding for the student while he or she works on producing a solution or outcome. The university provides the facilities and academic support the student needs while working on the project. Students who take part in these programs experience a close working relationship over a long period with potential employers, and, as an added bonus, over the vacation period the student is generally offered paid employment by the sponsoring industry partner.

At the Queensland University of Technology, students from a number of disciplines work on cooperative education projects through the Campus=Link program (formerly Cooperative Education for Enterprise Development). The program manager liaises with the university and client company to identify a viable project and to develop the students’ research methodology, and, in addition, designs course materials and ‘teaches’ the course within the participating universities.

Students and staff who were engaged on Campus=Link projects spoke enthusiastically about their learning outcomes:

You find that with a Cooperative Education for Enterprise Development-based thesis it is something that people are going to use and it is applied and you know it is worthwhile. With some things you do at university you find it ends up getting thrown in the library and no one else ever reads it again, which is a disappointment. But at
least under this scheme it is going to be used, it is very good in that. The contacts
you make in that first year, like academic and the workforce, are very good and they
do come in handy. (T151)

What it teaches them is how to systematically understand, develop a way to solve the
problem and then present that effectively. The problems could be in social science,
in business, in engineering, in mathematics, in any sort of area. The process that they
learn through Cooperative Education for Enterprise Development enables them to get
very efficient and effective at deciding what precisely the nature of the problem is,
what they're seeking to develop as an outcome, the environment and the constraints
in which they're operating, how they will break the problem down into pieces that
they can manage, and then how to rebuild the pieces back into a final solution, and to
present that. (T149)

Above all, they felt that the major contribution such programs made to student
learning was in the development of personal, communication and learning skills which
could easily be transferred to the workplace after graduation. This exactly coincides
with the finding of an earlier study of cooperative education at Queensland University
of Technology which found that:

Transition from university to work and then back to the university context again (to
complete their degree) provides students with a unique learning opportunity. It
develops further transferable skills such as learning how to learn in different
environments. It also encourages students to develop an appreciation of the need for
lifelong learning. (Singh, 1990, p. ii)

Problem-based learning

Over recent years problem-based learning has become, in many university courses,
central to curriculum design and development. Such courses:

intentionally take account of aspects such as: the degree of learner-control; recognition
of students' prior knowledge; the transdisciplinary nature of real-world problem-solv­
ing; the active and informed involvement of the learners in framing the problem and
in evaluating the outcomes of their learning; and what Boud (1985, p. 16) has called
'the degree of correspondence between the environment in which learning takes place
and the actual environment which is being represented.' (Candy, 1993, p. 19)

Put very simplistically, 'problem-based learning is an approach to structuring the
curriculum which involves confronting students with problems from practice which
provide a stimulus for learning' (Boud & Feletti, 1991, p. 21). The problems from
practice may deal with the tangible or the intangible, the real or the ideal, the fixed or
the ambiguous. Whatever the problem, whether it be in making a clinical diagnosis,
considering ethical issues, designing a structure or painting a picture, the process of
solving it draws on critical, creative, logical and lateral thinking skills and usually
pushes out the student's conceptual boundaries into unfamiliar but related fields. As
one submission expressed it:
Lecturers need to convey to students the limits of their own knowledge and expertise, and their comfort with that. If students are not helped to be comfortable with uncertainty and change, they have little likelihood as graduates of becoming lifelong learners. (S26, p. 3)

Problem-based learning takes different forms according to particular disciplines. In Medicine, Engineering and Law, for example, the problem-solving approach has tended to be reactive, in response to existing problems. Increasingly, however, as the edges of practice become blurred by ethical dilemmas, these professions are using problem-solving methods to feel their way into new territory. In architecture and the Visual Arts, on the other hand, problem-solving takes a more proactive form. In these disciplines there is as much emphasis on creating and framing problems to be solved as there is on solving problems already posed by the client, the environment, the site or the materials.

For instance, architecture students in the Faculty of Environmental Design at the University of Canberra study an Architectural Design unit at each level of the course. This unit aims to integrate diverse fields such as structural engineering, environmental science, human behaviour, and research processes, all of which are relevant to students' future employment. Students participate in field trips, where they camp out on a prospective site. In the past, they have undertaken such challenging projects as designing a home in the bush for abused boys. Their initial brief from the supervising priest changed radically once they had completed a site analysis, and their new solution was enthusiastically adopted by their client. The lecturer described the experience:

We camped out there in tents so we could understand the site and we quickly learned all the characteristics and problems of it. We also spent a lot of time with the priest and a few of the boys there, talking about...what they would like. And then I had them do a complete site analysis. They had to understand the soil and the erosion and the winds and the rain and sun. They did that in teams because it was a huge area of land and each team had to present a complete evaluation of the site in order to tell the priest...where to put [the building] and where to do future development. (T74)

All forms of problem-based learning have two things in common: first, the students 'own' the problem; and, second, each student solves a particular problem in a different way. In disciplines where the problem-solving method is seen more as a means to arrive at a 'right' answer, the emphasis ultimately is on the outcome rather than the process. In other fields such as design, where there are no right and wrong solutions, the individuality that is set free in problem-based learning is seen as a very positive learning outcome:

There is no one solution, and every design project is different, each one comes up with a different solution. Now, they may all have common concerns they have to answer to, but they can do it in so many different ways—that is the wonderful thing about design. (T74)
Exponents of problem-based learning who took part in the interviews were committed to teaching approaches that gave students not just a *process* for applying constructively what is known to what is not in order to synthesise information and resolve problems, but a habit of thinking that becomes part of the students’ ‘intellectual luggage’ (Lengrand, 1970, p. 44). Students who were introduced to the problem-solving method early in their course quickly learned how to utilise it at later levels. A lecturer in the Systems Agriculture at the University of Western Sydney, Hawkesbury, said:

I guess we’re dependent on providing that sort of almost automatic way of acting using the process of learning, and I guess we’ve reached the stage where students do that automatically when they face a problem; they tend to go around a cycle of learning because they’re required to do it virtually from day one of the three year program, or the one year postgraduate program. (T53)

The risk of the ‘automatic way of acting’ becoming a habit, at the expense of ‘deeper, holistic and creative thoughts’ (Drinan, 1991, p. 316) has been well documented in the literature on problem-based learning. It was a concern for some students who disliked using a prescribed method to solve problems in whatever guise they presented themselves. However, this concern was balanced against the belief expressed by a lecturer in Nursing at Griffith University that students:

from the very beginning, develop habits of acquiring knowledge in ways other than being told...They are never in a situation where acquisition of knowledge is a simple, ‘This person’s opinion is everything I need to know.’

They are working through major conflicts in the situation and then researching their meaning. I think if you do that for three years you will continue. (T12)

Students often doubt their own abilities, especially their technical skills, when their courses have been based on problem-based learning. A graduate from the School of Nursing at Griffith University spoke of a lack of confidence in simple clinical procedures which she felt had resulted from the lack of guidance in the problem-based learning approach to learning:

There was this 17 year old girl and she was doing her first blood pressure. She has read the theory, so she has the theory in her brain, but it is also the practical skill. The facilitators just said, ‘Well, what do you think you are doing wrong?’ You just get furious. This girl has to be able to go out and be able to do that, and you can’t just say ‘Well, what do you think about it?’ You have to show her. It doesn’t always work in the books, the theory, we have learned that. People need guidance, and the general public, when they are ill, they will be looking for guidance. (T13)

Similarly, a Dentistry student at The University of Adelaide felt strongly that the introduction of problem-based learning was a waste of time if the students did not have sufficient knowledge of the subject or grasp of the vocabulary:
The facilitator or something, was happily discussing with the class problems to do with the pulp of the tooth and how the pulp and the enamel interact, and the entire class had absolutely no idea. If you have no idea, how are you meant to understand? For a dentist, it’s important to know how the body works, all the fine details, technical abilities, how to actually drill a hole in a tooth and fill it. It’s not of primary importance to get you to think about why you’re doing it...unless you teach someone to read, how do you expect them to write poetry? (T40)

In any problem-based learning course, the period of transition from a ‘normal’ secondary school curriculum to a first year problem-based curriculum at university is one of the most critical for students. Most will lack the confidence that they feel comes from supervision and guidance of the kind they experienced at secondary school. Students interviewed in problem-based learning courses admitted this was a difficulty, especially in the early stages of the course when they had not developed a sound vocabulary or knowledge base:

You didn’t really know a lot of the time what was important, because until we built our knowledge base, we felt, a lot of the time, that we were stumbling in the dark and we were solving problems, but we felt we needed more information.

That’s the thing I struggled with, that I was learning too much and not concentrating on the bits that were important. (T75)

Although this may be particularly acute in problem-based courses, comparable problems are encountered by students learning in more conventional settings:

In consultations and in a number of written submissions, students suggested that lecture sessions should be structured so that students can attend to central principles, and fit necessary details into a knowledge framework. Students are confused—and left unclear about learning and assessment directions—by too much detail, especially when no distinction is made between peripheral detail and important concepts. (S22, p. 5)

Thus, students, who are accustomed to an educational system which prescribes what is to be learned may be frightened and insecure when they are introduced to problem-based learning. As a lecturer in Communication Engineering put it, if ‘students’ abiding fear is of accidentally learning too much’ (T97), how will they cope with the responsibility of deciding what it is they need to know?

For teaching staff too, particularly those whose own education was gained in the teacher-as-expert paradigm, striking the right balance between direction and facilitation is often very difficult. Letting go, both of control over their students’ learning and their own slice of the curriculum can be disconcerting and uncomfortable. A lecturer in Physiology at The University of Adelaide described his feeling as a mix of fear and excitement:

The interesting thing about it, unlike anything I’ve ever seen before, is that I’m never in control of it. Every time you introduce something else the students go ‘Pwoof!’, like that, and I feel it’s almost out of control. But that’s exciting, almost. (T45)
Despite these minor reservations among staff and students, overall the majority of students in problem-based learning courses such as Medicine at The University of Newcastle, Systems Agriculture at the University of Western Sydney, Hawkesbury, Nursing at Griffith University, Environmental Design at the University of Canberra, and Physiology at The University of Adelaide were very positive about the refinement of critical thinking skills, the sense of independent inquiry and the feeling of satisfaction at mastering a body of principles and the techniques to apply them which they had learned from their problem-based courses.

In problem-based courses which included group research projects they most frequently identified the resulting learning outcomes as the ability to develop critical thinking skills, and interpersonal and communication skills.

**Concept mapping.** Concept mapping is a useful way of clarifying relationships between ideas, identifying what a learner already knows or thinks about a topic, and determining the degree of ‘fit’ between the teacher’s and the students’ understanding of a particular concept or theory central to the course. When students are asked to draw a concept map linking graphically the relationships between concepts in a particular field, they externalise their understanding and put it in a form that can be read and interpreted by their teacher and peers. Concept maps allow students and teacher to identify kinds of relationships (e.g., cause and effect) and levels of relationship (e.g., primary, secondary and tertiary) between concepts, but their main value lies in their visual representation of a previously internalised understanding (Candy, 1991, pp. 323–324).

The School of Information Studies at the University of Technology, Sydney, uses concept maps to enable students to construct personal meaning out of their learning experiences. With funding support from a Vice-Chancellor’s development grant, research has been carried out into the use of concept mapping as a learning heuristic, or technique to enable students to make sense of the complex body of readings required of them. Students are taught the various stages in the process of constructing meaning and are able to transfer this process to any learning context they may move into. Accordingly concept mapping is a highly transferable learning skill which has considerable application in all sorts of post-graduation learning contexts.

**Critical thinking skills.** ‘Research practicals’ in Physiology at The University of Adelaide are designed to give students experience in thinking and reasoning critically. At the time of interview, students were required to undertake one research practical per semester working in small groups under the supervision of tutors, and presenting their findings in a poster, which was assessed according to predetermined criteria. Often this involved making an oral defence. Individual and group research in the library gave them the basis for their project work. A lecturer commented:

I think if you can encourage the students to do a lot of the research themselves, rather than just taking your word for it, then they’re going to learn a lot more. If somebody can research it, go to the library, get a book out and research it, then they’re going to learn more at the end than if they’ve just copied down lecture notes. (T44)
A student made the comment that individual research was the best way to bring home the fact that scientific method and knowledge are constantly and dramatically changing. Students researching their own projects were much more likely to question accepted wisdom than students who had experienced only 'recipe based' practicals. The development of a critical perspective was, for many students, a highlight of the research practicals:

They show you the methodology that’s required in generating the knowledge that you’re being taught in other parts of the course, and they give you an appreciation of how scientific research is conducted, right through from the acceptance of an idea to formalising an hypothesis and designing an experiment, to executing experiments and then analysing your results. You need to be aware of the pitfalls and methodological flaws in other people’s work and you need to be able to adopt a critical perspective on the information that you’re taking in. We gained first hand experience of this, of how it’s performed. (T40)

The ability to access information and apply it to solve problems, as well as experiencing group dynamics through working in a team were among the most frequently cited advantages of a problem-solving approach to learning. In the words of a Physiology student at The University of Adelaide:

We worked in teams. It soon became evident who was dragging and who was letting everyone else do the work. Some people were loners, like me—I’m very comfortable working on my own. I’m very uncomfortable if things aren’t being done, so if there’s no leader I’ll usually officially appoint myself.

So they taught me leadership skills and interaction skills. Sitting in a lecture, those things don’t matter. Sitting with a textbook in front of you, they don’t matter. Working with people and getting someone to gather some information, or take some records, or put together a part of the report—[research practicals] generate so many more of those skills than normal teaching does. (T46)

The School of Nursing at Griffith University offers a Bachelor of Nursing degree which is based on a problem-solving curriculum. Staff believe that such a curriculum will enable students to leave university as lifelong learners who are capable of critical analysis and problem-solving within the workplace, and who are characterised by a sense of creativity, curiosity and even slight dissatisfaction ‘so they will be the people who will instigate improved [workplace] changes’ (T12).

Part of this curriculum involves the use of Situation Improvement Packages. Here students are provided with clinical situations typical of those they would encounter in a hospital setting. By examining the situation and the available information students work to formulate suggestions for improvement. Inevitably this form of learning encourages students to develop critical thinking skills, however it also exposes them to the unavoidable grey area between absolute and relative knowledge.
In addition to familiarising students with the process of problem-solving (or situation improvement), this teaching approach also encourages students to become increasingly involved and consequently responsible for their own learning process. As one student said:

At first we almost all used to rely on the facilitator. [We'd be] saying, 'Can you please tell us what we need to know, what we should know.' Now we choose our own direction...I am finding I take a lot more responsibility for my learning, because I realise now that I could sit here quite comfortably and just do the baseline stuff and get through this course...[but] I have realised that if I am to survive in the workplace when I graduate I have to go out and research, look and find. (T13)

A similar point was made in the submission from James Cook University, which argued for the use of problem-based learning, and more particularly of 'research conundrums,' as a method for cultivating lifelong learners:

The key...is to introduce first year students to leading edge research conundrums as early as possible in first year and to use research questions as the basis of the teaching process...Students are more likely to adopt lifelong learning principles if they operate in a university learning environment which emphasises the unresolved question than the passive reception of ‘expert’ knowledge. (S7, p. 1)

Reflective practice and critical self-awareness

In the past few years, the concept of ‘reflective practice’ has increasingly appeared in the literature of higher education. The term owes its origin to Schö̈n’s books *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987), although the concept itself can be traced back to Dewey’s work fifty years earlier. In a paper entitled ‘Designing courses to promote reflective practice,’ Boud and Knights (1993, p. 3) explain:

The essence of this model is that learning from experience can be enhanced through both reflection-in-action, that is reflection which occurs in the midst of experience, and through reflection after the event. Such reflection is grounded in the personal foundation of experience of the learner; that is, those experiences which have shaped the person and have helped to create the person he or she is now...Learning occurs through the interaction of the person with his or her material and human environment and is assisted through the learner giving attention to or noticing what is happening in themselves and in their external environment, intervening in various ways to influence themselves and the milieu in which they are operating and reflecting-in-action to continually modify their noticing and interventions.

Central to the concept of reflective practice is the fact that there is a form of knowledge (an epistemology of practice) that differs from the theoretical abstractions which most people are taught in university. Schö̈n uses the analogy of a swamp and a nearby mountain to explain the difference. Most professional practice, he argues, goes on in the swamp where professionals have to deal with messy, indeterminate and
often unique problems, whereas most professional education occurs 'on the high hard
ground' of routine, scientifically-based and predictable events and circumstances—the
stuff of theory and abstraction.

Based on this analogy, there are two important implications for this study. The first is
that practitioners are confronted daily with the need for continuing learning, since the
problems they have to deal with are always changing and are not amenable to the
application of simple formulae or rules. Thus, at its heart, reflective practice is about
lifelong learning. The second implication is that courses which are specifically based
on reflective practice are the best possible foundation for lifelong learning because
they seek to prepare students for the kind of learning that people have to undertake in
the real world; open ended and unpredictable, lacking structure and largely
self-directed. Schön explicitly recognises this by entitling one of his chapters 'How a
Reflective Practicum Can Bridge the Worlds of University and Practice' (Schön, 1987,
pp. 305–326). Once caught, the practice of reflection becomes a 'habit of a lifetime'
and is perhaps the single most identifiable feature of the lifelong learner.

Whatever the intended purpose of a reflective component in a university course might
be, it is obvious that reflective activities can successfully be built into higher education
curricula in such a way that they become, as it were, second nature:

A variety of strategies can be employed, including the use of reflective learning
journals; having learners reconstruct the logic of their own or of another’s thought
process in arriving at a solution; ‘talking through’ a diagnostic- or problem-solving
sequence; uncovering assumptions through a variety of exercises and simulations
(Brookfield, 1992) and undertaking various forms of practicum or internship where
‘theoretical’ knowledge is to be applied to ‘practical’ solutions. In each case, the
intention is the same; to develop and exercise the capacity of reflective self awareness
which can carry over to experiential learning in a variety of real-life contexts. (Candy,
1993, pp. 23–24)

The implication of this for the conduct of education is profound. It means that
students need, above all else, to develop the habit of reflection: they need to trust
practitioner knowledge (including their own), and they need to engage in the process,
as one submission described it, of:

Reinterpreting theory in the light of your own practice, and practice in the light of
theory, through reflection and discussion. (S8, p. 2)

This leads to a consideration of a related matter, namely the development of critical
self-awareness through reflecting (both in-action and after the event) on any particular
learning experience. One submission commented:

Unfortunately, universities still tend to emphasise the outcomes of assessment, not the
processes that the student went through/used to achieve the outcomes. And yet,
students need to understand why they have/haven’t succeeded in certain tasks in order
to improve upon and/or exploit their skills. For example, excellent learning outcomes
can be achieved if students are asked to reflect on the way they approached a task, to evaluate the effectiveness of the strategies/processes they chose, and to describe what they have discovered about their own learning style as a result. (S52, p. 4)

It is recommended that, wherever practical and appropriate, undergraduate courses of professional preparation should include a reflective practicum to model the kind of learning undertaken by professionals in practice (R7.1).

Open learning and alternative delivery mechanisms
Since at least the 1960s, educational technologists have been predicting the imminent demise of face-to-face teaching. First it was radio, then teaching machines, then audio-tutorials, then teleconferences, then computers, then interactive video and now virtual reality. While none of these technologies has become as central to education and training as the familiar lecture/discussion/seminar, there have been steady—indeed inexorable—encroachments by the so-called ‘new technologies.’ Today, perhaps as never before, people do learn from television broadcasts, from computer bulletin boards, from video cassettes, and even from simulations that make use of virtual reality. For many people these technologies are in fact familiar in the home or office, and are viewed as friends and accomplices in the never-ending quest to keep up or to keep ahead.

In this study, no attempt was made to survey higher education programs that are based on open learning principles, or that make extensive use of alternative delivery mechanisms for providing learning opportunities to undergraduate students. This was felt to be a huge and specialised domain which, in any case, has been the subject of its own inquiry and reports (Caladine, 1993; Lundin, 1993; Tinkler, et al., 1994). However, it has two vital implications for this study and must accordingly be mentioned.

The first of these implications is that as the use of technology continues to expand and to accelerate, it is likely to impact more and more on people’s lives, including their learning. A submission from the Queensland Tertiary Education Foundation stated:

In the future, open learning will be widely accepted and students will have far more freedom to choose when, where, and how they learn. The barriers between formal and informal learning experiences will have broken down, and students will be able to choose the most appropriate experiences to suit their needs, or even gain a qualification. In order to do this effectively, students will need to establish their own learning objectives and standards, and use them to evaluate a range of learning experiences, as structured courses with predetermined objectives may no longer exist.

Today’s students need to be introduced to some of the skills required to operate more effectively in this emerging environment. (S52, p. 5)

Already there are examples, especially in continuing medical education, where practitioners receive instructional material in the form of floppy disks, CD Roms or VCR cassettes. In conjunction with written materials, these constitute a potent
resource for continuing learning, and accordingly it is incumbent on undergraduate programs, at a minimum, to familiarise graduates with such techniques that they are likely to encounter in their continuing learning.

The second implication is almost the antithesis of the first. As learning is increasingly undertaken within the university using media such as these, it is incumbent on lecturers and other educational professionals not to lose sight of the full range of learning skills and attributes that exemplify the lifelong learner (see chapter three). In other words, it is important that technologies do not come to dominate the educational process to the point that graduates lose such attributes as 'a critical spirit,' 'the ability to access and decode information in a variety of forms,' or 'a sense of the interconnectedness of fields.'

Assessment practices

Ramsden, in his book *Learning to Teach in Higher Education* (1992), argues that far too many academics regard assessment as something distinct from teaching and learning. It is seen as something tacked on, punitive, discriminatory, and all-too-rarely designed to help students to come to grips with their own learning processes, their own understandings, their own strengths and weaknesses. Yet, as the submission from the Queensland Tertiary Education Foundation pointed out:

> If we are planning assessment items to encourage learning—not just testing skills of knowledge—then we must show students how to evaluate their own strengths and weaknesses in light of the given task. Integrating self-evaluation strategies into each assessment item would help students learn more effectively and efficiently by giving them more control over their learning experiences and outcomes. Assessments would be viewed in a much more positive sense, as students would see them as opportunities to enhance their own skills and knowledge, not as a necessary evil to 'sort' them into predetermined grades. (S52, p. 3)

Yet many of our respondents, staff and students alike, do view assessment as a 'necessary evil.' In practice, this view of assessment conditions students to learn only enough to get them through their examinations; it restricts rather than broadens; and it creates fear-driven learning rather than a spirit of intellectual inquiry. The tyranny of the exam is captured in this submission from the Northern Territory University:

> Since students come to university to gain a qualification, what is in the exam is of ultimate importance. The smart students skip the mass lectures if they are ineffective, accumulate past exam papers and simply swot up on the most likely questions. Such knowledge is retained long enough to do well in the exam. The real learning at University for these (often highly successful) individuals is how to dissect the system so that one does not waste one's time on irrelevancies. (S26, p. 2)

Assessment is not just a matter of measuring how much the student has learned, nor, indeed what has been learned. Assessment is also about determining how something has been learned and what use the student will be able to make of what has been learned. Assessment must come to be perceived by academics and students alike as a
tool for diagnosing misunderstandings and putting them right, as an integral part of the whole teaching and learning process, and as a valuable indicator of matches or mismatches between course aims and learning outcomes.

Furthermore, if students are to be encouraged to be lifelong learners, they must be weaned away from any tendency towards over-reliance on the opinions of others. Ultimately, in real world learning contexts, they must be able to judge or evaluate the adequacy, completeness or appropriateness of their own learning, so whatever assessment practices are used must be comprehensible to the learners so that they can be internalised as criteria for critical self-evaluation.

During the interviews, all staff, students and graduates were asked to nominate the assessment methods which they felt were most likely to ensure effective, on-going learning. Open book exams which tested students’ ability to synthesise information, problems which tested their creative thinking, and questions which drew on their analytical skills were all endorsed as valuable methods of assessing students’ abilities to continue learning throughout life. Short research projects to be completed within a stipulated time (e.g., 24 or 48 hours) were seen as particularly valuable experience for students who would be working under pressure in the real world.

Other forms of assessment, such as assignments (including essays, research projects and reports), negotiated learning contracts, clinical case studies and learning documents, in which the student analyses and articulates the learning processes associated with completion of the learning task, were also endorsed as more effective and reliable in assessing student learning. Students spoke of how they had learned to access and manage large bodies of information, to work in teams and to develop their own interpersonal skills. They appreciated the lead-time involved in researching and writing for assignments and the skills in time-management and prioritising they had acquired. Even the time-honoured practice of the three-hour end of term or end of semester exam was seen as having some value; not so much because of its validity or reliability as an assessment technique, but because of its stress on other related skills such as the ability to produce coherent written work within very tight time restrictions!

Several issues of concern about assessment practices emerged from the interviews. In many instances, neither staff nor students felt that enough connection had been made between course aims and objectives and the assessment measures designed to test their attainment. A similar finding emerged from a ‘Quality in Teaching and Learning’ Project conducted by The University of Adelaide and reported in that university’s submission to this study:

In strongly advocating that the university should be ‘a place to learn how to learn,’ students were clear on the conditions that might encourage and support ‘progress in knowledge and understanding.’ They want thoughtful and well-organised course guidelines that clearly indicate the nature and aims of the learning involved... The plea is for less emphasis on cramming and course completion, and more opportunities built into programmes for students to think and develop ways of learning. They want assessment that ‘reflects learning progress and is linked to course aims.’ (S22, p. 1)
Assessment methods which students in particular felt worked against deep learning were multiple choice exams marked externally and mechanically; and examinations where the questions were designed purely to test vocabulary and recall of information. As well, students and graduates expressed particular concern over the quality of feedback given by staff on their work, and about inconsistent standards applied by tutors or lecturers within a particular subject.

In the sections which follow, four issues about assessing student learning which have particular implications for the development of lifelong learning competence are considered: assessing ‘what’ has been learnt rather than ‘how much;’ student input into assessment; self and peer assessment; and feedback on assessment tasks.

Assessing ‘what’ not ‘how much’ learning has occurred

For generations, the traditional mid-semester or end of semester examination has been the yardstick for assessing and grading students. This practice is defended on a variety of grounds including the fact that it is ‘fair’ to all students, that it is ‘consistent’ from year to year, that it encourages students to ‘cover the curriculum,’ and that it is useful in ‘separating the sheep from the goats’ by validating individual grades in courses where group project work plays a major part.

In recent years, however, the practice of judging students either wholly or largely on the basis of their performance in such an intense, one-off end-of-cycle experience has been sharply questioned. Critics (including some of those interviewed for our study) point to the fact that such exams favour those students able to produce glib, but not always substantive, answers under pressure; that they encourage cramming of facts which, as soon as the examination is over, are forgotten as quickly as they were learned; that they encourage absolutistic rather than relativistic understandings by stressing ‘rightness’ and ‘wrongness’; and that they encourage an atomistic view of knowledge—something to be accumulated—rather than evidence of real learning. As a member of a support unit said:

I think exams test different sorts of skills, what you can remember in a short time, whether you can cope with that sort of pressure, whether you are feeling good on the day, whether you can sit for three hours at any one time. (T31)

Very rarely are examinations used to teach or to provide formative feedback on student learning. A member of a support unit spoke of the uphill battle she faced in her efforts to change academics’ perceptions of the uses of examinations:

...the problem with exams is that very seldom are the exams used as teaching. Very seldom are students ever taken through an exam paper later and shown what they might have done, although we do keep encouraging it. (T63)

However, in courses where open-book examinations are used, staff and students were enthusiastic about the opportunities they gave students to analyse and synthesise information under ‘real-world’ conditions:
I think the open book examinations we have are a great idea. They’re more innovative because I believe that that’s a good test of people’s ability to synthesise information from the resources they have and to use their resources quickly and effectively in dealing with a particular problem. (T159)

People who tend to set open book exams, where you’ve got all the information in front of you so that you actually have to think about what you’re doing, are setting a bigger problem for the student than somebody who’s setting a closed book exam where you would put down the right formula and get the right answer. (T64)

In the BApplied Science (Systems Agriculture) courses at the University of Western Sydney, Hawkesbury, assessment practices give equal emphasis to the process of learning and to the content of the course. Critical self-reflection forms the basis of learning and the graduation documents in which students present evidence of their own learning in relation to a particular project or topic are valuable chronicles of highs and lows, crises and watersheds which have occurred at certain stages of their projects. Their importance in the development of students’ critical thinking abilities cannot be overstated.

At certain points in the course students are required to pass ‘assessment milestones,’ oral defences of their research which act as confidence builders and ‘filtering systems.’ In final year, their graduation documents give full and intensely personal expositions of their own learning experiences, and in addition students make oral presentations before two staff members, an external person and often one or two peers. Students need to demonstrate how they have advanced since their last assessment, how they have met the previously agreed criteria, how they have conducted the project, and how they can deal with questions and answers from the panel. This kind of individual assessment, and the resulting feedback, demands high energy levels and commitment of time on the part of teaching staff, but the benefits to the students who receive regular, constructive feedback throughout the course are very valuable.

Student input into assessment

In the majority of courses profiled, students had little, if any, input into assessment measures. However, where courses included contract-based learning, students were generally satisfied that they could negotiate both the ‘what’ and ‘how much’ of assessment.

Whether the contract is drawn up between one student and the lecturer, or between a group or research team and the lecturer, before it can be negotiated the teacher needs to know where the students have come from—their ‘prior learning’ needs to be assessed and past experiences taken into account. Once established, the measures to be adopted and the form that the ‘evidence of learning’ will take are agreed upon. It is not enough for the student and teacher to negotiate what will constitute certain grades to be awarded for results achieved; grading is of far less importance than evidence that learning has occurred. Many courses which have implemented self-directed learning approaches use an ungraded pass system of assessment and provide in addition written documentation in support of the student’s achievements.
In the School of Adult and Language Education at the University of Technology, Sydney, for example, assessment is made on a pass/fail basis. Feedback to students is qualitative and formative and comprehensive reports on the student's learning complement academic results to be shown to the outside world. This is often a major concern to students wanting to transfer to other universities or to other courses, especially when they apply for positions which require full sets of academic results. One student commented that she hoped the final results were 'in big writing somewhere' so that prospective employers could see that her 'Pass' did not simply mean she had just 'scraped through' (T93b). However, despite their reservations about the ability of an ungraded assessment system to adequately reflect individual contributions or achievements, most students who had experienced this system seemed confident that the accompanying report from their lecturers validated their academic achievements.

Self- and peer-assessment

Boud, in his book *Implementing Student Self-Assessment* (1991) describes self-assessment as:

> the involvement of students in identifying standards and/or criteria to apply to their work and making judgements about the extent to which they have met these criteria and standards...[It] means more than students grading their own work; it means involving them in the processes of determining what is good work in any given situation. They are required to consider what are the characteristics of, say, a good essay or practical report and to apply this to their own work. (p. 5)

Assignments, whether individual or group projects, essays or reports, that involve some form of self- or peer-assessment inevitably help students to be selective in what they learn, to think critically about what they learn, and to evaluate how well they have learned it.

Many courses have introduced a requirement for students to assess themselves and their contribution to the group process before submitting their assignment. Medical students at The University of Newcastle, for instance, on completion of their electives, are required, by the faculty curriculum documentation, to 'critically appraise the elective experience in terms of their personal and professional development.' Engineering students at the Royal Melbourne Institute of Technology reflect on their own learning while they go through the process and in some cases pre-assess their own presentations and rank their own weaknesses before they are even assessed by staff members.

Other courses include individual assessment of each member of the group. This process invariably provokes students' unease and dissatisfaction with the allocation of marks and grades, particularly if they are averaged across the group. The Communication Engineering department at the Royal Melbourne Institute of Technology has overcome this problem to a certain extent by devising a system of 'patents' to allocate group marks:
If a group comes up with an idea and it’s a bit competitive, they get a patent on it. Then they get the credit for it and if others use it they get more credit, exactly like a payment scheme....One of our lecturers has been using it for two or three years and he’s found that it removes the inhibitions in each group in the tutorial discussions. Once the patent is acknowledged, they’re prepared to show everybody because it’s to their benefit to do so. (T97)

Though recognising the inconsistencies associated with self- and peer-assessment, most staff and students believed that in the long term the students gain valuable understanding of their own learning processes as well as experience in the kind of group dynamics to which they would be exposed in the workplace. In fact, one submission to the study included a paper that pointed out that students rarely get to even read one another’s work, yet this is precisely what they will do in the world of practice:

Peer reading is surely very rare among undergraduate students, even more rare than revising an essay. Research indicates that peer reading is a powerful tactic. Personal experience confirms this finding. It gives students new perspectives...Most students never seriously read the work of a peer, though that is exactly what they will do when they graduate and work with others. As a result, they have no idea of the range of work that teachers see, and partly as a consequence, do not understand why grades are distributed as they are...A teacher sees 80, 100 or more essays on one assignment, and distributes grades accordingly, but our students see only their own individual work, and so have little idea of the either the range or the standard of work that we see. (Jackson, 1993, p. 10)

A graduate from The University of Adelaide spoke of some of the benefits of peer assessment which he felt had particular relevance to his own working environment.

We would pass papers around, we would look at the process of marking our own papers and looking back, what that basically did was [to] raise the whole standard of the group. People had a greater understanding of what other people were writing, there was a greater exchange of ideas. [You have] taken responsibility, not only for your own work but other people’s work and that’s very important. (T38)

Critical self-evaluation and self-assessment of performance is an essential quality of the lifelong learner. Unless students are encouraged to take at least some responsibility for their own assessment they are unlikely to reach their full potential as creative, productive learners in the workplace or community.

Feedback on assessment tasks

The most frequently voiced complaint from students and graduates in relation to assessment was that lecturers had not taken the time to write constructive comments on their written work. Yet ‘students value these formative evaluations in the margins and at the end. If papers are returned without annotations, students express scepticism that the paper has even been read. They can also be heard to complain about essays that are marked according to some schedule or criteria where nothing but a check mark is
made, as is often the case at some law schools' (Jackson, p. 4). While they acknowledged that providing comprehensive, helpful written feedback is time-consuming for teaching staff, students were generally dissatisfied with the quality of the feedback they received on their work:

I got no comment. I got a pencilled mark, there was nothing on it. I had no idea. I didn’t even know what it was out of, it was just a number. So really, I felt short-changed, because I had put sweat and tears into it, as you do in any assignment, and you want to know even a ‘Good effort, but try to answer the question next time,’ type comment. Just something, acknowledge that you read it! (T6)

I got essentially a number on the front of it which was really irritating because I like that feeling of being in communication with the lecturer and the lecturer being interested in what you’ve come up with...I like that interchange of ideas. (T159)

Learning skills advisers were also very concerned at the quality of the feedback that students received on their written and project work. One lecturer said:

I have been staggered to have some students tell me, ‘I went through such-and-such a course and no one ever wrote a comment on my assignments.’ I have had more than one person tell me that. (T91)

Measures taken in some courses to overcome these problems included discussions of model answers by staff and students to determine the correlation between the question, the student’s answer and the model answer (Medicine); instant, verbal feedback on student work by a panel of staff, peers and professionals (Architecture, Visual Arts); and mutual analysis by staff and students of student presentations recorded on video (Community Medicine).

Oral presentations, in the form of vivas, seminar presentations, moots etc., though they cause great stress and anxiety to the students, were considered especially valuable because of the experience they provided in developing communication and presentation skills and the instant feedback they offered from the panel and audience:

I know when I get up and make a speech, I hate making a fool of myself in front of people, so...I’d always put in a lot more effort and research [into it] more if I was presenting it in class, because I didn’t want to be wrong in front of the whole class, and I didn’t want to make a fool of myself. (T145)

...people get really, really, worried about them, but now I feel nothing could scare me. Now that I’m through I can look back and say I did it, sort of thing. I feel a great sense of achievement that these big scary male specialists didn’t get the better of me. It’s really good, but I’d hate to have to do it again. I really feel for the students. (T76)
Staff from the Bachelor of Nursing degree at Griffith University strongly promote assessment as part of a continual learning process. Students are encouraged to interact with staff throughout semester in order to provide input into assessment forms and ensure these forms are based on understanding rather than rote learning. One staff member described this process:

Assessment is not punitive. Students are able to access facilitators in the development of assessment items, as long as it is not, ‘Read this essay and tell me the parts and processes.’ We use different forms including essays and reports, and we have clinical assessment as well which assesses the student’s ability to integrate thinking and doing in theory and practice. I think this non-imperative, integrating approach to assessment goes a long way to having students develop these skills of lifelong learning because it doesn’t see assessment as the end...Students see assessment as part of a process, therefore they see the course as part of an ongoing learning process. (T12)

Students in the Bachelor of Nursing degree at Griffith University receive feedback on their assessment throughout their course. The assessment criteria are published at the outset of the course and following each form of assessment students receive a non-graded pass and a feedback sheet which outlines how and to what extent they have addressed these criteria. If students perform poorly they are able to resubmit their assignment taking into account the responses the staff have provided.

Staff have found this structure of assessment is particularly useful for assessing transferable (generic) skills. By specifying these skills in the assessment criteria, transferable skills can be systematically rather than incidentally built into the course curriculum. Inevitably the importance of these skills is then promoted to students and they can consciously work on their development. According to one staff member:

If we want to promote the development of logical analysis we might have as a criterion in an essay question that the discussion must have logical development in presentation of an argument. Then in a clinical scene...built into that might be the student’s ability to make sense of the data....That skill of logical analysis is assessed both in the development of an essay which is one [theoretical] context and in clinical skills which is another context. (T12)

It is clear that when assessment is linked closely with the teaching and learning aims and objectives of the course, feedback on student progress becomes of the utmost importance. It is also clear that many academics need to rethink their use of assessment so that it plays a more central role in self-directed learning. A lecturer in Information Studies summed up the importance of this relationship in the following way:

part of the assessment of the teaching program should focus diagnostically on where the students are at. For example, in assessing some of the first year students’ work, some of my assessment criteria...are not designed merely to identify mastery of content, they are set down to give the student feedback and to give me feedback on where they are in terms of their ability to evaluate, or to analyse or to synthesise something.
So I think that one way it can be done is through carefully thinking about what we are actually assessing when we provide an endless range of assessment items and how we can use that assessment to effectively diagnose learning needs and build on that. (T85)

Overall teachers need to provide full and constructive feedback on all essays, assignments and project work, and they must ensure that assessment is explicitly linked to course aims and objectives. By involving students in the assessment process and working collaboratively with them to establish criteria, assessment will become more meaningful and useful as a means of opening up dialogue between staff and students, and of enhancing skills of lifelong learning.

Conclusion

Although teaching and assessment are at the heart of all undergraduate programs, it is only comparatively recently that they have started to receive the sustained attention that they deserve. Despite this neglect, a great deal is known about what constitutes good practice, and a number of academics—often without any formal training in education and commonly in isolation from one another—have been undertaking innovative initiatives to improve the quality of student learning.

From this study, we have determined that placing an emphasis on the development of lifelong learning skills, though it is by no means widespread, provides a vital vantage point from which to view the whole domain of teaching and assessment. We have noticed that those practices which most clearly enhance lifelong learning—self-direction; peer mentoring; experiential and real-world learning; problem-based learning; reflective practice; open learning; and innovative approaches to student assessment—happily coincide with many of the formulations for best practice in higher education such as those contained in the Higher Education Research and Development Society of Australasia document 'Challenging conceptions of teaching: Some prompts for good practice' (see Appendix H).

Our major finding in this part of the study, therefore, is that if academics put into effect what we already know about good practice, our higher education system would move a lot closer towards encouraging graduates to become lifelong learners.

Recommendations

*It is recommended that, wherever practical and appropriate, undergraduate courses of professional preparation should include a reflective practicum to model the kind of learning undertaken by professionals in practice (R7.1).*
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Supporting Learning and Encouraging Inquiring Behaviour

Introduction

Vital as classroom instruction is, as most of our students and graduates confirmed, it is far from the only (or even the main) way in which students actually learn at university. Much occurs in the refectory, on the lawns, or in the student residences, but this was outside the scope of the present study! Considerable learning also occurs in the library, resource centre, computer-based education facility or laboratory.

There is much that institutions can do to support and encourage this sort of independent learning. Some of it may be directed at helping students simply to be better students; that is, to internalise the ‘tricks of the trade’ or to become ‘academically literate.’ Some of it, on the other hand, may have a broader focus, seeking to help students to become better ‘learners,’ not just in the university context, but in a variety of potential learning situations—formal and informal as well as informal.

The focus of this chapter is on what institutions can do to assist students to become lifelong learners. The first part of the chapter deals with various resources and support services, before turning to the overall issue of how universities can create what we have dubbed ‘a climate of intellectual inquiry.’

Student support services

Universities are commonly large, complex and diverse communities which, in addition to teaching, research and service, undertake an astonishing range of activities to support the attainment of their missions. Only some of these activities, however, directly focus on supporting student learning. In this section, the following main categories will be considered with respect to their contribution to lifelong learning: learning centres and study skills units; computer-based education facilities and libraries.

Learning centres and study skills units

Learning skills units offer a greatly under-utilised support service for students. No longer do they just provide remedial assistance in study skills such as note-taking, reading and exam technique. Rather, they offer a number of specialised services directed at helping students understand their own learning processes, improve their communication skills and enhance their self-management through such practices as goal-setting, time organisation and risk-taking.

Yet, despite their pivotal role, the diverse skills of their staff, and the high proportion of students (one in eight at one university) who make use of their services, from the data we collected it was clear that learning skills units are still perceived by many
academic staff and students alike as remedial centres. Students involved in the case-study courses we profiled, in general made little or no use of learning skills units and consequently were not able to offer informed opinions about them. However, students associated with the two teaching and learning centres we targeted (the Study Skills Centre at The Australian National University and the Language and Learning Service within the Advisory Centre for University Education at The University of Adelaide) spoke very highly of the assistance they had received in a number of different areas.

Learning skills units operate in a number of different ways and on a number of different levels in the university. In all their *modus operandi*, however, they are concerned with the process of learning, rather than with the content of courses, and, as a result, they make significant contributions to the development of learning skills which students can take with them as graduates into future learning contexts. They do this in a number of ways, among which are:

- engaging with students individually, in groups or in dedicated ‘learning-to-learn at university’ subjects to explore the learning process;

- helping students to define and enhance their own learning outcomes (either in setting goals, managing time, developing effective study habits, or developing self-direction in their learning);

- supporting student learning by providing resource collections or by directing students to other learning facilities such as computer-based learning facilities and the library;

- making connections between cultures and disciplines (by working individually with international or Aboriginal students or those from non-English speaking backgrounds, or by working with groups of academic staff and ‘traditional’ students to break down barriers and prejudices);

- meeting needs as they develop in a changing context (by responding to the demands of access and equity provisions and by helping students respond to different challenges, from the transitional to the advanced levels of university courses); and

- working with academic staff (individually inside the classroom, through staff development programs, and in special research projects) to promote greater understanding of the teaching-learning process, to introduce innovative teaching approaches and assessment methods and to collaboratively redesign the curriculum.

In the sections which follow, the work of learning centres and study skills units is dealt with under two separate headings—‘Supporting student learning’ and ‘Working with academic staff.’ In reality, however, their work tends to centre more around teaching and learning issues which bridge across, and blur the distinction between, client groups.
Supporting student learning. In the absence (in the majority of Australian universities) of foundation years that include a learning-to-learn component, learning skills centres are often the front-line of defence for students who have trouble coping with university studies. Students who take advantage of their services are, in the main, those who lack confidence in their own ability: first years, female and mature age students, and those from non-English speaking backgrounds. They come voluntarily, or occasionally on the advice of their lecturers, and are guaranteed confidentiality and non-judgmental support.

Primarily, the learning skills units exist to help students understand their own learning processes, both in general and in relation to particular subjects. ‘A case study of collaboration in subject design’ by the Learning Assistance Unit at the University of Sydney found that:

In addition to learning the ‘content’ of the discipline, the students needed some explicit guidance about the process of interacting with that content. As novices to studying at university, and to studying accounting, they were unfamiliar with the fundamental principles of the academic culture and the culture of the discipline, both of which define the context in which a number of generic skills are the keys to success. Such skills include the ability to process information and ideas in original ways (analysis), the ability to make judgements (criticism), and the ability to represent these skills in written and spoken language of an academic kind. (S29, p. 2)

Specialised learning skills advisers work with individuals or small groups of students to explore, externalise and reflect on the various stages in the learning process. They do this:

by helping students [gain] that understanding of what it is they do, and how they can do it better, and when they do it better that it’s something they have for life. And so every time we teach someone to read more efficiently or we teach someone to conduct an argument more persuasively, I feel that that person leaves us richer than when they came to us. (T64)

Often, simply by raising a student’s awareness of his or her own strengths and weaknesses the learning skills adviser can help the student to break through the impediment, real or perceived, that was blocking effective learning:

What we’re doing all the time is getting students to recognise objectively what it is they are doing—maybe implicitly or maybe subconsciously—or perhaps not doing. (T63)

At other times they may be called upon to help students ‘identify what it is they need to learn and what it is they need to change, and what it is that holds them up in the change’ (T29). Working from a common understanding of where the student is in relation to his or her prior learning and experience, as well as his or her understanding of the body of knowledge to be learned, learning skills advisers focus not so much on the content to be learned, but on the process of learning—‘of thinking, reasoning, analysing evidence and drawing conclusions from it’ (T63).
The learning skills adviser plays an important part in helping the student understand that learning is an on-going process and not confined to a particular level of formal education. Even at honours or postgraduate level, students frequently seek help from learning skills units in designing research projects or thesis writing.

At each stage of the learning process students need help to set goals, order their time and carry out tasks efficiently and effectively. A student commented that he had sought and received help:

in terms of organisation. Things I’ve learned about structure and the habits of, like, forcing myself to give other people a look at any work before I submit it...And it’s getting it ready earlier so I can get it in here. Just little things like that I’ll use...since I started using this centre and I’ll continue, because it’s working. (T62)

Another student commented that she had become much more critical of her own work and was better able to identify problems and solve them since attending the learning skills course; surely a beneficial outcome in terms of lifelong learning.

Some learning skills centres (e.g., the Study Skills Centre at The Australian National University) have developed comprehensive resource collections of printed material and audio-visual tapes that are available to students who need help in writing academic essays and in making course selections:

We collect first year essays with the academics’ comments on them after they’ve been marked, and we have them anonymously in a collection. Students can come in and read [them] and if [a new student] says ‘I don’t know, I’m not sure whether to do sociology or linguistics,’ we sit them down and say, ‘Here’s a set of sociology essays, here’s a set of linguistics essays. Six weeks from now you could be writing one of those. Which is more interesting?’ (T63)

Most learning skills units offer orientation programs for students new to university, and special introductory sessions for international and Aboriginal students who may have language or cultural difficulties. As they progress through the various levels of their courses they may continue to need help either in essay writing, oral presentations, problem-solving or contract-based learning. Special counsellors or learning skills advisers provide individual or group counselling for these students to help them make the necessary transition from their own culture to the university culture:

I think for a lot of them, not so much the school leavers, but I suppose what we call the mature age learners, for a lot of them the fear is of becoming less Aboriginal, that this place doesn’t account for their Aboriginality...On the individual front, a lot of their concerns are about whether they are capable, whether they can make it through, what they are going to do with the knowledge. Most of them are concerned with giving something back to their communities. (T31).
For international students, too, help is available in making the transition from one culture to another and in adapting to an academic context which values different skills and abilities from their own. An English as a second language counsellor in the Language and Learning Service at The University of Adelaide explained some of the difficulties international students face and the changes that academic staff need to make:

I think it is up to teachers to adjust to the new clientele and to realise that these people are very intelligent, and the lack of the kind of fluency they are used to...from native-born Australians...doesn't necessarily mean they are less intelligent.

Many lecturers have accepted it and understood [but they must also] not devalue it, and build on the previous knowledge and skills that these students have...to genuinely value, not just in a patronising way, and to allow them a little bit of say. (T30)

As well as making connections between races and cultures, learning skills advisers work with academic staff and students to help them ‘see the whole,’ to see the way different fields of study interrelate by comparing and contrasting academic literacy in various disciplines:

What we’re trying to do is get them to see the pattern of the whole and the variations, necessary variations depending on the different disciplinary contexts, and sometimes...how that varies within their own minds. (T63)

They help students to apply learning processes used in one context to many different contexts both inside and outside the university; they help students to integrate and synthesise knowledge from many different areas so that they can develop a broad vision and a sense of the interconnectedness of fields of knowledge; they help students become active rather than passive learners by mutually reflecting on the learning taking place; and most importantly, they contribute to the student’s growing sense of independence and self-direction.

Working with academic staff. Learning skills advisers rarely confine their activities to working with students, and staff development is an increasingly important part of their role. A learning skills adviser commented on the connection between students’ learning difficulties and the variable quality of teaching they experienced:

Our brief here of course is to work with students rather than staff, but because half the students’ problems are, in our view, derived from less than good teaching or other issues like that, we do spend some time talking to academic staff...We often invite first year lecturers and all their tutors to come for a lunchtime coffee and we discuss not what they are doing, but...what difficulties students are having. And through that we can then get round to better ways in which they might handle things. (T63)

However, many academics do not seem to want to recognise that there are problems. The belief is still strong with many, that students either have what it takes to be successful in university study, or they don’t (the problem is, many new students experiencing difficulties rapidly come to believe this too.)...In the meantime, whilst
the debate continues on what constitutes good teaching, students in difficulty are left to their own devices in trying to fathom what it is they don’t know about the rules of the game, rules which are rarely made explicit. (Ballard and Clanchy, 1988, p.13)

Not all staff are recalcitrant, of course: many are both enlightened and committed to enhancing their students’ learning, and they voluntarily seek out and use the expertise of study skills staff. From our interviews, however, it became apparent that a lot of work with academic staff must overcome certain biases and prejudices which may be summarised under the following four headings: ‘all the problems reside with the students,’ ‘my job is simply to teach,’ ‘content is more important than process,’ and ‘all students should be treated alike.’

For staff of learning centres, one of their most challenging roles is to work collaboratively with academics who may still have the attitude that any responsibility for learning difficulties rests with the student, not the teacher. Commonly the first call for assistance will come from academics who request help with students who are ‘not getting the point.’ At least such requests are positive in that they ‘make it respectable for students to have problems with their work’ (T63), and moreover they provide a starting point to implement changes in teaching practice, and the learning experience of students. A member of a learning skills unit expressed it in this way:

We have a commitment to working with students and staff in order to change the learning experience of students. Now that to me is a commitment to lifelong learning in that it is a change from the old study skills approach where you add on certain skills to students...In the staff development [area] we work at lifelong learning again by getting people to examine what their objectives really are. I often start by saying ‘What would you like to see your students being able to do by the end of this course, this semester, this degree?’ And we identify those sorts of objectives which get away from the content. My specialisation in staff development is to get people involved in their learning and to articulate their thinking. (T29)

The alternative problem is almost the antithesis of the first; that is, where the academic staff member believes that he or she is totally responsible for everything that goes on in the classroom—the ‘teacher-as-expert’ model. Often this view may be abetted by the institution’s policies on what constitutes effective teaching, as well as by pressure from those students who have a limited view of their own role and accordingly of the role of their lecturers.

In the interviews with learning skills staff there was general agreement that the teaching approaches which worked best were those that involved self-directed learning, that promoted interaction with the students, and that were based on mutual trust and confidence. Small group teaching was seen as preferable to large lectures which often encouraged only ‘absorption and regurgitation’ (T39). As change agents, learning advisers play an active part in encouraging innovative teaching approaches, some of which involve interaction in the lecture theatre, and collaborative or active learning in groups, and some of which emphasise individual projects, self-directed learning and reflective practice. Approaches that relied on making use of the shared knowledge that students already have were put forward as good examples of creative problem-solving:
I was sitting in a problem-based learning lecture for first years...it was a case study...and the lecturer said to me afterwards, 'These students with virtually no background to medicine...came up with most of the things that were needed for that particular case...they have got a lot of common sense knowledge which is absolutely essential to this field,' and that is quite a novel approach for Medicine. (T30)

A member of a learning skills unit spoke of the difficulties students were likely to experience in the classroom when there was not sufficient collaboration between lecturers and tutors:

I think the kind of teaching that works best, [especially] in first year where you have large classes, is where the team really works well, where the lecturers and the tutors meet regularly and share more or less the same goals...In fact, this seldom happens because of the hopeless system of casual tutors who are not paid [to attend] meetings. (T63)

Teaching approaches that proceeded from the students’ existing knowledge base and that draw on a range of different methods appropriate to different learning styles were frequently endorsed by staff from learning skills units:

...teaching methods that are based on some understanding of the students’ understanding, which means getting feedback from the students—that can be done in a whole lot of ways. Get them to do some early brief writing, get them talking...[don’t] make assumptions...use a whole variety of approaches so that students can have an opportunity to use all of their senses, whether it is hands-on doing things or talking about things or reading about things, or a variety of visual things...some students hardly hear a word of what is said and others find it easier to hear and to learn, so I’m really saying that there is a whole variety of ways into learning that need to be available. (T61)

The third problem area for staff from learning skills units is that almost universally their colleagues in the disciplines believe substantive content to be more important in the undergraduate curriculum than the actual processes of learning. A member of the Language and Learning Service described the problem in the following way:

So often, when I talk with lecturers, they’ll [say], 'We’ll give them a good solid theoretical base and after three years of good solid theoretical base then we’ll allow them to apply it.'...Now, I am convinced that is not the most appropriate model...

The students need building blocks,...and within that knowledge framework you can give them some problems to solve, some dilemmas to resolve, some projects to do, some tasks to set up, some action...they are applying their knowledge... and the outcomes of that will help them to see their own skills...and those skills will help them to develop the next lot of knowledge... (T39)

Clearly, there are difficulties that arise unless teaching staff are prepared to change their conception of curriculum and are willing to surrender some of their control:
What concerns me is that in certain areas a lot of our teachers are of a different generation who are not going to move very much, and that there is a whole generation of potential teachers who perhaps are not being given the opportunities. (T64)

Instead of setting up generic skills, including learning competence, in opposition to substantive content, many study skills advisers stress the interconnectedness of these aspects of the teaching/learning situation:

I think one of the first things we have to do is to get [the academic staff] to recognise that these skills [clear thinking, good communication, reasoning etc.] are inherent in what we are teaching and that these need to be made explicit rather than left there implicitly. Now, that is very difficult to do in some cases, partly because some academics are not necessarily good communicators....It takes quite a lot of persuasion to recognise that if they spent time talking about the processes as well as the content, it would actually produce better work all round. We've done quite a bit of this particularly with first year academic staff. (T63)

In fact, research has shown that learning how to learn cannot be decontextualised and that a sound knowledge of the content of a particular subject area is essential to the acquisition of appropriate learning-to-learn skills:

If students are taught how to learn in isolation from course content, they not only quickly lose interest in the skills being taught but they also fail to transfer these skills to their course work. Help with how to learn must be linked closely with the subject matter students are studying, and must be provided when that help is needed. (Marshall, 1982, p. 8)

Accordingly, staff from learning skills units often work in collaboration with academics to design curricula that incorporate learning skills and generic competencies such as communication, with content knowledge. During the interviews they expressed concern at the narrow vocationalism of many of the professional courses taught at Australian universities:

If I were criticising the degrees within this university, I would say that those students that do economics and accounting are given a very rigorous training in their own particular disciplines, but very little experience of anything beyond that—very little indeed....I think that their learning is to some extent truncated. (T63)

They also criticised the failure of academics to ‘tie courses together’ (T61), with the result that students at the end of their degrees were not sure how all their majors actually interrelated:

Generally it’s up to the person themselves to integrate the information and to perhaps talk about where it might fit into what else they learn. I find that I do that for students sometimes. They don’t understand what it means, and if they can’t understand what it means then they can’t learn it. (T61)
As well, one member of a teaching and learning centre felt that until academic staff realised the need to restructure their curriculum to incorporate lifelong learning, the students would continue to experience a fragmentary undergraduate education.

A fourth issue for some learning skills advisers is that many academics continue to regard all students as the same and do not design curricula that take account of cultural or racial differences. Although this is not intentional, its cumulative effects can be devastating as one member of an Aboriginal students' support unit explained:

...we can think about racism as being a sequence of micro-pressures; they are little events that occur every day, so it is sort of like waking up every morning and having somebody slap you in an angry way before you go out. One slap is small, but when that happens continuously day after day after day it builds up this little additive process of micro-pressure, so we work at that in the curriculum... (T81)

Curriculum designers are encouraged to take account of such differences when planning courses:

The more aware lecturers come to us and say, 'Is there any need to treat Aboriginal people differently?' and there is and there isn't. You don't want to dwell on the differences as though these were a group of people who can't cope, but different cultures do have different ways of organising knowledge, imparting knowledge, and organising their ideas and what they do with that knowledge, how they learn, whether they are the sort of people who write everything down, or take it in through listening, whether they respect people because of the knowledge they have got or the character they have got, all those sorts of things. (T31)

In their work with academic staff, learning skills advisers help them to understand the importance of students' participation in the learning process. Though this is often at the expense of content and frequently involves the academics' surrendering total ownership of the curriculum, this results in more active learning by the students and enables them to continue learning after graduation. As well, in their work with minority groups they contribute in no small way to creating a positive attitude towards cross-cultural differences within the university community and, thus they contribute to the lifelong learning potential of all graduates, irrespective of their cultural or ethnic backgrounds.

It is recommended that learning skills advisers, like librarians, be regarded as full partners in the educational process, and that they be consulted during the design phase of new courses to ensure that opportunities are built in for students to learn how to learn as part of the process of acquiring subject-matter (R8.1).

Computer-based education facilities

Until fairly recently, computer-based education was limited mainly to technological fields such as mathematics, science, engineering and design. Now, however, computer laboratories are as likely to be frequented by students of linguistics, geography, history, law or medicine. What has happened?
For a start, the amount of information available in all disciplines has multiplied exponentially, and computers help to gain access to it. Second, computers themselves are more powerful, more compact, more versatile and indeed more ‘user-friendly’ than in the past and those without a technical background find them relatively easy to use. Third, computers can actually improve the process of learning, by doing things that human teachers find repetitive, difficult or unrewarding. Fourth and finally, and perhaps most compellingly, computers have found their way into many occupations, and it is only to be expected that familiarity with the technology should begin in university or even earlier: no graduate could be considered properly educated if he or she were not to some degree computer literate.

Before proceeding further with this topic, a word or two of explanation. First, we are aware that there are differences between and among computer-based education, computer-assisted learning, computer-managed learning and computer-aided instruction. However in what follows, our intention is neither to slight nor to endorse any of these practices in particular, but rather to consider the generic domain which, for the sake of convenience, we have called ‘computer-based education.’

Second, it lies outside the scope of this study to explore the whole issue of computers in higher education, which in any case, is the subject of annual specialist conferences. Thus, in the pages that follow, the focus of discussion is not on computer-based education per se, but rather on its implications for lifelong learning.

The computer as a learning device. An important, yet in many domains unrecognised, advantage of working with computers is their ability to enhance the process of student learning: computers can improve students’ problem-solving skills and their understanding of course material; allow greater learner-control; heighten the level of interaction possible between students and course material and, using cyber-space, among students; individualise the learning process; and create a multitude of learning experiences. By improving students’ awareness of the variety of on- and off-campus resources and facilities, computers also enable students to recognise the importance of maintaining up-to-date information.

Computers have the ability to change students’ and even staff’s perspectives of teaching and learning at university. A staff member of a computer-based education facility described an encounter with a lecturer which illustrates this well:

we’ve had a quite senior educator coming to see us…and we said to him, ‘Well the first thing we have to do is decide…what is it that you’re trying to teach the students.’ He found this to be an amusing and refreshing way of looking at education. He’d actually never ever thought about [that] when he gives this lecture, [that is] what he is trying to teach from the students’ point of view. (T121)

Computer-based education should not merely be used as a medium for the primary delivery of course material or as a replacement for teaching, but rather as a means of strengthening student learning. Computers can be likened to a chemical catalyst in that a small amount of computer interaction can lead to the reciprocal production of a large amount of student learning. The use of computers in education is closely allied to the ‘learning-to-learn’ philosophy:
The computer's real pedagogical power lies in its capacity to develop the 'metacognitive' skills...those very skills—problem solving, a critical approach, the ability to retrieve, organise analyse and synthesise data, the ability to 'learn-to-learn'—that are increasingly necessary and increasingly prized in society. (Duguet, 1992, p. 53)

Computers provide an unparalleled capacity to manage and access large amounts of information, and present it in novel and interesting ways. They can create experiences for students who normally would have little opportunity for direct practical experience with the material being studied. For instance, before computers, there was no way that students would be able to practise managing a human resources office, for example, or perhaps design, install and monitor their own engineering project. Simulations, models and graphics on the computer enable all this to be done, repeatedly and without real-world consequences.

Computer-based education allows students to become active learners rather than mere passive recipients of teaching. It provides an active medium where students constantly interact and contribute to their own learning experience, in contrast to a passive medium where students read or are told something but make no active contribution of their own. Many students experience classroom situations in which total control by the teacher has led to frustration, boredom, lack of attention, and ultimately a reduction in achievement. It follows therefore that giving learners greater control over their learning experience can improve motivation, reduce frustration, increase attention and consequently improve achievement.

In addition to providing opportunities for self-directed learning, computer-based education is capable of individualising the learning process by allowing students to work individually or in small, rather than large group environments. A member of staff in a computer-based education unit spoke of how this form of learning, allowing students to choose the number of people they work with, and the way in which they learn, consequently 'fired up' students' enthusiasm for the subject matter:

In fact, students aggregate in groups of two or three and tend to discuss a package...that's great because I think that [otherwise] in giving a 45 minute tutorial in a small group it usually takes me about 15 minutes to motivate the group to be interested in what I'm talking about. So I have to lead them to interest in the subject. We have done it on the computer and they've come in, fired up and motivated. The computer has in fact saved me that primary time. (T121)

The Department of Community Medicine at Monash University has developed self-learning and computerised packages which are used in departmental teaching programs and which are available to students on all campuses and in particular at the Clayton campus learning laboratory. In the learning laboratory students tend to work in groups, rather than in isolated 'unfriendly booths,' discussing issues raised in the packages amongst themselves or with their tutors. Thus computer-based education becomes:

not just a program for one student but it is used in a number of ways by students. Often they'll use it with other modalities, or in groups, and often they'll only get certain information out of it before they move on to something else. (T121)
One member of the unit describes a typical student exercise which utilises case studies on computer to develop students' problem-solving and communication abilities:

[Students are] being given scenarios on the computer that require...gaining communication skills. A good example of that is a mother and daughter in a consulting room, [and] you wish to find out something about the sexual history of the daughter. There are a number of questions you can ask and if you ask the wrong ones, it's over with [respect to communicating with] the daughter. (T121)

Computer-based education is used in this department as one option in a range of teaching approaches designed to promote self-directed learning.

The computer as personal and professional companion. As computer usage becomes increasingly widespread within workplaces and everyday contexts such as the home, educators are gradually accepting that students need greater access to and familiarity with computing facilities. Working with computers develops students' computer fluency and consequently helps ease the transition from university to professional practice. In our interviews, we encountered two instances—both in medicine—where the curriculum explicitly includes familiarisation with the computer as a tool of professional practice.

In 1980, the Informatics Unit in the Department of Community Medicine at Monash University was set up to develop computer-aided learning and as part of this the unit designed and established a faculty teaching database which is accessible to all general practitioners in Australia. The unit is also developing a system for computerising medical records which will be made available to all general practitioners in the country. One of the unit's community liaison roles is to educate community medicine students in the use of information technology in their practices. Students learn how to design computer learning packages themselves and these are produced in conjunction with workbooks, slides and videos.

In the Faculty of Medicine at The University of Newcastle, students undertake a course in medical informatics to learn the basic skills and concepts involved in information management in medicine. Issues relating to privacy, security, ethics and the law are taught to the students in a real-world context. The unit chooses learning exercises which introduce students to word processors, spreadsheets and databases in the context of their course material. They conduct four fixed resource sessions and five one hour tutorials each semester in which students work through exercises which staff from the unit have put together:

one of the most successful...is an exercise with physiology when they first learn about blood pressure.. they have a session where they actually physically learn how to measure blood pressure and in conjunction...we help them set up a spread sheet...on the computer and then [they] go off and take the measurements of the blood pressure and come back and put that into the spread sheet and then analyse it and take the information that they get out of it and have a follow up session with the physiology people to discuss it. So we try and keep it very much within the context of the course and make it relevant and use medical examples wherever possible. (T78)
A word of caution. While there are distinct advantages for staff and students alike in utilising computers as part of the undergraduate teaching process, it is important not to exaggerate claims, or to use computers in inappropriate or excessive ways.

Staff in computer-based education facilities voiced some reservations about the number of teaching staff obsessively incorporating computer assisted learning into the curriculum wherever and whenever possible. Sometimes computer assisted learning is not appropriate to the subject material or the aims of particular lecturing staff involved:

And so [ironically] it is the role of someone who’s going to promote computer assisted learning to say...‘Let’s talk about what you teach first and then decide whether or not a computer is the right way to do it.’ There are many applications where the decision should be, ‘Don’t put it on computer’ and we often tell people, ‘Don’t bother, because the way you’re doing it now works fine. Why try?’...Beware of the evangelist for computer assisted learning. I’m enthusiastic about it but I’m also pragmatic about it. (T121)

In addition, implementation problems can be considerable. The cost of designing programs and equipping students and faculty members with appropriate resources and support staff can be extremely high and must be weighed against the prospect of short-term obsolescence.

Libraries

A number of librarians from universities and other institutions made submissions to our study which provided an insight into the multifaceted role of libraries in higher education. We spoke with, and received submissions from, librarians who were involved with the courses selected for in-depth profiling and, from the data collected, it was clear that librarians saw their role as undergoing major transformation as they themselves became agents of change within the university community. No longer are librarians primarily ‘museum keepers’ (T56), or custodians of large resource collections, but rather ‘coaches who develop within students the capacity to not only access, but also to evaluate and choose information’ (S35, p. 2). Increasingly, their involvement in many different aspects of the university’s life is ensuring that libraries are becoming the ‘hub of the university’ (T 36) and that librarians are operating at the cutting edge of technological developments in identifying the need for, locating, accessing evaluating and managing information. Among their responsibilities they included:

- providing on-the-spot assistance to students, staff and the outside community in locating and accessing information;

- providing reader education services at all levels and in all aspects of information literacy, including one-to-one and group instruction and demonstration, as well as printed material such as pamphlets, handbooks, workbooks and self-instructional packages aimed at specific reader groups;

- conducting workshops on new technological developments in information storage and retrieval methods;
• giving guidance in curriculum design intended to promote self-directed and resource-based learning;

• participating in courses which integrate information literacy with the content and design of the curriculum;

• providing orientation programs for new staff and students;

• maintaining and developing resource collections, and exchanging information and resources with other libraries; and

• designing electronic databases, computer software packages and course material for specific purposes.

Despite the obvious overlap between them, we have divided these responsibilities into four broad categories which we have labelled: working with students; maintaining the collection; working with staff; and working with the community.

Working with students. A submission from the Council of Australian University Librarians made the point that all the services and programs which university libraries offer are dedicated to the achievement of information competence. However, this ‘requires the regular use of these systems, which is only achieved when course requirements encourage student use of the systems and resources available to them’ (530, p. 5).

The same submission listed the following aspects of information literacy which were considered fundamental to any undergraduate curriculum and which would ensure that students would become independent and self-motivated learners, critical thinkers with an appreciation of differing perspectives and historical developments. The submission stressed the need for students to be competent in:

• understanding the nature of the information society;

• understanding, and being able to implement the processes of identifying an information need, locating, retrieving, evaluating and synthesising the information required;

• developing a high level of communication skills, including the ability to communicate with colleagues and information professionals;

• developing a sound knowledge of information sources, including network sources, and strategies for using them;

• developing the ability to manage the information retrieved through the appropriate use of, for example, word processors, spreadsheets, bibliographic management software;

• developing a familiarity with the hardware of information technology, books, newspapers, videos, compact discs, computers and all their accompanying apparatus. (S30, p. 2)
How is all this to be achieved? Librarians were generally not in favour of the 'quick-fix,' which they define as an out-of-context orientation program delivered in tour format to large groups of first year students at the beginning of semester. They felt that this 'was just like trying to vaccinate a baby and expecting it to last all of its professional life' (T4). Students retained little of the information and the only useful purpose of such tours was to provide familiarity with the layout of the library building.

Rather, orientation programs should be built into the curriculum and offered in a variety of formats to individuals and groups of various sizes. One-to-one teaching sessions where librarians demonstrate various electronic information retrieval tools are time-consuming and expensive to deliver, and most librarians felt that self-instructional packages, or small tutorial sessions, either in the library or within academic departments, were generally more cost-effective and efficient. Some university libraries produce faculty-specific library workbooks which require students to complete the exercises. Most librarians agreed that unless students were assessed on their library work they would not take it seriously.

Librarians who worked closely with departments whose courses were based on group research projects found that they were able to offer valuable assistance in searching the literature and accessing information as and when the students needed it. Project teams which sought help from the subject librarian specially assigned to the faculty were likely to be more enthusiastic and more highly motivated than the lecture theatre full of students who had their minds on other things. This is because:

they’re discovering it for themselves...They’ve got their goals set, they know where they’re going and their lecturers are giving them some sort of guidance to keep them on track, but they are discovering things for themselves and it’s sort of like a treasure hunt....Because they’re finding it out for themselves, in a group, it gives them much greater pleasure than being given it. (T36)

Finally several people stressed the need to provide ongoing library and information retrieval skills programs for students at different year levels throughout the course:

Many academics assume that third or fourth year students ‘should know by now how to use the library’. This statement is often heard by librarians who often experience these students and their inquiries at the reference desk. For example, engineering students in first or second year are not interested in learning about how to use the Conference Proceedings index. However when they are in third or fourth year, they find it very helpful. There are many tools in the library which can be introduced at each level, each building on the level of complexity of the other. (S36, p. 4)

I think that in third year they need to be given something a little more complex, a little more in-depth, plus some guidelines on what they can expect in the world outside the university: the sorts of libraries they can go to, to get help; the sorts of help they could expect from the library in their own organisation. (T8)

In a similar vein a submission from the library of James Cook University of North Queensland stated:
An important, but often neglected, area of undergraduate library education is training and guidance for students about to leave the University. This should ensure that their library skills are portable to new situations and that they are briefed about services and sources likely to be available to them. Such education can offer encouragement and confidence in taking the first steps in independent professional self-education. There is a need for librarians and academic staff to collaborate in the preparation of such programs. (S24, p. 2)

Indeed, at one institution a librarian has developed computer packages on all aspects of information retrieval and these are given to graduating students on disk so that they could build on the skills they had learned at university.

Maintaining the collection. A common thread running through all the interviews with librarians was the difficulties they had in maintaining (let alone developing) their resource collections because of lack of funding for staffing and computing support. A librarian from a regional university observed:

Well, we will never be able to catch up. All we can do now is try and buy what is current and increase our journal subscriptions, which is absolutely crucial with the amount of research going on at this campus...I don't have the building space, for instance, to load the shelves with back runs of bound journals...so, yes, we are suffering from a lack of (previous) support at the top. (T56)

Another, whose library catered for a large distance education population said that:

...if we are having external students from universities in New South Wales coming here to use our resources, we [need to be] funded to meet those needs...There are a lot of resource needs that are not being met...

For example, you are sitting at the reference desk on the weekend, and half of the people who come asking for help can be high school students, they can be members of the public, they can be external students from any institution within Australia, they can be open learning students, and if you are the only person on and you are trying to juggle the needs of your own students and staff with the needs of these outsiders, how much help do you give them, how much time do you devote to them?

At what stage do you say, 'I have access to the information you need, but it is only available in the United States so I am going to have to get on an on-line system and access it over there, and it is going to cost $60 a minute...'? Do we give it to them for nothing, or do we charge them?...If you are going to encourage lifelong learning...you are going to have to fund it. (T8)

A number of librarians indicated that their libraries were just 'treading water' in their attempts to maintain and develop their collections. A faculty librarian compared her relatively well-funded library with the under-funded main library:
I think the university library here is very poorly funded...It's the poor relation in the
university structure. They never have enough staff, they never have enough money
for books...The university structure doesn't seem to recognise that...I think some of
our [faculty] collections are quite reasonable [and] we are not doing too badly because
the faculty has been putting in its own money and has a strong commitment to its own
resources...[Otherwise] we would have been left out in the cold; we would have been
a very different library. (T4)

A librarian from a large inner-city university put the emphasis on usage rather
acquisitions:

We do not measure our success in terms of the size of the collection. We do use our
loans as an indicator of its currency and given the bias of the whole university, currency
of information is quite critical...What we do want is to have rapid access to
information. We, for a number of years, have realised that we won't own everything
that we want, so we've been pursuing the policy...of balancing ownership of
information and access to information...We would always like more money to build
collections or to create more access and provide terminal equipment. We would like
to have some more resources for some of those labour intensive activities like keeping
the doors open for a longer number of hours every week. (T101)

A university library is an enormously costly part of the university’s infrastructure. It
is prodigiously expensive to set up and maintain a library, yet it is vital to the
intellectual life of a university that it have an adequately stocked and continually
improved collection. Modern electronic data bases and interlibrary loan systems have
done much to bring learning resources to the fingertips of staff and students, but they
have not obviated—if anything they have emphasised—the need for the library to be at
the heart of learning. As libraries accept a more central role in the intellectual life of
their institutions, they likewise become more pivotal in efforts to develop lifelong
learners. It is recommended that the processes for resourcing libraries take account of
the vital role of libraries and of information literacy generally in the development of
lifelong learners (R8.2).

Working with staff. The librarians who made submissions, or whom we interviewed
were totally committed to the centrality of information literacy and learning-to-learn,
and felt that these should be core elements of the undergraduate curriculum. A
submission from the Queensland University of Technology, for instance, said that:

...lifelong learning is, among other things, a cultural value, an attitude that to continue
learning is necessary and a good thing. For this to be instilled, academic staff must
also hold this value and transmit it consciously.

As a corollary, if information skills are valued, one would expect to see this reflected
in the curriculum; course aims and objectives would specify information skills, student
tasks would incorporate information building strategies, reading lists would be
minimal and encourage use of alternative sources, reserve collections in libraries
would be of minor importance although library usage would be of primary importance,
and assessment would encompass information skills. (S31, p. 1)
Librarians generally wanted to see the introduction of more problem-based learning courses which require students to master research and information retrieval skills early in the course. They felt that it was important for them to collaborate with course coordinators to design resource packages that were appropriate for the students' needs and to do away with prepared reading lists which were handed to the students at the beginning of semester. In many instances, students made little or no use of these lists, which in any case often restricted rather than broadened their reading. Instead, students should be encouraged as part of the course requirements to put together their own reading lists, drawing on all the databases and indexes at their disposal and utilising evaluative measures in their compilation. According to a librarian from The University of Melbourne, teaching approaches should:

encourage people to seek out information themselves...but there would have to be some component in the way courses are structured that in fact encourages people to develop analytical or critical skills in terms of dealing with the information. (T123)

In order for this vision to be realised, however, two important changes would be necessary. Firstly, academic staff would need to view their role differently, and to see themselves as facilitators of learning; and secondly, there would need to be enhanced collaboration between academic staff and librarians in the design and delivery of programs.

With respect to the first of these two issues, a number of librarians acknowledged that not all academic staff share their commitment. They often faced difficulties in working with academic staff who were committed to tried and tested didactic teaching methods and who were not prepared to make the shift to resource-based teaching in which students had responsibility for their own learning. The submission from the Council of Australian University Librarians conceded that:

Curriculum integration of information education, although essential to information literacy development, it is not always easy to achieve; it often involves significant changes in faculty approaches to teaching and learning. That is, lecturers need to see students as being responsible for their own learning, and themselves as facilitators; thus strategies such as contract learning, problem-based learning and resource-based learning are more suited to developing information competence than traditional lecture and tutorial based courses. (S30, p. 8)

Another submission, this one from the University of South Australia, was even more forthright about the difficulties confronted in trying to raise the profile of libraries and librarians in some institutions:

in the main...undergraduate students are not information literate, [yet] undergraduate programs generally do not take account of this reality...[Librarians'] own attempts to help redress this situation are marginalised through lack of recognition of the need and their non-involvement in curriculum development, [and] teaching staff in the main are still focusing on lecturer centred exposition of knowledge that would be more permanently gained through a resource-based student centred learning approach. (S11, p. 1)

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A respondent whom we interviewed pointed out that the shift from ‘lecturer-centred exposition of knowledge’ to a ‘resource-based student centred learning approach’ was no small task, however:

There’s always a lot of effort involved for people to change their ways and if people have lectured on a particular topic for ten, fifteen, twenty years and have provided a reading list on that topic all that time, it’s very hard to ask them to change and to suggest that they don’t give a reading list; to suggest that they allow students to form little working groups and work on different aspects of different topics and make them do it themselves. (T 36)

While there may be many reasons that contribute to or account for this reluctance to change, one that was identified by one of our respondents was the fact that some staff might lack appropriate information competence. Thus one task for librarians could be to educate academic staff to become information literate themselves, and help them to make:

that transition from owning everything to having a mixture of ownership and access [which] requires some delicacy on our part because we’re moving into areas where it’s almost required that you have to use technology to get access to information, and a lot of staff have not acquired those skills, and some who think they have haven’t as well...

With academic staff in particular we suspect that we have to add an entertainment value to [teaching them information retrieval skills] because we certainly can’t denigrate the skills that they already have, nor their capacity to learn new skills, and to some of them it’s a fairly large shift in their information seeking behaviour. (T 101)

Turning to the second of the needed changes, as one submission pointed out:

In order for information literacy programs and the quest for graduates prepared for lifelong learning to be successful, libraries and librarians need to see themselves as full partners with Faculty in the education of undergraduates. Similarly Faculty need to acknowledge the role of the academic library and librarians and accept them as partners in the education enterprise. (S30, p. 1)

This partnership needs to commence with the design of courses and actively build information skills into the course. As a submission from the University of Southern Queensland put it:

Librarians need to be involved in the planning of new courses to ensure that the teaching of information literacy skills is included into the assessable academic program. There needs to be a cooperative effort between the library and the academic to work towards an integrated program which includes this teaching. The academics will lose very little teaching time, and gain students who are more aware of information in the field and able to produce better quality assignments. (S36, p. 3)
The Council of Australian University Librarians’ submission identified the need for academic staff to either ‘incorporate [information literacy] programs, or work with library staff on adjusting their curriculum to incorporate information literacy goals’ (S30, p. 4). The submission went on to argue that teaching approaches such as contract-based learning, problem-based learning and resource-based learning are more likely to develop students’ information competence than the traditional lecture-tutorial model, but that ‘if such approaches to teaching and learning are not in place, or if faculty cannot accept the value of implementing change, the success of “extra-curricular” programs which may be established is jeopardised as students are unable to perceive relevance in any information programs devised for them’ (p. 8).

This issue was a concern for librarians in general, who spoke of the need to tie information literacy closely to course content in assignments so that the students would value it and ‘see a reason for it and an end product’ (T56). One librarian commented that by timing sessions on information retrieval to coincide with assignment work he could be involved:

> with their needs at the time when they actually need information, and I guess I have had sufficient freedom from the course coordinators to talk about what I felt was important rather than what they might have felt was important. (T 41)

It is worth pointing out that not all our respondents saw libraries adopting such a proactive role, however. In at least one case, librarians still saw their main role to be reactive to faculty needs and demands:

> The library is obviously a service group. It has to reflect the educational context of the institution. The library itself will adjust its priorities and directions according to the general directions of the institution. Within that broad framework the relationship between the library and particular academic departments or faculties will depend very much on the sorts of educational approaches that the faculties and departments adopt. (T101)

In the long run, the success of the librarian in working effectively with academic staff to promote self-directed and resource-based learning depends not only upon the academics’ attitudes towards teaching and learning, but also on the culture of the departments in which the staff and students work. As one librarian put it, departments that ignore the services the library can offer to them, are generally less rewarding to work with for the simple reason that:

> those sorts of attitudes percolate through the department and into course structures and, as a result, the students themselves don’t develop by association an awareness of how they can find information and use information for themselves...No matter what libraries might do, no matter how active libraries might be in that process, as a service area the students are very much influenced in their attitude towards that service by the department. (T101)

Another submission was also less than enthusiastic about the prospects of making progress in changing the attitudes of academic staff because of even broader issues namely the culture of higher education itself:
Higher education in Australia, certainly at the undergraduate level, is essentially of the non-liberating variety. Despite the best efforts of academic libraries, staff of educational development units and some prescient administrators, it still does little to develop an attitudinal and skills base for lifelong learning, and capacity to respond to rapid change in our information abundant society. (S11, p. 2)

For this reason, some libraries at least see a part of their role as working and providing services not only within, but also beyond the institution.

Working with the community. As if libraries were not busy enough dealing with their own students and staff, increasing demands from the community outside the university have placed additional burdens on staffing and resourcing libraries. Approximately 25 per cent of the enquiries handled by The University of Melbourne Library, for instance, come from outside the University, and 10 per cent of loans are made to external users. Indeed, one of this library’s special features is the ready access it provides to the community. This access enables and encourages past or future students to continue learning throughout their lives:

We offer a service not just to our own university community. Thirty per cent of our users are actually not university people and I think this is an important role that we play because we have to remember that once people have actually left the university, they must have access to research materials...[we are] able to offer a broader range of service and a more indepth range of services [than public libraries], so that anyone in the community can come in beyond their university days and pursue things for their general interest or for their own career development. (T124)

However, to defray the costs of offering such services, more and more libraries are having to introduce user-pays schemes to cover costs associated with searching databases and borrowing rights for students from other institutions or for the general public.

Not only do librarians deal with the public in a professional capacity by answering individual and telephone enquiries (many universities have specially dedicated teams of ‘telephone librarians’ who deal with questions from outside the institution during peak times of the day), but increasingly they are becoming liaison agents between the university and the community by performing such tasks as coordinating ‘friends of the library’ groups, and offering demonstration tutorials, public lectures, public performances, and, most importantly courses in advanced information literacy skills for practising professionals all as part of a calculated effort to involve the community in information literacy.

To give but one example, the biomedical library at The University of Newcastle services rural hospital libraries belonging to the area health service; resources and infrastructure have to be provided to ensure that students on clinical placements in those centres are not disadvantaged. Librarians play an important role in liaising with staff of hospital and country libraries to develop systems and resource collections that can be utilised by medical students and doctors on site.
By reaching out in this way the university library fulfills an important part of its mandate to contribute, in a ‘service’ capacity, to the quality of the information resources available to the community and hence, in a very direct way, to the ongoing lifelong learning not just of its own graduates but of the community as a whole.

The climate of intellectual inquiry

In recent years, there has been a great deal of scholarly attention—primarily in Britain, Sweden and Australia—to the quality of student learning. For years, educational outcomes, and the success of various educational interventions, have been judged largely on the amount or quantity of learning that students have managed to achieve. This is predicated on an atomistic view of knowledge and on a view of learning as predominantly a matter of accretion or, as one author put it, of ‘accumulative fragmentalism’ (Kelly, 1977, p. 10). By concentrating instead on the quality of learning, researchers have asked not ‘how much’ has been learned, but ‘what’ has been learned and what it means to the learner.

As mentioned in chapter seven on ‘Assessment,’ one of the corollaries of asking these different questions has been the development of new methods for assessing student learning. Another has been the recognition that the quality of student learning outcomes is directly related to the learning approaches that students adopt, and moreover that learning approaches are themselves closely related to the motives and intentions that students have. Instead of viewing learners as more or less passive recipients of the teacher’s activities and objectives, they are seen and treated as active agents in the process of making sense out of the entire educational encounter (Ramsden, 1992).

If this applies to the content of any educational interaction, there is no reason to assume that it does not also apply to the process. Ever since Snyder coined the term ‘The Hidden Curriculum’ in 1971, educators have recognised that education and learning occur at both an overt and a subliminal level. Thus, while the overt intention of an undergraduate course of study as specified in documents such as the course description or the university calendar may be to develop and inculcate habits of inquiry, self-directed learning, and a lifelong commitment to the pursuit of new insights, the reality may be quite different.

In the interviews with students and graduates, and from submissions to our study, one recurring quality that seemed to mark the lifelong learner—especially in technical and professional domains—was the extent to which they had been influenced by lecturing staff who ‘view themselves as lifelong learners and who model that view in a way that is instructive to students’ (S26, p. 1). This point was made perhaps most elegantly in a submission from the Australian Chamber of Commerce and Industry:

The two areas of learning most appropriate to induce people to continue lifelong learning following their university experience are...in brief, learning the love of learning on the one hand and learning to learn on the other.
The love of learning has ceased to be innate in most people by the time they become undergraduates. Its growth becomes the result of the experiences that affect people. Sometimes the key experiences might be the contact with fresh ideas, new information, novel concepts and the like. Most likely the experience that has most effect will result from contact with people. The most influential people will be those who themselves obviously have a higher regard and rich enthusiasm for the subject matter and for the work that they do... The sort of élan, of enthusiasm that is infectious, can hardly be taught. It can be talked about, however, and it can be learnt. It should be the hallmark of all who work with undergraduates. (S13, p.1)

More broadly, the intellectual climate of the school or department, and ultimately of the institution, was influential in shaping the attitudes, and hence in influencing the approaches, of the students themselves.

To put the same point another way, in those courses where staff and students alike are preoccupied with the technical content of the course, where examinations test factual knowledge and recall, and where teaching approaches are aimed largely at the intact transmission of a non-contested body of knowledge, the emergence and nurturing of lifelong learners is difficult if not impossible.

This is not to argue that courses should be rambling and incoherent, that teaching methods should be a free-for-all, or that no standards of disciplinary discourse should apply. To the contrary, as we have argued throughout this report, but principally in chapters six, seven and eight, there is much that institutions can do deliberately and intentionally to develop lifelong learning skills in their graduates. These strategies include the need to recognise and reward curiosity rather than compliance, critical thinking rather than conformity, deep-level rather than surface-level, and self-directed rather than other-directed learning.

In chapter five, reference was made to Little’s pioneering research work at The University of Melbourne. Basically, Little argued that a teaching situation could be characterised on two dimensions which, based on what students told him, he labelled ‘people’ and ‘work’ (in another context, these might be called ‘process’ and ‘task’ orientations). According to Little, any given teaching/learning situation could be high or low on each of these dimensions, thus yielding a 2 x 2 matrix. High on ‘people’ but low on ‘work’ he called ‘Indulging’; high on ‘work’ but low on ‘people’ he dubbed ‘Training’; low on both is ‘Neglecting,’ and high on both is ‘Cultivating.’ According to Little the ‘Cultivating’ climate is neither as socially sterile as ‘Training’ nor as intellectually undemanding as ‘Indulging.’ Instead it strikes a balance between ‘challenging, urging or expecting’ students to work and make an effort, and at the same time providing ‘encouragement or reassurance and recognition.’ Thus:

"a cultivating climate...balancing orientation and support, is concerned to know and teach what is real and external to the individual, what needs doing, and take just as seriously, inner inclination, wishes and convictions. It demands and guides, but it also encourages and recognises. The student is neither thrown to the wolves nor abandoned to him [or her] self. (Little, 1975, p. 24)"
Using Little’s typology, we would argue that the university should strive for a ‘Cultivating’ climate, but in this respect, the institution’s recruitment, promotion, appraisal and staff development practices are highly influential. There is little point in developing elaborate institutional policies, guidelines and course documentation that stress the development of lifelong learners if teaching staff are unaware that this is the institution’s goal. It is even more invidious if this is the institution’s espoused goal, yet staff are tacitly rewarded for behaving in ways that are contrary to the development of learning skills in their students. It is all very well to stress the value of critical thinking, deep level learning, self-assessment, and self-directed learning. But it will never be central to their purposes unless there is a cultural shift in what institutions expect, value and reward in their academic staff.

*Given the central place of lifelong learning skills and attitudes in the undergraduate education system, it is recommended that institutions should provide appropriate recognition and reward for staff who teach in ways that encourage the development of lifelong learners (R8.3).*

**Conclusion**

Universities conventionally subdivide their activities into three components: teaching, research and service. This division is reflected in the way that most are managed, in the way they are funded, and in the work that staff are expected to perform. It is a time-honoured way of thinking about university work, and has recently been given added legitimacy by the decision of the Committee for Quality Assurance in Higher Education to focus on each facet of the university’s work in turn.

Useful as this distinction may be for administrative and organisational purposes, however, it is important to acknowledge that the functions of universities, and the actual work of the people in them, do not really conform to such a neat compartmentalisation. Instead, each activity shades off into the others, and they are all unified by a single focus: learning. The entire purpose of the university is to facilitate learning, whether by students, staff or members of the wider community. And by extension, since learning is an ongoing and never-ending phenomenon—a lifelong endeavour—the true purpose of the university in all its many activities and manifestations is to support lifelong learning.

Once universities embrace the promotion and facilitation of learning as their central purpose, their raison d’être, this in turn provides a perspective on all their activities, and in particular on the support services that exist and are maintained to assist in the fulfilment of their mission. A natural corollary of adopting such a view is that support services—such as study skills and learning centres, computer-based education facilities, and libraries—are an integral component of the resources available to assist students with their learning, and to assist staff with their teaching. In all the case study institutions we visited, and the programs we have profiled, the usefulness of such services is maximised when they are consulted routinely and integrated, as far as possible, into the core business of teaching and learning.

Finally, it has been argued that the single most influential factor in shaping whether or not graduates choose to be continuing lifelong learners, with the exception of their personal predispositions and individual belief systems, is the climate within the
institution. This nebulous construct, which embodies the views and values of senior staff, the attitudes and practices of academics and support staff, and the history and culture of the organisation, intangibly yet inexorably influences and shapes the orientations of students, determining whether or not the institution encourages, endorses, enhances and enables the pursuit of lifelong learning.

Recommendations

It is recommended that learning skills advisers, like librarians, be regarded as full partners in the educational process, and that they be consulted during the design phase of new courses to ensure that opportunities are built in for students to learn how to learn as part of the process of acquiring subject-matter (R8.1).

It is recommended that the processes for resourcing libraries take account of the vital role of libraries and of information literacy generally in the development of lifelong learners (R8.2).

Given the central place of lifelong learning skills and attitudes in the undergraduate education system, it is recommended that institutions should provide appropriate recognition and reward for staff who teach in ways that encourage the development of lifelong learners (R8.3).
References


Conclusions

If there is one finding that emerges overwhelmingly from this study, it is that making a commitment to lifelong learning—whether at the system-wide, institutional, program/course or individual level—is no easy matter. So many practical, philosophical and structural matters must be taken into account that it represents nothing less than a significant paradigm shift.

As we have argued and reiterated throughout this report, at one level universities have historically viewed themselves as part of a continuum, and they and their graduates are no strangers to the practice of lifelong learning—even if the term itself is unfamiliar. But universities today are subject to unprecedented turbulence and pressure, much of which stresses the need for lifelong learning. Among these pressures are:

- the continual increase in the sheer amount of knowledge, including the amount required to function adequately in the modern world;
- the decreasing half-life of professional knowledge;
- the increasing influence of interdisciplinary understanding in the professions;
- the transition from an industrial world to an information-based society using increasingly sophisticated technology;
- increasing internationalisation and the transition to ‘a global village’;
- the changing shape of organisations and of people’s roles within them;
- a move from an élite to a mass higher education system, with greater numbers of undergraduate students, a greater range of educational backgrounds, and a greater pressure to achieve more with fewer resources; and
- debate about the appropriate form of articulation between higher education and work, and higher education and other forms of education.

The increasing pace of change in modern society means that it is impossible for any undergraduate degree to give individuals all they will need for the future. Graduates will have to continue learning after graduation simply to maintain their relative stock of knowledge and skill. It is therefore imperative that undergraduate education as a matter of priority encourage and enable graduates to continue learning throughout their lives.

While the encouragement and enabling of lifelong learning skills is an imperative in response to the pace of change and future needs, it is also entirely consistent with the university’s traditional commitment to a liberal education. The traditional ideal of an educated person includes just those skills and attitudes, such as intellectual curiosity and critical appreciation of the nature of knowledge, which lead to a continuation of learning throughout life.
There are two concepts embedded in the term lifelong learning—‘lifelong’ and ‘learning’—and placing these at the centre of the undergraduate program has significant implications. With respect to the ‘lifelong’ part of the term, many academics—teachers and administrators—may lose sight of the fact that the university years are only a very small component of the totality of a lifetime. Admittedly they are pivotal years, especially for those young people making the difficult transition from adolescence to adulthood, but it is important to recognise that there is a wealth of learning that goes on before, and an even greater treasury of learning that goes on after, an undergraduate degree. This point is made not only as a caution about the need to ‘hook’ learning into both what has gone before and what follows later, but also as a corrective to those who may argue that *everything* needs to be packed into a few short years. In the final analysis, the undergraduate experience (vital as it is) must be seen within the total lifelong and lifewide context of each person’s learning experiences.

The second concept—‘learning’—is also vital. It may seem a small thing—even pedantic to some—but there is a world of difference between thinking of learning as a consequence of teaching; and viewing learning as the superordinate construct, with teaching as but one contributing factor. Putting learning at the centre of the undergraduate experience casts a different light not only on teaching, but on the role of other university services and functions (such as the library, the computer-based education facility and the relationship between the university and its graduate body or convocation) in pursuing the role of facilitating learning.

In the end, change will come about through a combination of raised awareness of the problem and its importance, and changed policies leading to changed practice. This report represents a small step in the former, and makes some recommendations about the latter.
Part Three

Course Profiles

Introduction

The courses profiled here were selected in the first instance from among those nominated by Vice-Chancellors and whose commitment to lifelong learning could be evidenced in their course documentation. Some were chosen because of their recognised innovation in curriculum development, and others were selected on the basis of submissions made to the study. Where possible, we have included profiles of at least one course from each field of study. Courses that do not appear in this collection but which participated in the study are represented in the body of the report.

The choice of interviewees was made by the course coordinators in response to our request for a reasonable spread of respondents across teaching and support staff, first and final year students and graduates. Inevitably this choice must be tainted with some degree of subjectivity although the unpredictability of some responses from students and graduates put paid to the assumption of positive bias! The element of subjectivity aside, we believe we have put together a reliable, rather than a comprehensive and exhaustive picture of the targeted courses.

As the interviews formed the empirical component of the study, it was always our intention to let them do the talking. Accordingly, little use is made of the wealth of literature that exists on all five dimensions listed in the Project Brief, namely course content, course structure, teaching approaches, assessment practices and student support services. We felt it was more important to outline some current innovations in the field and to use the courses as examples of good practice which might be emulated by academic staff elsewhere. It is important to stress, too, that these courses are not promoted as ‘best practice’ examples. Rather, they, like many others throughout Australian universities, are simply examples of how some academics have tackled the problems of content-heavy courses, fragmented course structures, didactic teaching approaches and punitive assessment practices that characterise much undergraduate education. Above all, they are examples of how lifelong learning can become central to an undergraduate course when staff and students share a common commitment to its value.

We submitted the course profiles to the relevant course coordinators before publication so that they could validate and approve the contents. In some instances they drew our attention to minor factual errors which we have subsequently corrected. With their permission, we have included from each course the name of a contact person who would be happy to provide further information if required.

The profile of the lifelong learner given earlier in this report lists several qualities considered essential for continuous learning throughout life, namely: an inquiring mind, helicopter vision, information literacy, a sense of personal agency and a repertoire of learning skills. In the interests of readability and economy, we have used
each course to illustrate a particular quality or set of qualities of the lifelong learner which we felt they most clearly exemplify. The representative grouping which we arrived at is as follows:

An inquiring mind:
- a love of learning;
- a sense of curiosity and question asking;
- a critical spirit;
- comprehension-monitoring and self-evaluation.

BArts (Visual Arts), Edith Cowan University
BScience (Physiology), The University of Adelaide

Helicopter vision:
- a sense of the interconnectedness of fields;
- an awareness of how knowledge is created in at least one field of study, and an understanding of the methodological and substantive limitations of that field;
- breadth of vision.

BVeterinary Medicine and Surgery, Murdoch University
BComputing, The University of Tasmania
BCommunication Engineering, Royal Melbourne Institute of Technology

A sense of personal agency:
- a positive concept of oneself as capable and autonomous;
- self-organisation skills (time management, goal-setting, etc.).

BApplied Science in Information Studies, The University of Technology, Sydney
BEducation in Adult Education, The University of Technology, Sydney

A repertoire of learning skills:
- knowledge of one’s own strengths, weaknesses and preferred learning style;
- a range of strategies for learning in whatever context one finds oneself;
- an understanding of the differences between surface and deep level learning.

BMedicine, The University of Newcastle
Inevitably, there is a degree of overlap and duplication, as well as unavoidable instances of omission within such an arbitrary scheme, for practically every course could reasonably have been included under every heading and no one profile treats in adequate detail all aspects of the curriculum. Moreover, no specific course has been chosen to demonstrate a concern for information literacy as they all, to varying degrees, incorporated information literacy skills in their curricula.

My thanks and appreciation are due to our Research Assistant, Ms Jane O’Leary, who tackled every assignment involved in the preparation of these profiles with dedication, enthusiasm and an invaluable sense of humour. I would also like to thank those people who took part in the interview program, for without their cooperation the profiles would never have been completed.

Gay Crebert
An Inquiring Mind

BArts (Visual Arts)
Edith Cowan University

Introduction

The artist's concern with human behaviour and motivation cannot be over-emphasised in any discussion of a visual arts course. Whether or not the visual arts student chooses to work in ceramics, textiles, sculpture, printmaking or painting, he or she is ultimately concerned with saying something new while making each new artistic expression build on what has gone before. A sense of curiosity and question asking characterises artists of any period for they engage in dialogue both with their subject matter and the social and political context from which it is drawn.

The BArts (Visual Arts) course at Edith Cowan University is notable for the way in which it encourages comprehension-monitoring and self-evaluation among its students by fostering critical self-reflection and peer group assessment.

Students are encouraged to question, challenge and develop inquiring minds but above all, to develop their own self-concept as capable and autonomous learners and practitioners of the arts. One of the main ways in which they do this is by becoming involved in community arts projects and engaging in on-going dialogue with practising artists.

'It's about an attitude we've got'

It was clear from the interviews in this course that staff, students and graduates shared to a very high degree a commitment to the principles of lifelong learning. True, they felt it was 'in there anyway,' built into the discipline and part of the nature of the beast, but there was universal acceptance of the centrality of lifelong learning in the curriculum.

Overall, there was a high degree of correlation between students, staff and graduates on this issue. Many attributed this to the nature of the discipline itself in which creative endeavour was seen as an 'enabling' process in which the artist becomes 'locked into a lifelong dialogue with a practice or a tradition,' and forges links with the past and future through his or her work. Others felt it resulted from the 'special' relationship between teacher and student, a relationship which is based on the mutual respect of values and past experiences and a reticence on the part of teaching staff to invade their students' personal space unless invited to make comment or offer criticism.

In educating visual artists there is always an emphasis upon the forward-looking and backward-looking implications of what is created in the present. Based on growth, development and change, the course aims to bring students to an understanding of their own place in the process by encouraging them to become confident advocates of their own work, as well as their own best critics. From the time of the cave artists there has been something unique about the way in which the artist views the world; something special about the way the artist can make something extraordinary out of the
ordinary; some particular ability to express the intellect and emotions which we all share—an attitude towards life and learning that is founded in curiosity and inquiry and a compulsion to ‘know more.’

Probing the surface reality of the natural world for meaning and constantly questioning and challenging the appearance of things and the behaviour of people are fundamental to the artist’s profession. Lifelong learning is part of the process of coming to understand human nature and though this focus is by no means exclusive to the visual arts, the nature of the inquiry and the ‘life enhancing process’ in which artists are engaged perhaps lends itself more readily to development over a lifetime than in other professions which are based in rapid technological and scientific change.

It is ironic that despite the unquestionable ‘lifelongness’ of the learning in visual arts and the emphasis upon the acquisition of skills of inquiry, curiosity, experimentation, problem-solving, and so on, many students are disadvantaged in the labour market. Graduates from the BA (Visual Arts) course at Edith Cowan University face the same uncertain futures as their colleagues in the visual and performing arts all over the world. What this course aims to give them is the confidence and expertise to express themselves more articulately through their art as well as the practical life skills so necessary to any professional:

A career in the visual arts has always been less easily achieved or quantified than in many other subject disciplines. Artists must themselves create their own market and maintain an ability to sustain their creative effort and practice, which means that undergraduate courses in the visual arts need to foster independent learning, critical and objective practice, responsiveness to new problems and abilities to work collaboratively. (Personal communication from Dr Neville Weston, 30 Sept. 1993)

The course is characterised by its flexibility, open-ended inquiry and its strong links with the community. Its graduates are strong advocates of the arts, competent practitioners, self-sufficient, versatile and adaptable. A mature age student commented:

I keep learning all the time, but I always feel I’m running out of time. There’s a sense of urgency. One of the things that is so important is the passion and love of the subject—that is the soul of the art school.

‘Aboriginal education programs, visual arts, all the areas that would normally be quite fringe areas within a university, here actually seem to be the driving force behind it’

Edith Cowan University prides itself on its access and equity policies which actively promote Aboriginal, intercultural and multicultural programs, and proudly claims that nearly half its total enrolment of students are mature age (Ashenden & Milligan, 1993, p. 164). Far-reaching changes to course design were introduced at the beginning of 1994 in response to the needs of a large number of mature age students for greater flexibility and student participation in course planning. Students now experience fewer contact hours with teaching staff but more ‘committed studio time’ in which they develop their own work.
Students, once they have completed the Foundation Studies course in first year go on to create their own flexible programs based on individual skills and needs, and they are able to draw on a comprehensive range of core and elective offerings from within the School itself (in the areas of ceramics, drawing, painting, printmaking, textiles or visual arts studies), or from within the Faculty (in the areas of the performing arts and arts administration), or from the broader University. Of the 22 units required for completion of the degree, 16 must come from the visual arts area while six (the ‘minors’) can be drawn from inside or outside the School. In this way, students receive an interdisciplinary education that provides broadly-based learning opportunities in addition to those experienced in the studio disciplines. The kind of graduate that emerges from the course should therefore ideally be ‘a flexible and adaptable individual who is not locked into the narrow and protected citadels of single studio disciplines.’ (Course documentation, 1993, p. 4)

‘A willingness to accept that there isn’t a defined and closed body of knowledge’

The School is based in creative, open-ended inquiry which encourages students to seek opportunities ‘to develop existing skills, to explore new avenues of artistic practice and to acquire the conceptual attitudes and technical knowledge necessary to commence a professional practice in art.’ The course aims to ensure ‘that students receive a broadly based course of instruction, with the possibility of flexible course design’ in order to develop artists who are ‘responsible to client demand, to changing concerns of content and [who] have the ability to respond to the development and maturation of their own artistic practice.’

The School recognises that ‘in the past we have greatly under-estimated people’s ability to make decisions for themselves’ and has ensured that on completion of the Foundation Studies course, students can choose whether to specialise early or late in the course and have open access to the full range of subjects available to them.

‘The University has a very clear view of its social purpose and its community purpose’

The Mt. Lawley campus of Edith Cowan University was established in 1970 as a college of advanced education and became part of the newly amalgamated university in 1991. It offers courses in Education, Arts and Social Sciences and Science and Technology, and houses the Western Australian Academy of Performing Arts, an impressive complex of studio and performance spaces where students undertake courses in arts administration, classical music, jazz studies, dance, musical theatre, theatre studies, production and design and the visual arts. The three schools of the Academy (the Western Australian Conservatorium of Music, the School of Dramatic Arts and the School of Visual Arts) promote a high level of community involvement on campus and performances, exhibitions and weekend workshops are well attended by the public.

All the staff members and students I spoke to were involved in some way with community art projects or in teaching in outlying areas. For instance, students conduct fund-raising activities to finance exhibitions of their own work; they mount working displays at community events such as National Wool Day; they operate group...
stalls at venues such as the Fremantle Arts Centre Christmas Fair; while staff mount their own exhibitions; teach courses at the rural centres of Geraldton, Albany, Bunbury and Kalgoorlie; and deliver programs through SBS television to remote Aboriginal communities.

‘Artists must themselves create their own market’

Art is continual inquiry into meaning and continual involvement with the ‘great imponderables,’ but nevertheless today’s artist cannot work cocooned from the realities of daily life. There are bills to be paid, commissions to fulfil, deadlines to meet, exhibitions to be arranged, studios to be managed. Now, more than ever before, the artist needs to be a professional, an entrepreneur, a business man or woman as well as a social commentator and creative being. Students of the visual arts therefore need, in addition to training in the technical aspects of their art and its expression, training in management and negotiation, accounting and book-keeping, marketing, exhibiting, grantsmanship and public relations to help them function in society.

This course gives students experience in developing a professional practice by introducing them to the arts industry and training them in the practical, day-to-day skills necessary for survival in a volatile profession.

The Professional Practice unit ‘is intended to inform the student about various aspects of professional life including presentation, business relationships, studio management and arts organisation.’ Very much a ‘real world’ unit, Professional Practice equips students to deal with such practicalities as legal, tax and business issues, gallery relationships and exhibitions, and requires final year students to ‘develop a major visual project in a community situation.’ To prepare for this, students must, throughout the whole course, experience field programs on location, visit studios and galleries, attend public lectures and set up on-going dialogues with professional artists.

‘We go through ups and downs depending on the level of involvement in the arts community’

Today’s visual arts graduates need the confidence and experience to deal with people without alienating themselves or their work from the community—a problem that has always dogged the artist to some degree. As well, they are plagued by the twin problems of time and money. The pressures they face in ‘working to order’ have remained essentially unchanged since the time of Michelangelo. Coupled with these pressures is the precarious nature of their professional practice: the balancing act between painting to live and living to paint. It is well documented that visual and performing artists are among the lowest paid of any university graduates (Graduate Careers Council of Australia, 1993, p. 9), and are, in the main, unable to find full-time employment in their own or even in a related field for some considerable time after graduation, if at all.

In 1987, the Review of Tertiary Arts Education and Training conducted by the Joint Liaison Committee of the Commonwealth Tertiary Education Committee and the Australia Council, found that graduates from visual arts courses were generally slow to become self-employed in their own profession and relied on part-time or casual
work in unrelated areas. Though the employment market for visual arts graduates still cannot be described as buoyant, this is not to say that the experience gained in the course of their undergraduate degrees is dissipated after graduation. Rather, visual arts graduates tend to be employed in areas such as the hospitality industry which give the flexible working hours necessary for private professional practice. However, government concern at this situation has grown to such a level that a recent Cabinet submission by Senator McMullan suggested subsidising employers of artists and tailoring employment programs and unemployment benefits specifically to the arts industry (Meade, 1993, p. 4).

The majority of new visual arts graduates finds work in the service industries as waiters and waitresses, bar attendants and the like. However, as a number of teaching staff pointed out, recent surveys of graduates in the United Kingdom showed that there are, on average, as many lawyers and architects who are not working as lawyers and architects, as there are visual artists working as waiters.

‘I have always been involved with visual art and visual art has always dealt with lifelong learning experiences...but I don’t think we say it enough’

Towards the end of 1993 Edith Cowan University adopted a new mission statement which reads:

The mission of Edith Cowan University is to serve higher education needs of Western Australia, and the wider national and international communities; to excel in teaching, learning, performance and creativity; to provide access to lifelong learning; and to respond to community needs through an ongoing extension, dissemination and application of knowledge. [emphasis added]

The values espoused here are developed further in the Academy’s mission and again in the philosophy of the School of Visual Arts which speaks of the need for its students to express ‘a spirit of liberalism, freedom of expression and the opportunity for personal self-fulfilment’ through the subject offerings which are ‘enabling studies which encourage all students to engage in constructive criticism of their own art works, to see their work in context and to present information and arts advocacy in a clear and rational manner.’

At the institutional level, at least, staff and students were no more familiar with their University’s commitment to lifelong learning than in other centres. Despite the fact that all those interviewed felt that lifelong learning and the visual arts went hand-in-hand, very few believed that adequate publicity was given to the concept in university rhetoric and even fewer were aware of the new University mission statement. Such recognition, was, however, felt to be fundamental to the teaching and learning philosophy of the School and inherent in the nature of the discipline.
'I think growth and development and change are more easily seen in the arts because they are demonstrated—they are hung on the wall.'

The three-way 'push and pull' tension between the art teacher, the art student and the art work creates numerous opportunities for personal growth and development on all sides. More so than in other disciplines, the art teacher tends to refrain from offering criticism of the student's work unless invited to do so. However, the student is encouraged at all times to be objectively self-critical and to involve his or her peers in assessing progress and development. Oral defence of the art work is an important feature of the course. The student and graduates I spoke to said that in particular they had appreciated the chance to learn to express themselves concisely and to think through and articulate the theoretical underpinnings of their work. Some of the mature age students, however, used to working in isolation without the benefit of open criticism from a group, admitted that they had found this aspect of the course difficult to come to terms with at first.

The School recognises that these mature age students face particular difficulties when they enter university. Often these are associated with their personal style and its 'rigidity' or inflexibility; sometimes they result from interpersonal problems caused by age differences within the student group.

To counteract this, the Foundation Studies course includes field trips and camps which contribute not only to the students' growing technical competence but to their social and interpersonal skills development. One of the mature age students interviewed had spent three weeks at the beginning of the year on an intensive drawing course outside Fremantle, 'really absorbing the area,' and gathering ideas which he later developed in his paintings. Some of the unease which he experienced in a group of students of all ages had disappeared on the camp, which the teaching staff see as a very positive way of assimilating new students into the art school:

....this camping thing really helps people to be more accepting of each other, more tolerant of each other, and when they come back it's easier to be more natural with each other, more honest with each other.

A septuagenarian, this student had retired from his profession at sixty and had then undertaken a six year art course at a TAFE College in Perth before seeking admission to the BA (Visual Arts) course at Edith Cowan. He was typical of many mature age students who pursue an interest that quickly develops into a lifelong commitment. He had enjoyed his first year experience so much, in fact, that he had converted to part-time status 'so it would last longer.' Apart from some predictable discomfort with using the library facilities, he had adapted well to full-time study and was even contemplating a postgraduate course in art teaching.
'You have a blank piece of paper on which you put marks, and every new blank piece of paper is potentially a new look discovery, a new disaster or a new success.'

The course gives students the freedom to make mistakes and take risks within a supportive teaching and learning environment. Inevitably, because of the way the course is structured, students become entirely responsible for their own learning in the course of their undergraduate studies. Though independence and self-reliance are essential qualities of the artist, visual art students, like any others, often need to be weaned from initial dependence on their lecturers. This is done through learning contracts in which the students negotiate with their lecturers what and how they will learn in a particular unit. More freedom to change direction mid-contract exists in the visual arts than in other fields, however, as often the medium or the developing idea dictate the direction that the learning will take and this cannot be constrained by fixed parameters.

Teaching approaches used in the School vary from one-to-one studio sessions to formal lectures but the emphasis in all is on empowering the student to learn independently, and more importantly, individually. Self-evaluation and comprehension-monitoring are fundamental to the student's growth as an artist, and for every learning experience students must provide supporting documentation in the form of journal entries, or photographic records of the developing art work. The presentation of these and the accompanying analysis and oral defence of the art work are integral parts of assessment, and an important preparation for arts advocacy.

'We must be one of the only courses where you are allowed and expected to make mistakes'

Visual Arts courses are perhaps unique in their approach to assessment which is often as much concerned with evidence of personal growth and development over time as it is with meeting criteria and achieving goals. To a large extent students' aspirations are guided by, but not determined by, teaching staff, who put the broadest possible parameters within which their students can develop.

Throughout the course students are assessed at mid-semester and at end of semester. Assessment takes the form of group criticism and discussion of the student's work on public display and subject to evaluation by a review panel of teaching staff. Students can choose whether to be assessed on a large body of work or a few selected works, but ultimately the works which they present must demonstrate growth, change and development. 'Failing,' or rather 'not succeeding' in a task or project is seen as a positive part of the learning process. Teaching staff view making mistakes as an essential part of life:

When you leave university, that is often what life is about—not always knowing the right solution but being brave enough to actually try something out and see what happens, analyse what went wrong, find out why it didn't work.

In this way, they contribute in no small way to their student's critical spirit and willingness to take risks.
**Prevailing Attitudes: A Snapshot**

Staff, students and graduates of the course saw lifelong learning as inherent in the discipline and the curriculum of visual arts. Experimentation, problem-solving, reflection, self-criticism, risk taking and ‘failing’ (seeing things go wrong), were all considered to be fundamental to the teaching/learning processes on which the School has based its philosophy:

We are teaching them skills to be able to survive out there in a very hostile environment. We give them a kind of self-sufficiency survival kit because there isn’t a direct profession that we are teaching and training people to go into.

The course is deliberately structured to enable students to move progressively towards independent learning and the development of an inquiring mind. Students and graduates agreed that at the end of the course they had much more autonomy over their learning than they had had when they commenced. The course is process oriented and:

by emphasising concepts and attitudes—attitudes to learning, attitudes to making art, attitudes to understanding, we move away from a ‘body of knowledge’ approach.

Teaching staff believed that graduates from the course would exhibit high quality technical skills, they would be innovative and constantly explore new territory, and that their innate sense of curiosity about the world and about themselves would drive their experimentation and lead them into unexplored territories.

Students believed that these qualities were achievable within the course, particularly as they felt that the School provided a ‘convivial support atmosphere’ in which they were encouraged to take risks. They felt that the course emphasised personal development and that they would leave the University with the ‘fire in the belly’ so necessary to the creative artist. A student commented that:

The important thing about this University is that it creates an environment where people give the best of themselves.

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An Inquiring Mind

BScience (Physiology)
The University of Adelaide

Introduction

Physiology at The University of Adelaide is offered to students in the Faculties of Science and Medicine in their second and subsequent years.

In 1990, the Physiology Department replaced standard tutorials and 'recipe-based' laboratory sessions with 'research practicals' which simulate real world research projects and which foster the development of inquiring minds. Students are given experience in conducting long-term research projects and work in small teams under the guidance of a Project Supervisor.

In common with problem-based courses in other disciplines, physiology students learn not only how to solve problems but to frame them as well. Knowing the right question to ask is as important as being able to provide the right answer and students in this course are encouraged to extend their substantive knowledge base by continually challenging the accepted wisdom. By introducing students to all aspects of research methodology early in the course teaching staff are confident that their future employment prospects will be enhanced.

The innovative teaching approaches and assessment practices used in the research practicals are under continual review in light of student feedback. Although there was some difference of opinion over the component of group work and peer assessment in the course, in general the students appreciated the opportunities these provided for critical self-evaluation and monitoring of individual performance.

'I think what we’re doing is important because it’s occurring early in the course’

Students from the Faculties of Science and Medicine come together in their second year for a common physiology course offered by the Department of Physiology. In 1989, teaching staff in the Department began tackling some of their concerns about the effectiveness of traditional, recipe-based practical sessions in which students retraced the steps laid down in the workbook and arrived at an answer which was already known and quantified. In this paradigm, laboratory sessions and tutorials were seen as ‘reinforcement sessions’ in which students applied theory delivered in lectures.

In 1990, a new method of practical teaching was introduced. The idea for research practicals in second year arose from staff’s observations that students who went on to do Honours after graduation were not well versed in scientific method and did not have the experience necessary to undertake tutorial teaching. It began to make sense to introduce research methodology much earlier in the course, at second year. A medical student made the observation that in the physiology course, the integration of
theory and practice ‘is timed to perfection, because it’s not trying to reinforce the body of knowledge, it’s trying to teach us something completely different, and that’s methodology.’

The goal of the research practicals is to teach students how to conduct practical research using scientific methodology. Course documentation states that students will become familiar with:

- the proper formulation and testing of hypotheses;
- the structured planning, design and execution of experiments;
- the application of appropriate methods to collect, record, analyse and interpret experimental data; and
- the ability to communicate scientific information in written, visual and oral forms.

The research practicals aim to develop students’ independent learning and ability to access and use available resources to solve problems. Students learn how to critically evaluate literature in the field, to think laterally, and to make individual and group judgements based on the analysis of data. Above all, they learn that knowledge is not absolute but that its validity depends upon all kinds of variables. Staff from the Department felt that by introducing students to research methodology earlier in their degree program, they were encouraging them to engage actively in the learning process and to build a foundation of research skills that would equip them for their future careers.

‘It’s something where you take it from the beginning, you’re involved with it every stage along the way, and then you get a result’

In the physiology course, students can conduct their own research in fully equipped laboratories and computer suites, using themselves and their peers as subjects. Students work in small groups, or research teams. They must complete one research practical in each semester of second year, in two of four discipline areas within physiology—cardiovascular, renal, respiratory and neuromuscular. As the emphasis throughout the research practicals is on process rather than content, staff feel confident that no student is disadvantaged in the examinations if they have not covered all four discipline areas in their research practicals, although not all the students I spoke to shared their conviction.

To help them define their area of research, students are provided with a simulated Research Project Application Form which they complete as if applying for a real research grant. They need to provide details, for instance, of the aims and potential significance of the project, the hypothesis that will be tested, the research plan and the infrastructure support needed. Guidelines for the completion of this application are provided in the user-friendly handbook that accompanies the course. They are given a Project Information Sheet in which they outline the nature and methodology of the project before giving it to their human subjects to sign for consent.
Each group is allocated a Project Supervisor (a lecturer or tutor) who acts as a resource person for the whole group. The Project Supervisor is responsible for monitoring the progress of the research through its various stages, ensuring that students understand the physiological basis of their research and helping students resolve problems as they arise. Students appreciated having a resource person available to help them when required, and one commented that:

The supervisors, once we were underway with our project it was more, you know, when we needed help or when we were stuck with something, we'd say 'Right, we need help, can you suggest possible ways we can go from here?' I mean, they knew exactly what we were doing and where we were going but I think it was important that they sort of left us for a while. If you don’t have that input it’s so easy to go off on a tangent. All the way through you need someone saying, ‘What are you doing here, and is this really the best way to do it?’

The innovative approaches adopted by the Department of Physiology have received considerable acclaim. In 1993, for instance, The University of Adelaide published its Quality in Teaching and Learning document which described the research practicals in the Department of Physiology as one of the most innovative programs within the University:

Across the Department, research output was reduced for one year while teaching, support and administrative staff made decisions together about the aims and design of courses and considered the range of factors involved, such as academic preparation, practicalities of implementation and resource priorities. Review and refinement of courses and practice are continuing. Student responses to the programme are overwhelmingly positive. They are able to learn research methods in a setting that is well mapped out and purposeful. They are helped to choose problem tasks that are appropriate to their knowledge base, to set realistic goals and timelines, and to select and use a range of procedures in collecting, organising and generating information. Over subsequent years of study, students are able to participate in collaborative projects that use increasingly sophisticated knowledge and methods. (Part 2, p. 4)

‘It’s very difficult because it puts enormous stress on everybody’

However, the innovations have not been without cost to the staff in the Department who outlined some of the difficulties they had experienced in the change-over period as stress, burn-out, insecurity and anxiety. Not the least of their problems were the entrenched attitudes of those students and staff who clung to the lecture-tutorial mode as the most effective teaching approach without recognising its shortcomings in terms of student learning. Students still attend formal lectures which are used to give a background to the discipline areas within physiology. However, the lectures are grouped and presented in modules whose titles give merely an overview of the topics to be covered, e.g. How do you feel, how do you move, and what makes it happen?; Hormones and health; What’s it all about? and so on.
Despite some staff’s misgivings about the retention of formal lectures, others felt that it was essential for students to acquire a comprehensive vocabulary in the discipline before they could move into problem-based learning and that this could best be achieved through the lecture mode. This was confirmed by the students themselves, especially those in the Faculties of Medicine and Dentistry, some of whom disagreed strongly with the move to problem-based learning in second year:

I believe it is necessary to equip an undergraduate student with knowledge. Once you’re comfortable with that, once you’ve learned the vocabulary, once you’ve developed some sort of appreciation for the topic, only then is it pertinent to go on and extend your knowledge by looking at problem-based issues, and so I disagree with the philosophy that at second year level it’s a good idea to actually jump straight into problem based learning, because there isn’t the time, and you don’t have the vocabulary and it’s too confusing. You need to be equipped for that and then say, ‘Okay, well I now know about it, let’s extend it.’

The kinds of tensions that such divisions give rise to within Departments are echoed in those that arise between Faculties when conceptions of curriculum design differ on such fundamental issues as integration. Measures were taken in 1994 to integrate the anatomy and physiology components in the first year medical curriculum under the title, Structure and Function. Teaching staff in physiology, recognising the difficulties students face when some sections of their curricula are integrated but others are not, are more confident that this will have lasting benefits for students’ understanding of the way the various aspects of medicine fit together in the whole.

Teaching staff in the Physiology Department, however, felt strongly that applying ‘one coat of paint’ in the second year physiology course was only partially effective in making large scale attitudinal changes. To be successful, the problem-based approach needed to be introduced at first year level in a fully integrated curriculum.

Other difficulties have arisen because the changes were introduced largely as a result of ‘gut feelings’ without drawing evidence from the literature and with no mechanisms in place to evaluate the effectiveness of the changes. This situation has been rectified recently with tests being conducted to cross-correlate results in problem-solving abilities and factual recall in examinations. At the time of interview, no findings were available.

Students, too, had experienced difficulties in the approach to practical teaching. They spoke of their dissatisfaction with the arbitrary way in which they were allocated to groups within discipline areas. Some felt that their lack of control over this aspect of the research practicals limited their participation in the groups and their general commitment to the group process. One student, for example, said that:

The main disadvantage of this is that there’s a lack of interest. I mean, you don’t have any say in whether you want to be there, which one you want to do, and the only reason for doing it is because you have to. In a postgraduate setting you would want to conduct the research, you would have an interest. Whereas, at this stage, people simply don’t want to know about it, and you get very dysfunctional groups happening. Just about every group I’m aware of is dysfunctional. There’s one person carrying
the group and the rest just ride the wave. I mean, in real life, you’ve nominated yourself for a particular committee or a group because you have some interest in it. You are not told, ‘You will do that.’

Resistance to the research practicals seemed to come mainly from students in Medicine and Dentistry who were perhaps more attuned to the traditional notion of having ‘ten practicals to do and write up and complete each day.’ A Medical student, for example, made the observation that many students just wanted to pass the examinations and get out:

They don’t really want to be involved in these practicals that take five hours every afternoon and huge write-ups and literature searches, and the like. Things that haven’t got a direct benefit towards an exam mark are not very popular.

Teaching staff in the Department, however, were enthusiastic about the outcomes of the research practicals. A lecturer commented, for instance, that it was easy to underestimate students’ capacity to work independently and in groups. She said of the research practical component of the course that:

Its potential is really enormous, and that is because, I think, the students have moved much faster with it than we perhaps had imagined they would. It shows perhaps how limited we often are, underestimating our students’ capacity to think it through.

Similar comments were made about the ‘excitement’ and the unpredictability of results from the projects and the degree of involvement experienced by the students working in small groups, e.g.:

We’ve taken it a long way here, and I guess it’s endless, which, as I say, is a bit frightening. Every time I’ve introduced something it’s just gone, ‘Fwoomp!’ — you know, like unbelievable.

‘It involves me with the students’ needs at the time when they actually need the information’

The development of students’ information literacy skills is a main focus of the research practicals. With library support, students are introduced to the relevant databases (Medline and Index Medicus) and the subject librarian commented that:

It would be nice, good, useful from the library’s point of view if some explicit acknowledgement were made of the role of the library at each stage of the student’s career so that the library knew precisely what sort of work the students would have to do during that semester and that year, and could tailor a package, if you like, a resources package around precisely what they’re going to be needing and hopefully time its delivery around the time when they actually need to access the information.
I guess one of the good things about physiology is that that’s precisely what happens. They get the exposure to Medline at exactly the time, or within days of, when they actually want to do their searching for journal literature. That’s opposed to some courses where you may be talking a semester in advance of when the students actually need the information we provide them.

A student confirmed the value of linking information retrieval skills with course content when he said:

that was one of the greatest helps of the research projects because we had to go and get the journal out ourselves, and we had to learn how to use the Index Medicus and Medline and go to the library, and we had to do that right back in second year, which is why it was so different from the other courses that I did.

Another outlined the main benefits which she felt she had gained from the research practicals:

You have to know what you are doing, rather than just following step one, step two, step three. For that reason it’s important, and also, when you’re researching for the practical, you realise how much things are changing. There’s a tendency for people to think, well, this has been found therefore that’s true, but you realise how much things are changing when you see the conflicts in the literature because you have to research it yourself.

‘One of the skills you require in the workplace is to assess the strengths and weaknesses of the other members of the group and then to shore them up in whatever way you can’

The research practicals are designed not only to develop students’ research skills, but their interpersonal and communication skills as well. Staff believe effective small group work is a reliable predictor of success in the workplace. Students in the physiology course, like students everywhere who had experienced working in small groups, were divided in their opinions about the value of the group process but unanimous about the value of the learning outcomes. Most complained about the inequalities in sharing the workload, in having to ‘carry’ certain members of the group, and in the assessment practices in place to evaluate group work, but by and large they felt that they had gained enormously in confidence and their ability to work with people on a joint project.

One of the most interesting innovations in the course is the way in which students are assessed individually and as members of a group. Written examinations account for 70 per cent of the year’s work, while research practicals account for 30 per cent. Questions in the examination test students’ knowledge base and vocabulary in short answer format, graphs and calculations, as well as their problem-solving abilities. Students are required to formulate an hypothesis in response to a given observation in clinical physiology, and to develop a research project to test it. In this way, students...
can demonstrate their ability to transfer individual skills learned in the context of small group project work to a formal examination. A lecturer described the reasons behind the composition of the examination paper:

We're cross-correlating performances. We're looking at whether students who do well in the project-based practicals perform well in a question session examination using some of those problem-solving skills, so that for the first time this year we've introduced a question on the examination paper which sets out to get the students to use the same skills that they do in prac, because I was concerned that we had this complete schism between the lecture based course and the practicals.

The 30 per cent allocation of marks for research practicals is distributed over a literature review (5 marks), group contribution (5 marks), poster presentation (10 marks) and a written report which takes the form of a scientific paper (10 marks). Assessment in the research practicals takes place progressively and the criteria for each component are clearly set out in the course handbook. Marks for group contribution are awarded at three stages of the project: during the preparation for the project; the execution of the experiment; and the preparation of the results. The assessment sheets provide room for each student to make both quantitative (including attendance and measurable contribution to the group process), and qualitative (including motivation and encouragement, and knowledge and skills) comments on the performance of the other members of the group. Staff believe that in assessing the contribution of group members to the research project, each student will necessarily reflect upon his or her own individual performance.

Feedback on individual performance within the group is, however, not revealed to the students, who sometimes feel disadvantaged as a result and even disillusioned that group contribution and participation are given such a low weighting in the overall system of assessment. A graduate felt, on the other hand, that the measures for group assessment using criteria were 'an excellent idea' because:

even if our marks weren't being used—I mean, I think they were only like a tiny per cent which doesn’t matter—it’s sort of right, you know, you can sort of say, ‘So and so hasn’t done anything,’ you know, this is it.

A student commented that working in groups not only developed communication and interpersonal skills, but contributed to long-term retention of knowledge:

It is good in the discussions that you have amongst the other members of the group. It helps you. With other sorts of practicals you might just go straight to the lecturer and ask them and they'll tell you the answer. You probably forget it as soon as you walk out, but when you're in a group you have to discuss it and work out why you’re doing what you’re doing. You remember that because you’ve worked it out yourself.

The poster presentation involves students in preparing and defending a visual representation of their research findings. It aims to develop their communication skills by requiring students to give a short oral defence to the three examiners, and their peers, in which they are asked to explain their methodology and results. Marks are
also awarded for the effectiveness with which they show that they understand the purpose of their project, the significance of their results in the context of their research, and that they appreciate the limitations of their methodology and experimental design and that they can suggest future directions for their research. One student realistically appraised the benefits she had experienced from making poster presentations, among them the ability to be self-critical:

First of all, we had to work as a team, so I guess that although it didn’t work out terribly well at the time, it helped having to work as a team. It taught you, well, how to attempt to get the information across to other people. I say attempt, because I don’t think we did a good job. I think that the main aim is to be able to convey what you’ve done to other people in a simple way, and that helps. In this year, I’ve had so many oral things to do that the experience back then was important. A lot of undergraduates, when they’ve got a seminar to do they’ll just read from a piece of paper and think that’s how you give a seminar. And so it is important to be able to learn to have the confidence.

Both students and graduates of the physiology course felt unequivocally that their experience in the research practicals had given them the level of technical and interpersonal skills needed in the workplace, as well as the qualities of initiative, motivation and inquiring minds. A Dental student, for example, felt that he would not have developed his communication skills to the same extent had he relied on his own Faculty, where:

whenever we’re in a clinic with patients there’s almost no communication with the patient. You sort of herd them in like sheep, sit them down, bolt them in, strap them in, put on their glasses and go for it, without explaining what you’re doing, why you’re doing it, or giving them some chance to make a decision in the process and generally increasing their feeling of well-being about the whole encounter.

Overall, students were happy with the combination of individual and group assessment measures. Staff indicated that assessment practices, teaching approaches and indeed, the whole course, were constantly under review in light of experience and student feedback.

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Cautionary Tales

It was clear from the interviews that the introduction of the research practicals into the physiology course had caused some problems for teaching staff. They offered the following suggestions for colleagues who might wish to make similar changes to their curricula:

First, be aware of and cater for the additional stress upon teaching staff who are required to change their whole teaching approach in order to become ‘project supervisors’ and facilitators of learning, rather than ‘teachers.’ Relinquishing control over the teaching-learning process inevitably produces feelings of insecurity and anxiety in teaching staff, who need to be given adequate preparation for their new role. The Department has recently applied for University funding to establish a Tutor Training Program to induct new teaching staff into the ‘culture.’

Second, be aware that the changes will not be effective unless all staff believe in and are committed to them:

It’s a bit like a sort of religion. They have to believe, you know—it’s that sort of emotion.

Third, make sure that there are mechanisms in place to monitor and evaluate the changes as they are implemented in the curriculum. Don’t rely wholly on ‘gut feelings’ or anecdotal evidence, but use a more ‘scientific’ approach towards the change process.

Fourth, endeavour to integrate the whole curriculum, not just parts of it, for each part will place different expectations on the students who do not necessarily have ‘the skills to work out which are the ones that matter.’

Fifth, recognise that making innovative changes to the curriculum draws energy away from the Department’s research profile, so ‘there has to be positive support directed at the people who are putting in the effort.’ The support has to come from the top, and it must be ‘absolute’ and ‘concrete.’

And lastly, but most importantly, introduce students to the process of learning at first year level—don’t wait until second year when they have already received one ‘coat of paint’ which more often than not proves difficult to remove. Ensure that they have acquired the necessary vocabulary in the discipline before they embark upon problem-based learning.
Introduction

The Veterinary Studies course at Murdoch University is a five year program comprising an initial three year BScience degree and a further two year degree in Veterinary Medicine and Surgery. The course is characterised by the hands-on, practical experience which students receive in all aspects of animal care and treatment.

This profile explores ways in which the course has been structured to promote individual inquiry into areas of special interest, often in fields far removed from the discipline of Veterinary Studies. Though course design and teaching approaches are aimed at broadening the undergraduate experience, the interviews revealed some significantly divergent opinions regarding expectations and outcomes of the course, and in particular, the value of the foundation courses which all students at Murdoch are required to undertake in their first year.

Options for individual inquiry in the course structure

Murdoch University is committed to the belief that undergraduate education should provide as broad as possible a base for later specialisation. In the first year of the Veterinary Studies course, therefore, approximately half the course is devoted to foundation courses and electives. In addition to the foundation courses, students are required to undertake a course in information literacy which is run by the School, in conjunction with the Library and the Schools of Mathematics and Physical Sciences. The course covers information retrieval skills, how to use the library, how to reference sources, write essays and study effectively. As it is linked closely to the students’ particular areas of interest it does much to satisfy their initial impatience to ‘get on with vet.’ A lecturer said:

When they come into first year they are dying to be vets, but a lot of their first year is made up of traditional science and biology subjects. So what we are saying to them is, ‘We will teach you techniques, and you go away and come back with a report on various metabolic diseases, bloating in cows, lameness in dogs,’ something that they associate with being a veterinarian. Some of them we offer a selection of veterinary diseases that I and other staff have already been through very carefully to know that if you seek information you won’t get flooded. They feel very good about knowing something about being a vet. In that sense I think it is setting the stage for them to use information retrieval linked to a very clear purpose.

The course is notable for the scope it offers students to pursue their individual interests outside the prescribed study areas. Further choices are available to students in second and third years when they are required to study in one elective area as well as in the prescribed subjects. They are able to choose from areas as diverse as foreign
languages, music, English for scientists, etc., which, according to a member of
teaching staff, allow 'students to diverge from the mainstream and apply particular
interests and develop them.' Students in general appreciated the range of choices
available to them, but were critical of the way these options were presented to them.
Many felt there should be better and more informative 'marketing.' One student told
how he was initially very confused in choosing his elective:

When you come on the first day you have absolutely no idea of what is going to happen
to you. That was terrible. Choosing courses was terrible because you really didn’t
know anything. You get this little handbook that has got all the courses listed,
prerequisites, and so on, but you don’t really know anything about university at all.
I think if that was better explained it would help people make their choices a lot better
and maybe get along a lot better if they chose the right thing.

Second and third years require students to study in one elective area as well as in the
prescribed subjects, and fourth and fifth years include three Special Assignments (one
of which may be an Independent Study Contract initiated wholly by the student).
Special Assignments allow students ‘to study specialist aspects of veterinary science
and to allow further studies in subjects in which the student has a particular interest.’
Electives in subsequent years enable students to pursue interests as diverse as foreign
languages, music, and English for scientists, allowing ‘students to diverge from the
mainstream and apply particular interests and develop them.’

In fourth and fifth years, students can choose areas of special interest from a wide
ranging, comprehensive number of topic areas. Called Special Assignments, at least
three may be studied under the supervision of a lecturer with special expertise in the
field.

One of the three Special Assignments must be in the form of an Independent Study
Contract which the student negotiates with the staff member. Often these form the
basis of subsequent postgraduation specialisation:

For instance, I teach reproduction and infertility in the final two years and I have a
student now who is looking at preservation of semen and artificial insemination in
dogs. He is in final year, and it is an area he is looking at as an area of specialisation
when he graduates. It is somewhere below Honours level but the contract essentially
allows the staff member to supervise and give guidance, but the student does have to
do the basic research, and, under some supervision, practical experience.

Small group work is encouraged, and as students must complete both project reports
and seminar presentations, they quickly develop effective interpersonal and
communication skills. Flexibility in the structure of the course clearly contributes to
the development of independent learning and a strong concept of individual worth. A
final year student commented on the way in which his own attitude to learning had
changed since he began the course:

In first year a lot of the courses weren’t related to the things I was interested in and
I found I just studied them just to study them, because you had to. Whereas now I
study them because I need to do it to get to where I want to go.
The Veterinary Studies curriculum is partially integrated, though much of it relies on a standard incremental progression through year level subjects. In second year, the topic area, the Animal Body, is presented in an integrated way linking the broad subject areas of anatomy, biochemistry, embryology, histology and physiology, e.g.:

In second year there are four big courses, anatomy, physiology, biochemistry and histology, and what they do is they teach it in order of organ systems, so when you are doing the gastrointestinal tract in anatomy you will also be doing it in biochemistry, histology and physiology, and when you are doing reproduction you will be doing it in all four. It is the best system because it means you don’t get it all jumbled up in your mind. It means that you can see the sense in doing something as dry as histology. The big one in second year was the rumen, that just blew me away, because you have this big organ that doesn’t look like much and then they tell you how it all works, and what goes where, and it is just fantastic, so I really got a lot out of integration.

Course documentation states that the integration component aims to prevent fragmentation within the topic area by drawing all the component parts together in a coherent whole in a set of six lectures which are complemented by tutorials. Whether a partially integrated curriculum can be effective is debatable. Certainly this Report found that ‘integrating the curriculum within one discipline areas is generally acknowledged to be insufficient to give students the broad perspective and helicopter vision of the lifelong learner’ (p. 93). In all probability, partial integration within one topic area in one particular year level is even less effective and will only succeed if presented to the students ‘coherently.’ Students’ and graduates’ opinions on this issue certainly varied. While some appreciated the intent behind the integration process, one student was more critical:

I think it would be good if they were all run towards a simultaneous thing. I know they try to do it, but if you, say, look at the histology of the renal system and then the physiology and then the anatomy all at once, then it would really be good and you would learn the system from start to scratch, but they all get out of sync. You could be doing lungs in histology and kidneys in physiology and anatomy all at once, and after a while they don’t seem to be related at all.

Practical experience

The Veterinary School at Murdoch is unique in Australia because it combines its teaching, farm and clinical facilities on one campus. Apart from the obvious logistical benefits this presents, students and staff felt that another, equally important benefit was the sense of fraternity this promotes. The site comprises a farm, a small animal clinic and equine clinic which are open to the public, major research and diagnostic laboratories, a native fauna unit and a toxic plant garden where students become familiar with common toxic pasture plants. In addition, the school houses the Veterinary Studies Foundation which coordinates continuing education programs for practising professionals. Undergraduate students are invited to attend these programs free of charge to encourage them to continue learning after graduation.
The practical experience component of the course begins in second year when the students spend one week working in the Small Animal Clinic and Hospital. They learn how to interact with clients, take case histories, and carry out basic procedures. Communication skills are strongly emphasised in clinical work and are taken into account in assessing students. The course is very ‘people-oriented’ for, as a lecturer put it, ‘You can be the best skilled vet in the business but if you can’t sit down and talk to your clients you’re not going to get anywhere.’ These sentiments were echoed by a student who said:

General veterinary practice is really hard work and a lot of it is quite boring. Most of the things you are dealing with are not problems with the animals, but problems with the people that own them. You might know how to fix the animal, but it is the owner who has the problem.

In addition, second year students spend six weeks living and working on a farm which becomes an important part of their acculturation:

A lot of our students have a city background so we make our students go and live on a farm during the first three years of the course. We actually pay the farmers to take them and feed them, we pay them enough to cover everything, but they are not out there just as farm labour. We want the farmers to take them to the market and show them what it is like living in the country and what their problems are.

In third year they spend a further six weeks on a farm and are given formal introduction to the work of the Veterinary Hospital. Students are allocated to a final year student under a voluntary ‘buddy system,’ and they assist this student in the wards. This gives them the necessary introduction to clinical work before they begin the fourth year rotations—a series of practical laboratory sessions in Applied Veterinary Medicine in each of the five discipline areas: Pathology, Clinical Pathology, Large Animal Medicine and Surgery, Small Animal Medicine and Reproduction, and Public Health. In addition to the clinical experience and rotations, fourth year students are required to work for 12 weeks in either Small Animal Practice, Government Practice, Meat Hygiene (Abattoir) Practice or some other practice (e.g., Zoo) before progressing to final year.

A final year student described his feelings about the practical component of the course:

It is really intense learning. You take over some of the case work and it is much easier to learn about the cases if you see them when they come in—you are much more incited to go and read about the things that you see. The next day you are going to have to know something about it so you zoom off and read all the things you need to know. It’s been fantastic working with the clinicians and meeting the public in the various areas. That has been great, that has been the best thing.

In final year the practical experience component includes work in the Hospital and in addition, takes students outside the University to:

- gain further experience in practical techniques and their implementation in day-to-day veterinary practice;
• gain an insight into practice economics, client-practitioner interaction, veterinarian-staff relationships and other practicalities concerning the veterinarian;

• experience a variety of veterinary pursuits and thereby gain a clearer understanding of his/her own vocational preferences. (Course documentation)

This practical experience aims to prepare students for the workplace by familiarising them with some of the practicalities involved in running a clinical practice. Students see daily decisions being made 'on the run,' they see procedures being carried out, and they experience the dramas that are part and parcel of veterinary practice. Above all, they learn that they will be practising in a field where often there are no right or wrong answers, where clinical decisions are often a matter of judgement. A lecturer described it in this way:

It is a matter of judgment and I think that that initially confuses them because they have come through a science course where everything is measurable and suddenly they are presented situations where nobody really knows.

The sort of interaction with the staff right there on the coal face stimulates a lot of inquiry in them and a realisation that they had just better keep on their toes and have got to keep on learning because they have to continually update their knowledge base to make these decisions.

Frequently during the interviews comments were made which suggested that employers of veterinary graduates expected them, often unrealistically, to come equipped with highly developed technical skills. As well as causing new graduates to feel inadequate in the first few months of their employment, employers' expectations often produced conflicting interests within the School, particularly as its aims were clearly directed at preparing students to continue learning throughout their professional lives. Comments such as the following were typical of those made by staff and graduates of the course:

Employers want a fairly standard set of skills, people who can perform certain manipulative procedures or certain types of surgery or certain types of clinical examinations. The skills required are not what I see as being the most desirable. They are immediate skills, and classically our employers, who are usually veterinarians out in the suburbs or in country towns, would like a graduate to arrive after graduation and take over while they go on a protracted holiday. That requires immediate, practical skills.

We have a responsibility to prepare people to learn rather than imparting all the practical skills that are required.

Conversely, many of the graduates had similarly unrealistic expectations of the level to which their course could equip them with the skills to deal with the public and handle difficult situations, when role plays were not included in the repertoire of teaching approaches, e.g.:
I was in a mixed practice which meant that I was doing a fair amount of work with horses and cattle and horse and cattle type people who often had a thing about vets, in particular slight, pathetic looking female vets. It is essential to like animals and have an empathy with them, but it is far more important to be able to get on with people.

Certainly I don't feel we got nearly enough experience in working with the public and facing adverse situations, for example, the distraught person with the euthanasia cat, or the person who comes in to dispute their bill, or the person who wants to buy restricted drugs over the counter.

Teaching approaches

Guest lecturers are invited to contribute to the course at all levels. The fifth year unit, Jurisprudence, Practice Management and Animal Welfare includes a two-day workshop on Practice Management and involves guest presenters from specialised fields and practising veterinarians. As well as its close involvement with the profession, the course is characterised by its small group teaching and practical, hands-on experience with the staff in clinical situations where students felt much of their learning occurred. Most of the clinical teaching relies on personal interactions and question asking:

We have a fairly informal staff/student relationship which is difficult for some people, but most have adapted well. It mostly is a first name basis and the interaction is with another person, not a position. I think that the interaction and the realisation of presenting problems and asking questions all the time at that level develops that sense of needing to learn.

Questioning is incorporated into many of the formal lectures. One lecturer, for instance, gave his views on lecturing as a stimulus for ongoing inquiry:

I think when you lecture, it should not just be a transfer of information, it should also compel them to go into something further so that they have to use their own time and look further into something. What you have to do is to leave some questions for them to go and find out for themselves.

Problem-solving is an integral part of clinical teaching and a graduate spoke highly of its usefulness in practice:

We were constantly trying to get back to basics on why something had happened, trying to keep in mind the practical side of where this thing might have come from, what might be affected, where it might lead.

A variety of teaching approaches from formal lectures to independent study contracts is used in the course to contribute to the development of a spirit of inquiry. Ultimately, however, the single factor identified by the students and staff as most likely to guarantee that they continued to learn throughout their lives was the
intellectual ambience of the whole School and the commitment of teaching staff to ongoing inquiry. A student summed up his experience of the course in terms of his relationship with the teaching staff:

The enthusiasm of the people who lecture us—that takes us through the course. They are all very dedicated and they are all very good people and it is very personal. They help you on a personal level and they know who everybody is and they help everybody individually, more or less. The fact that we get to work in small groups really helps.

It was clear that the students enjoyed the diversity of teaching approaches which encouraged interactive learning. A first year student outlined some of the teaching approaches she had experienced:

I think you learn best when you are enjoying it, so as far as that goes it is very important if a lecturer who is up there just occasionally throws in a joke and lightens the whole atmosphere and makes it easier to then focus on what you learnt. Also, just a change of pace helps, like if you have twenty minutes of talking and then suddenly an activity...just things like that. Because changes stimulate you as well. If every day, day in, day out you just got this lecture presentation then it tends to become a bit dull. Also it often helps if you get handouts of the lecture. You don't have to try and get down the notes so much and then you can listen more. But then, by the same token, it doesn't always help if you just get the notes and you think, 'Yeah, right, we got the notes, have a look later.' You never get back to them. I know just recently we had a set of notes, a thick handout and that was very good, but she left blanks in it, so then later on we had to fill in the blanks, which was good.

Foundation courses

The interviews revealed a wide range of opinions on the value of the foundation courses which all first year students are required to undertake as part of the broadening purpose of undergraduate education. In 1987 Murdoch University passed a policy resolution which stated:

that each University Foundation Course include as one of its major objectives the role of introducing students to University study skills, including knowledge of library resources and information retrieval; critical evaluation of published work; writing an essay or review; independent study; demonstration of numerical competence; oral participation in tutorials or seminars and that University Foundation Courses should be interdisciplinary, and include a teaching component from disciplines from outside the School.

Since then, all first year students at Murdoch have been required to complete either three or six credit points in the several foundation courses offered by the different Schools. Courses currently available are similar to those offered by Context Curriculum at the Royal Melbourne Institute of Technology and the General Studies Program at the University of New South Wales—broadly-based inquiries into the nature and context of scientific and social issues, namely: Australia and its People; Evolution and Change; Foundations of Science and Technology; Futures; Life and the
Universe; Rationality, Conflict and Power; and Structure, Thought and Rationality. Each of these courses aims in some way to broaden undergraduate education by giving an interdisciplinary perspective to otherwise narrowly defined areas of specialisation and to integrate learning to learn skills with the course content. The School of Veterinary Studies offers the foundation course, Evolution and Change, described in course information material as an opportunity to sample:

disciplines from across the University and [to look] at how kinds and theories of change relate to them. Topics are drawn from the physical universe, from biological forms, from individuals and society, and from culture, language and thought. Each topic is considered in sufficient depth to provide an inkling of its substance and has as its focus the changes that have occurred, the factors that promoted them and the way the changes are measured and experienced.

The rhetoric is worthy, the aims are noble but the reality is somewhat less than perfect. According to one staff member, the foundation courses are based on the need to ‘set people up for continuing learning’ by giving them the opportunity to study ‘a whole smorgasbord of subjects’ from a variety of discipline areas. While the intention clearly is to encourage students to look outside their immediate School to choose a foundation course in order to make connections between fields of study, in reality many students opt for the course most readily accessible and stay firmly within the confines of the Veterinary School without being fully aware of the possibilities available to them. Those who had ventured out seemed pleased with the insights they had gained into the way issues are debated, analysed and evaluated in other disciplines and had appreciated their exposure to different teaching approaches.

A comparison between the views of staff in the School of Veterinary Studies and those of its students and graduates reflected some divisive views and differing opinions on this issue. While some staff felt that inclusion of the courses in the undergraduate curriculum reflected the University’s commitment to making students ‘aware of the need to learn and also to learn in broader fields before specialisation,’ others doubted the intellectual rigour of the courses and some felt that they would more effectively achieve their goals if they were spread throughout the degree course and not restricted to the first year experience.

One member of teaching staff described the foundation courses as ‘a stop gap to try and bridge the students across, to fill in things that haven’t been done at school,’ and doubted the place of learning and study skills in the undergraduate curriculum. A student who had just completed first year agreed with this:

There are a number of foundation courses that you can choose from and I have heard from people from all of them that they are a waste of time. I know that sounds scathing, but it doesn’t take much effort to realise what they are going on about. They emphasise things like how to write the analysis of a particular article, and so on, and I had those sorts of skills in Year 12. That subject is basically a waste of time in terms of the skills that you learn.
The only thing the foundation course did was that it arranged you in groups of people and they would give you a booklet outlining how to access the library information services, which I think is a necessary thing to know.

Other students and graduates with whom I discussed this issue felt, too, that the subjects lacked intellectual rigour, one student describing them as 'airy fairy,' another as 'not much help at all,' and a graduate as a longstanding 'bone of contention' within the course structure. This is not to say that they devalued the broadening experience altogether, for they could see greater worth in the concept of the foundation courses after they had completed first year, but in general they were far more appreciative of the options for electives and independent study contracts which they were required to undertake during the course as a means of developing a broader perspective and a sense of the interconnectedness of fields.
**Conflicting Opinions: A Snapshot**

The School of Veterinary Studies is characterised by its sense of inquiry and the commitment of its staff to preparing students to cope with change. Lifelong learning, while not seen as inherent in the discipline, was seen as inherent in 'the system' and was linked closely to the need for continuing professional education. While there was widespread recognition of the need for the undergraduate curriculum to provide students with helicopter vision, within the School opinions differed over students’ expectations, the School’s aims and desired learning outcomes. Students expected to graduate from the course with at least the necessary technical skills to become practising veterinarians:

I was lucky in a lot of ways that I got on with people without too much trouble, so that was something that I took with me and I don’t really think university gave me that. But certainly I was as well equipped as I could hope to be for mixed practice on an academic and a practical basis anyway.

The School, on the other hand, had the broader aim to present a course that balances technical and generic skills development, in particular a sense of the interconnectedness of fields and ability to deal with change:

We are training very good biologists who understand life systems and adding to that some additional skills which will include surgery and medicine and pathology and the like. We set out to develop in them a sense of the broad picture, and that it changes fairly rapidly and the knowledge base changes and they should be aware of this.

Despite the staff’s best intentions, comments like the following from a graduate cast some doubt on whether the expectations and aims of the course were in fact being translated into the desired learning outcomes:

When it all comes down to it, I really don’t feel that the vet course is about producing inquiring minds, I think it is about turning out veterinary technicians. The veterinary course does not turn out particularly good scientists, we are not trained particularly well to think to extrapolate outside the bounds of ‘Well, this goes for a goat therefore it must go for a cow,’ as opposed to say, the biologists, who are excellent scientists. They can think all the way around a problem. They see the whole picture much easier than we can, because we are trained to diagnose and to observe in a very narrow field.

Overall, however, there was a high level of satisfaction with the course as summed up by a final year student:
I think it really prepares you to be able to start a career as a veterinarian and to keep learning as a veterinarian. The School does very well in giving you certain responsibility for doing that. They show you how important it is to keep learning. They prepare you to be a vet and also you get enough technical skills for you to survive in the first years and learn something.

Requests for additional information should be addressed to:

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Introduction

The Department of Computer Science at the University of Tasmania offers a range of generalist and specialist courses to students from all faculties. Its courses have a strong interdisciplinary focus with the majority of its students coming from the Faculties of Arts and Science.

The nature of the discipline ensures that ‘there is no other discipline in the university that changes as often and as continuously,’ and this ensures that programs are designed so that graduates from the course are flexible and adaptable to change. Above all, the Department recognises that its graduates need to possess high level communication and interpersonal skills and to understand how knowledge is created and defined in a variety of fields.

In 1992, the Report of the Discipline Review of Computing Studies and Information Sciences Education laid down clear goals for Australia's education and training needs in information technology. These were summarised as follows:

- greater emphasis on flexible and multidisciplinary course structures;
- courses which emphasise a ‘design,’ ‘engineering’ and ‘systems applications’ approach to Information Technology;
- a greater employer involvement in course planning and delivery;
- more industry-based learning; and
- a much greater emphasis on continuing education of professionals. (Summary Vol. 1, 1992, p. 5)

In preparing this profile, we have looked at how the BComputing course at the University of Tasmania is addressing these goals while ensuring that its students experience a broadly-based education.

‘Greater emphasis on flexible and multidisciplinary course structures’

The BComputing course offers students the most diversified range of offerings in the whole university. Its ‘tentacles reach out all over the place,’ drawing more than half the Department’s students from other faculties, in particular from Science, Arts, Commerce and Engineering. The majority of BComputing students are from Science and Arts, with only 25 places each year allocated to students specialising in computing. These 25 students specialise in one of the three strands which the course
offers: Computer Science, Information Systems and Computer Systems Engineering, but students doing the course as a generalist degree are not usually ‘claimed’ by the Department until the Honours year when they identify more closely with it.

This means that classes contain a wide range of students studying subjects in fields as diverse as surveying, psychology, law, Japanese and business and consequently there is scope for an interdisciplinary approach to teaching and learning. The course itself is a fairly recent innovation and is flexible in its requirements. Course documentation states that ‘a major in computer science must be completed’ but that ‘the rules of the degree permit virtually any other subjects in the university to be counted towards the degree.’

Despite its flexibility, however, staff in the Department feel that the interdisciplinary focus of the course is being increasingly constrained by university rules and regulations applicable in other faculties. Some faculties, for instance, are reluctant to give credit for some of the units offered in Information Technology, while others will not accept the proposed Communications Skills unit as a full academic unit. These constraints, when coupled with students’ narrow vocationalism in the current economic climate and difficulties associated with undertaking combined degrees has meant a gradual erosion of the Department’s interdisciplinary approach to multi-skilling its graduates, to the extent that a member of teaching staff could only say, ‘I don’t know whether we encourage students to pursue the cross-disciplinary approach, but we certainly try to cater for it.’ Another staff member spoke of some of the difficulties which he felt confronted the Department’s interdisciplinary approach:

The division of academic disciplines has become more and more ingrained and so cross-discipline study is becoming more and more difficult for students, and this means that the freedom we have even to consult with students or contact them in the first place is becoming less. Students have come along with very good ideas, for example, for fine arts and computing, or architecture and computing but we simply can’t do it because there are so many boundaries being imposed.

The degree undergoes regular five yearly reviews, one of which it was experiencing at the time of interview. Under consideration are proposals for a greater emphasis upon professional development in each of the Department’s three strands and at all year levels, and ways in which industry representatives can become more involved in course accreditation processes.

‘Courses which emphasise a "design," "engineering" and "systems applications" approach to Information Technology’

Students tend to see the BComputing course as a course in computer programming. A member of teaching staff said:

They think they’re going to be programmers, but in reality they’re going to spend a very small amount of their time writing programs and very few of them are going to be strictly programmers.
Instead, in all probability they will spend most of their time working with people, solving problems, selling software, designing systems, etc. With this in mind, the Department's courses are designed to meet the three aspects of computer technology specified in the Discipline Review, namely: design (‘The Computing Science stream is designed for students who wish to become professional computer specialists, and who are seeking a detailed knowledge of how computer systems operate, and how they are designed and programmed’); engineering (‘Computer Systems Engineering is studied as an engineering degree and provides knowledge about computer software, computer hardware, and telecommunications systems and how these are combined into complete systems’); and systems applications (‘Information Technology provides a basic knowledge of computers and information systems useful in many careers. Students are taught skills in project management and use of computer tools and facilities’).

‘A greater employer involvement in course planning and delivery’

I asked teaching staff about the extent to which employers were involved in course planning and delivery and was told that the Board of Computing which manages the course curriculum contained industry representatives. There was a general feeling that industry representatives could play a more prominent role in course planning discussions and in the course review process to ensure that the BComputing course is ‘adjusted’ to industry’s needs.

Industry’s needs were summarised by the 1992 Discipline Review as a combination of technical and generic skills:

The nature of employment of Information Technology graduates is characterised by requirements for adaptable and multiple skills as well as significant technical knowledge, and for forms of education which continue over the span of the graduate’s professional life. (Summary, Vol. 1, 1992, p. 11)

In line with other recent surveys by the Business/Higher Education Round Table, the Review found that while information technology graduates in general possess high quality technical skills, their communication skills are often less than adequate (Summary, Vol. 1, 1992, p. 32). Staff in the Department of Computer Science confirmed this and have included a component of communication skills in the Honours year and are proposing to introduce the unit across all years as part of the course review:

We do attract some people who really are very blinkered and don’t like communicating and we thought that this sort of thing will broaden them, and even if they didn’t reach the same level of communication skills as those people who can sell refrigerators to Eskimos, they would at least have learned something and be better placed in the workforce.

Clearly, by requiring students to develop their interpersonal and communication skills earlier in the course, there would be flow-on advantages throughout the three year degree program. A staff member commented:
It would just seem so much more sensible to put that at first year because then they could draw upon that knowledge for their three years here, and have three years’ worth of it before they go out into industry and so be more useful to industry.

The Professional Development Unit in Honours year is a compulsory, but not assessable unit which aims to have all students actively participating in role plays, case studies, team projects, group decision-making, project and team management, and interpersonal communication. It was designed so that all students could develop a broader perspective and gain greater experience in communicating. Over the years, the Department has seen a certain amount of ‘iffiness,’ even resistance to the unit by students who sometimes cannot see its relevance to their future careers, and with the current moves to offer the unit at all year levels the Department still faces resistance from other faculties who do not value it as highly.

‘More industry-based learning’

Tasmania is one of four Australian states found by the Discipline Review to be ‘overprovided’ (Summary, Vol. 1, 1992, p. 10) with information technology graduates relative to population and size of the industry. As a result, the Department ‘exports’ approximately 60 per cent of its graduates to the mainland where they find work in banks, government departments, the public service, Telecom, research and development consultancies, industry, etc. A member of teaching staff indicated that one of the main aims of the course was to help students to become self-sufficient learners in whatever context they found themselves after graduation. He commented:

Since our graduates are scattered to the four winds and do not return in general (nor do very many graduates from other places), we consciously try to make our graduates self-sufficient.

With only a small local industry, there are few opportunities for the Department to offer cooperative education programs or sandwich courses, or to involve guest lecturers in the course delivery. It is not until final year in Information Technology and the Graduate Diploma that students undertake a significant industry-based project in which they act as ‘consultants.’

Accordingly, the Department has had to find alternative ways of preparing students for the workplace (‘The Department has always consciously thought about what is involved in translating our students’ work into the workplace’). One of the ways it has done this is to involve final year students in group project work. Students are required to work in project management teams of three or four and are allocated specific tasks which simulate real problems in an industrial environment. The unit coordinator acts as project manager and the students learn how to negotiate with him, to make appointments for consultations, to submit clear and concise documentation and to work with people of varying backgrounds and abilities.

Students initially found the group work disconcerting. The more able students tended to congregate together and the less able ones were marginalised. The coordinator has overcome this by averaging the membership of groups based on the previous year’s
academic results to ensure that the composition of each group is more balanced. Students must deliver a number of oral presentations, the final one of which, in the Honours year, takes place in an inner-city convention centre and is open to the public.

‘A much greater emphasis on continuing education for professionals’

The Discipline Review stressed the need for information technology professionals to keep their knowledge and technical skills up-to-date in a rapidly changing discipline (‘there is no other discipline in the University that changes as often and as consistently’):

Continuing education in Information Technology is an aspect of higher education which needs increased emphasis. It can be provided by tertiary institutions or a self-funded basis with fees being charged for postgraduate upgrading and extension courses. However, the professional market has a distinctive character and special requirement. Continuing education programs for professionals need to be modular in nature with multiple entry, exit and re-entry points. In this way, the large and growing need can be met while enabling graduates to enhance their formal qualifications. (Summary, Vol. 1, 1992, p. 26)

The need to keep personal and professional skills current after graduation is stressed throughout the course. A lecturer commented that this emphasis derived partly from the Disciplinary Review but also from the commitment of individual staff members to continuing learning in a variety of contexts. Within the Department, teaching staff take part in a seminar series which addresses issues drawn from fields outside their own.

The Department runs a number of continuing education programs of the kind recommended in the Disciplinary Review. These are generally short, fee-paying courses offered to the public aimed at updating professionals’ technical skills in computer languages and new design skills and they are always well-attended. However, a member of teaching staff indicated that the level of involvement in continuing education courses by Tasmanian professionals was not as high as he would like. In many cases, I was told, employers feel professional development can be done either in-house, by attendance at mainland courses run by industry, or by short training courses run locally.

The Australian Computer Society has introduced a Practising Computer Professionals program through which professionals in the industry can gain points towards a continuing qualification which updates their technical skills. A member of staff with a somewhat cynical attitude towards continuing education and the points system, but with a very positive attitude towards his course, commented that there should really be no need for graduates to return for university-run short courses as their undergraduate degree should have equipped them with the ability to learn new languages by themselves or from a manual.

The course demonstrated its teaching staff’s commitment to offering a broadly-based undergraduate education, in which students are encouraged to become self-sufficient learners, able to make their own connections between discipline areas and pursue areas of individual interest after graduation.
**Prevailing Attitudes: A Snapshot**

All interviewees were of a mind that the course needed to prepare graduates for a world of change and that inevitably this required graduates to be flexible and adaptable with highly developed interpersonal and communication skills. It was clear that considerable effort had been made in the course to help students make the necessary connections between fields of study. A member of teaching staff commented, for example, that:

> the desirable thing would be to have students who are prepared to learn in different areas, not just in the vocational area; that they are prepared to consider literature, they are prepared to consider what’s happened in the political sphere and so on, and try to understand what’s going on and relate to it, rather than just having a very narrowly focused view on their particular profession.

The BComputing course is characterised by a flexible and multidisciplinary course structure, which enables students to develop a broad sense of vision in their studies and future workplaces. At the time of interviewing concerted efforts were also underway to broaden the course still further and focus more strongly on students’ generic skills, this in the face of the prevailing student attitude which focused on bread-winning rather than learning for life:

> Students have such a focus on their job at the end that it is hard to get them to think about other things that may not be strictly relevant to the job at hand.

In addition there is a growing emphasis on both continuing professional education and greater employer involvement in course design. The Department recognises the need for more industry-based learning so that students experience a comparative or contextualised framework for that discipline and are provided with opportunities for developing their generic skills.

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Introduction

In 1993 three engineering courses at the Royal Melbourne Institute of Technology were redesigned to give greater emphasis to ‘enterprise’ through the integration of technical knowledge, business practices and interpersonal skills. Changes to the curricula in Electronic Engineering, Communication Engineering and Computer Systems Engineering were made largely in response to an internal review of the Bachelor of Engineering courses and they aimed to ‘provide a focus on the strategic partnership between technology and business, and a basis for the development of skills in innovation, self-reliance, team work, change management and leadership’ (Bradley & Lord, 1993, p. 654).

This profile looks at the extent of the curricular changes, some of the ways in which they have been implemented, and the learning outcomes which have resulted. To prepare students for a profession to which they can offer ‘leadership in a technically sophisticated, competitive, international business environment, driven by fast technological change’ (Bradley & Lord, 1993, p. 654), staff in the Department provide a range of learning experiences from a variety of discipline areas. The present curriculum integrates business studies with engineering and incorporates a cooperative education program for final year students to give them industry-based experience and a greater understanding of how different fields connect.

In addition, all students at the Royal Melbourne Institute of Technology are required to complete four subjects from the Context Curriculum, which has been designed to broaden otherwise narrowly specialised courses. This profile explores the effects of these and other broadening influences on students in Communication Engineering.

‘We are trying quite consciously to change the attitudes and dispositions of graduates’

Changes to the curricula and teaching approaches used in the BElectronic Engineering, BCommunication Engineering and BComputer Systems Engineering courses at the Royal Melbourne Institute of Technology have been designed to encourage students to challenge existing knowledge so that they become ‘graduates with wisdom.’ Graduates with wisdom will in turn, according to two of the course leaders, help to change the community perception of engineers as anti-intellectual and uncommunicative and develop instead engineers who can demonstrate:

- a capacity for mature reflection. Such a reflective capacity in addition to a high level of expertise, is a precious attribute for an engineering graduate. Wisdom suggests an ability to think in addition to, and as distinct from, having expertise alone. (Bradley & Lord, 1993, p. 657)
One of the findings of the Williams Report in 1988 (Review of the Discipline of Engineering) was that engineering courses in Australian universities needed to take more account of the development of communication skills of both staff and students, give more emphasis to the 'human element' in technology, and give more priority to group research and cooperative research projects with industry (Williams, 1988, pp x–xi). The Report recommended that:

engineering schools establish task forces to study the views of final year students and recent graduates—that inter alia there should be a greater exposure to state of the art technology, and more emphasis on communication skills, the management of costs and resources, and the treatment of engineering as part of the business context—and consider the implications for curriculum planning. (Williams, 1988, p. xi)

The Williams Report found, in relation to engineering courses at the Royal Melbourne Institute of Technology, that:

The general approach to teaching within the engineering faculty is conservative but there are some innovative approaches that achieve high standards of education. Greater use of such practices could enable the current degree of program specialisation to continue at the same time as developing further the staff research, consultancy and continuing education programs. (Williams, 1988, p. 302)

Largely in response to these and other findings critical of specific aspects of engineering education at the Royal Melbourne Institute of Technology, the University's Faculty of Engineering, one of the three largest in Australia, subjected three of its courses to an internal review in 1992 and introduced a revised course structure the following year which focused much more strongly upon a broadening undergraduate experience. Personal and business skills were placed equal in importance to technical skills and integrated totally within the program.

One measure to broaden the undergraduate experience meant that from the very beginning of the course, students were required to study, as one of the prescribed first year subjects, Engineering Perspectives, a subject which teaches students to think laterally by looking 'at the roles, responsibilities and influence of engineers in our global community' and providing ‘insight into specific disciplines.’ Into this subject are incorporated learning to learn skills, skills in information retrieval and using the library.

In addition to the integrated Business education in Engineering Design and Innovation, two Business Studies electives were introduced into the final year to allow students to specialise in these studies if they desired.

An employer from one of the Faculty's largest employing bodies told me how the emphasis had changed within the Faculty of Engineering at the Royal Melbourne Institute of Technology in recent years:

[In the past] we would have young engineers come in and they would be lost for the first period of time until they’d had a chance to be taught some of the realities of life. Technically, absolutely superb, but when you go into an organisation you need to
know something about what reality in business is, know something about finance and project management and all these sorts of issues. They are addressing those issues in a very positive and proactive fashion and I think that the results are evident.

‘You got around and talked, and things like that. Everyone seemed to participate and they all had some input into it’

All students at the Royal Melbourne Institute of Technology must complete four subjects from an extensive range offered by the Context Curriculum, a University-wide initiative introduced in 1984 in an attempt to broaden students’ outlooks by giving them an interdisciplinary perspective on issues and topics of importance in an Australian and international context. The Context Curriculum aims to develop ‘students as persons and citizens’ and to equip ‘graduates for informed, critical, creative and responsible participation in society’. One of its objectives is to ‘enable students to study interdisciplinary issues and problems in collaboration with their peers from other courses and faculties, in order to gain familiarity with and understanding of the differing perspectives and insights which different disciplines provide’.

The subjects (numbering some 20 at time of interview), are coordinated by a specially dedicated Unit which involves multidisciplinary teams in their delivery. The subjects are taught in small groups which rely on the students’ interactive participation in a ‘dialogic’ teaching mode which encourages independent learning. From a comprehensive range of subjects, students may choose from topics as diverse as Moral Issues in the Scientific Age and The Generation and Distribution of Wealth. Each subject aims to help the students deal with the complexity and change of modern life and to give them some understanding of the ethical issues involved in technological development.

Engineering graduates interviewed were generally very enthusiastic about the purpose and outcomes of the Context subjects in their engineering curriculum. Some recalled the stimulating discussions with students from other disciplines, many of whom had become lasting friends. Others appreciated the ‘unstructured’ teaching approaches used by lecturers from other faculties, while one graduate had enjoyed his compulsory four subjects so much that he had completed an additional four. An employer commented that the subjects:

cover quite a range of things and people have a choice of what they do and they mix together, and I think that's one of the things that's very important. It is probably fairly lacking in most engineering courses—they're sort of narrowly focussed and they're very busy, and the students never get to meet other people and get exposed to other ideas which, I think is very important.

Although the original intention of the Context Curriculum was to expose students to a range of views and opinions on interdisciplinary issues throughout the duration of their whole degree, inter-departmental rivalries over subject ownership, tensions over the incursion of Context subjects into the core curriculum and disagreement about their relevance have frequently seen its mandate eroded. All too frequently the Context subjects are relegated to a last ditch stand in final year, when their benefit as a
broadening experience is all but wasted. The Context Curriculum was undergoing review at the time of interview and faced an uncertain future with the likelihood of devolution of subject ownership and delivery to the various Faculties.

'You're actually working on something that’s going to be used in the industry'

In the three Engineering courses under discussion, not only are students exposed throughout the course to a range of different perspectives and opinions in their interdisciplinary subject requirements, they are given considerable real world experience in all aspects of the design, marketing and implementation of innovative products—the ‘enterprise’ component of their engineering degree. As part of a government and industry sponsored initiative (the Enterprise Training Program), students from their first year work in small teams on special projects which have direct application in industry. For those students who gain a place in the final 18 months of their degree in the Cooperative Education for Enterprise Development program, this earlier real world experience is extremely valuable. Upon graduating, all students from the Enterprise Engineering courses can demonstrate tangible evidence of teamwork and interpersonal skills development to their prospective employers.

Cooperative education programs, or industry-based learning, exist in one form or another in many Australian universities. The Cooperative Education for Enterprise Development began its operations at the Royal Melbourne Institute of Technology in 1985. Officers of the Cooperative Education for Enterprise Development company liaise directly with the Enterprise Access Centre within the Faculty of Engineering to coordinate student placements and liaise between industry and the University. As well, the Centre works closely with employer groups to determine their needs. It has designed personality trait tests which give students an indication of their strengths and weaknesses and their preferred career paths. It also fulfils a staff development role in the Faculty by developing enterprise training programs to teach staff how to adapt their teaching approaches to the 'vision of the enterprising engineer.'

The Cooperative Education for Enterprise Development program operates by placing students in industry for the last 18 months of their degree studies, in order to conduct research projects into the company’s particular needs and problems or to design innovative products, strategies etc. Students work for eight hours a week in industry and, to accommodate their timetable, some of the course lectures have been recorded on video to enable students to view them in their own time.

During the long vacation at Christmas, the student is offered paid employment by the company to enable in-depth data collection and familiarisation with the company’s systems and procedures. The student’s research is coordinated jointly by supervisors from within the company and the university, and the industry supervisor has input into the student’s final assessment. Costs of the program are borne by the company, which in return gains access to the Royal Melbourne Institute of Technology’s laboratories for its own research and development.
Though the number of places available has been hard hit by the recession (a reduction from 50 to 15 places in 1993), the program nevertheless offers mutual benefits to the University, industry and the students, who are often offered permanent employment upon graduation. The University prefers industry to view the Cooperative Education for Enterprise Development program as a recruiting exercise:

They really can’t expect a nice, neat, rounded product or design at the end, but what they’ve had is three or four students working in their factory for 18 months, and if they’re any good they can recruit them. They work over Christmas, like on vacation employment, on the same project at the same place, and the student gets to know the company.

A graduate who had worked in one of Melbourne’s large hospitals developing a device to monitor the oxygen consumption of intensive care patients described it as one of his most valuable learning experience:

What happens is that they own the rights to the product and they pay for the development, so they’ll pay for costs and materials and so on, and what they provide me with is a learning platform and a learning experience.

It was an opportunity to work in a field I was interested in a hospital, so that was important. The project was interesting in the sense that I learned a lot about the hospital environment, working with doctors, working with patients, and so on. It also had an interesting technical aspect, and then finally, I guess, the economic aspect of what people can afford and what stops projects from ever coming to fruition.

‘We put the engineering design development into a competitive business context and business into an engineering context’

Course documentation relating to the Enterprise Engineering component of the degree program states that the subject, Engineering Design and Innovation:

provides major core activities throughout all year levels. In these subjects, students undertake detailed technical design, product and system design, prototype construction and commissioning. This technical content is integrated with the development of business and personal skills within the context of commercial enterprise.

This subject, which accounts for 20 per cent of the whole course, has undergone major restructuring in the course of the past few years. Previously, approaches to management and marketing were taught in isolation from the engineering context. Under the revised curriculum they are integrated at all four year levels so that they are taught in conjunction with finance, economics, ethics, legal, social, political, environmental, cross-cultural perspectives and technical design and development.

The subject begins in first year where a simple electronic construction kit activity is complemented with the development of a full business plan where students analyse the potential of the construction kit outcome to be a commercial product in the global market:
The idea is to follow a total process through from the idea for a product to the product in the consumer's hands—what happens at every step of the way. People don't stop being an engineer to be a marketer, to start being a communicator. It all happens as part and parcel of an integrated process and our students don't see that until they themselves can go through it.

This integration of technical design, project management and business education is featured at all year levels. In final year, a complex industry-based task aims to commit the students to engaging in a long-term design and development project, embracing issues such as product conceptualisation, customer requirements analysis, detailed technical design and product prototyping within a project and quality management framework. Integrated business planning addresses issues of marketing, finance, intellectual property protection, contractual arrangements, accounting and economics.

Based on the belief that students will learn more by applying the theory in action than by learning the theory in isolation, the first year Communication Engineering subject requires student teams to design software to control a four telephone exchange model which uses real exchange equipment cards. In subsequent years, this software is enhanced to provide a variety of different telephone services such as trunk calls, call diversion, billing, and so on. Students were genuinely proud of their efforts in producing something that worked and which was part of the real world:

We learned how to physically program a small telephone exchange on a computer and it was horrible to do, but when you did it and then picked up the phone and it all worked, it was worth it, and it was fun. We also did traffic lights. To generalise, it would be the aspects of learning where you were learning not just theory or something, but something that is a small section of a wider world activity. It was really good.

Learning outcomes from this kind of experience clearly build the students' confidence levels and contribute to their growing sense of empowerment. A lecturer said:

When the students begin to feel that they have a knowledge of the subject, that empowers them to do something with that knowledge. It's always been a very hands on course and when students begin to see the product of their labours as something working, or something communicating, or something doing something under their control, they begin to develop the understanding that they can do more and better things with more and more learning. To a certain degree, I suppose you're endeavouring to get them hooked on learning.

'I see there in the laboratory sessions an opportunity to teach those interaction and communication skills'

A major learning outcome of the subject, and the course as a whole, is the development of team work, interpersonal and communication skills. Students learn how to interact with different kinds of people, to explore issues from different perspectives and to deal with 'passengers' who do not pull their weight. Though assessment is frequently a sore point in courses based on small group work, students in
the Enterprise Engineering courses seemed in general to be comfortable with the assessment measures used by teaching staff, in particular the 'patent' system whereby credit is awarded to the group which 'owns' an idea and which then 'lends' it to the other groups, and the provision for self and peer assessment, e.g.:

That system actually worked because if you're sick of someone you just write it down! And they do take notice of it. I mean, for one of our assignments, someone has failed and the others got like 17 or 18 out of 20, and I think that's fair enough. The assignment might not be to the level of seven people's work, but the one person that's actually done it, they deserve the marks.

The team work experience encourages students to reflect on their own learning, where they made mistakes, what they have learned from working in groups. As a lecturer said:

We have first year students working in teams who are reflecting openly and honestly about their personal involvement in that team, what went right, what went wrong, what their learning experiences were, to the point where in the next team assignment everyone is saying, 'We're so much better than last time.'

I interviewed a group of first year students, the first to experience the new Design and Innovation subject, and they spoke very enthusiastically about it. In particular, they felt that it had given them the confidence to translate theory into practice and to establish their own businesses in the future. The integration of an interdisciplinary approach, despite its limitations ('One semester of accounting does not make us accountants, but we understand a bit more; it makes us confident to talk to an accountant and understand what they're saying, which I think is valuable'), nevertheless prepared the students to enter the workplace and to deal with change and complexity.

One of the strengths of the Enterprise Engineering courses is that as well as providing students with experience in organising conferences which are attended by industry representatives, staff and students and organising Open Days to promote the Faculty's courses, students learn 'how to be managed' or to work in a team, and consequently are able to learn how to manage when they have acquired the necessary experience in the workplace.

One of the most frequently cited weaknesses in university graduates is their underdeveloped communication skills. Engineering graduates are no exception. The Williams Report found that 'more should have been done to develop the communication skills of both the staff and students' (Williams, 1988, p. x) and recommended accordingly that priority should be given to rectifying the situation.

In the Enterprise Engineering courses, communication skills are fundamental to the development of students' personal, professional and business skills. A final year student outlined the benefits which he felt he had gained from the strong emphasis on interpersonal skills:
Interaction with people, other people. Being able to communicate with other disciplines, to be able to move outside your discipline and talk with people who don't understand. That's probably a problem with engineers in general, I suppose. They tend to go over the heads of a lot of people they talk to. The way it works here, we sort of look at lecturers as project managers. We have to be able to work with project managers and we have to be able to work in teams.

This experience had already helped him in job interviews where the question most frequently asked related to proven abilities in teamwork and interpersonal skills. He felt that he had been well prepared for entry into the workplace:

We were given the opportunity to go through some mock interviews and do some personal profile testing and things like that to get us ready for applying for jobs. A lot of our final year is focussed towards 'This is what employers want, this is how you should approach it,' and they make it very clear to us in every class, just about, that it's very competitive out there—it's continuously reinforced.

Students and graduates agreed that the course had equipped them with the initiative, resourcefulness, innovativeness, demonstrated achievement on tasks, the ability to work with the minimum of supervision and the capacity and attitude to grow, all of which were among the attributes desired by employers. If they were fortunate enough to obtain one of the places in the Cooperative Education for Enterprise Development program as well, they felt that they had a definite advantage in today's job market. They felt that the various broadening influences they had experienced during the course equipped them to better deal with the competing professional demands of the workplace.
Advice for Young Players

Staff from the three Enterprise Engineering courses were keen to pass on some of their suggestions to colleagues in other institutions wishing to broaden their own courses and make them more relevant to the real world. A summary is given below:

Teaching staff should:
- cement a culture of staff support in the Department and Faculty;
- ensure that the innovations are supported at all levels of teaching and administration;
- model team work skills, work together and develop trust—this needs to be clearly visible to the students;
- make sure that they undertake exchange programs in industry in Australia and overseas and that, as change agents, they have experience in the Australian industrial context;
- accept that ambiguity and uncertainty about predictable learning outcomes will occur and not be discouraged too soon;
- not expect students to be able to work in teams unless they have learned teamwork skills.

A student-centred curriculum should:
- make tasks relevant and achievable, but ensure that students have to take risks in completing them;
- prune the course content right back to basics and not try to teach the students everything;
- leave room for independent learning and learning after graduation;
- accommodate different disciplinary perspectives and cater for a variety of learning styles;
- make sure the library has adequate resources to support a resource-based course;
- incorporate information literacy skills into all levels of the course; and
- listen to the students, ask them what they want from the course, take note of their suggestions:

When the students see there are genuine attempts at innovation going on, when they feel it’s really genuine, they respond to it very well. We deliberately made the process of change visible to them, we didn’t try and hide anything, we did a lot of things wrong, but we didn’t encounter any hostility.
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Introduction

The BApplied Science in Information Studies at the Kuringai Campus of the University of Technology, Sydney offers majors in Information Science, Communication Studies and Computer Information Technology. These programs prepare students for employment in a wide range of professions involved in the design and management of information systems.

Established in 1986 and reviewed for professional association recognition purposes in 1992, the course is based on a philosophy and body of premises which are clearly articulated in the course aims and objectives and which promote the development of the self-directed, lifelong learner. The course is structured in such a way that students assume increasing responsibility for their own learning and even course content, teaching approaches and assessment practices. In so doing, they build a positive self-concept as capable and autonomous learners with highly developed self-organisation skills.

'We do consider educational issues as well as professional issues and discipline-related issues, and we do have a particular model of practice'

In 1992, when the BApplied Science in Information Studies was reviewed for professional association recognition, the Review panel recognised, according to a submission made to this study by the Head of School, that 'the course was designed to encourage lifelong learning and that it provided opportunities to enable students and graduates to develop the attributes of self-directed, independent learners.' The Panel acknowledged the course as an exemplar in its field and commented on the high level of commitment shown by academic staff to their teaching.

Their commitment is not confined to teaching but extends into course design as well. In the submission, the point was made that 'students and graduates of the course need to be engaged in lifelong learning if they are to be effective practitioners,' and to achieve this goal the course seeks to:

- support students to systematically develop knowledge, skills and values appropriate to learning and to professional practice;
- provide opportunities progressively for students to take responsibility for their learning;
- adopt a holistic approach to the education of students by acknowledging their learning needs. (Kirk, 1993, p. 7)
Students must complete at least five subjects in the compulsory strand, Information Science, and subjects from either Communication Studies or Computer Information Technology, or a mix of both Communication Studies and Computer Information Technology. On a horizontal axis, each strand combines compulsory core studies and electives which can be drawn from inside or outside the School. These major areas of study are complemented by compulsory core studies and electives. Students must undertake compulsory subjects in background studies (with a sociological and psychological focus); technical, professional and generic skills; disciplinary studies (theoretical subjects in information science and communication studies which aim to develop students' professional and personal skills); professional studies (in which students explore the relationship between tertiary studies and the workplace); and elective studies taken from within the School or across the University.

The premises on which the course structure is based are, first, that students should acquire a general background in the discipline before they choose their electives and areas of specialisation, and that they need to complete their skills component early in the course to enable continual refinement throughout the later years. Very early in the course, students are introduced to the need to develop their intellectual skills, such as researching, analysing, synthesising, critically evaluating and reflecting. These objectives are included in each of the subject outlines.

The submission states that:

The compulsory and elective components of the undergraduate degree provide students with an educational program in which the development of generic skills is regarded as important as the development of a body of knowledge and professional or technical skills. Although different subjects emphasise professional, technical and personal knowledge and skills to a greater or lesser degree, the course allows students to integrate their learning, notably through an information handling project in the final semester. (Kirk, 1993, p. 7)

'At work, no one stands up and gives you a lecture and gives you the information. They say, "Go away and find out about it, and do it"'

The course has a strongly professional focus in which is embedded a commitment to lifelong learning and a recognition that students learn just as much outside the classroom as inside it. Students are encouraged to take part in committee work in the School and Faculty, to work (often unpaid) inside the university and in the community, to research and publish sometimes with academic staff, and to represent the student body at open days and conferences.

This professional focus is reflected in the Skills Development objectives listed for the course which are designed so that students will graduate with a body of skills which can be transferred immediately to the workplace. For instance, in Information Science, the submission states that: ‘Students will develop an understanding of the information environment and the role of information professionals in using information resources to meet user needs. Practical skills in the design and use of information systems and marketing of services will enhance career prospects.'
Similarly, the Communication major aims to ‘develop the communication skills employers require such as active listening, assertiveness, conflict management, decision-making, negotiating, nonverbal communication, persuading, problem-solving, public speaking and effective writing,’ and the Computer Information Technology major ‘will develop the computing skills employers require such as ‘hands on’ experience and technical knowledge of designing, creating and managing computer networks, databases and information systems.’

Such a well-defined vocational focus in which personal skills development plays a crucial role does not, however, detract from the strong theoretical base of the degree. The course is recognised throughout Australia as the most ‘theoretical’ of all such courses in the country, but teaching staff were quick to point out that this reputation is based more on the way that the course integrates theory with practice so that its graduates become reflective practitioners able to make informed judgements about all aspects of their professional lives.

‘As a teacher, you know that your students’ needs are more important than your own’

Each subject is structured to take account of the students’ learning abilities and their previous experience and staff draw upon these differing perspectives to integrate and coordinate the various subjects within the course as much as possible in a deliberate move to give more recognition to students’ prior learning. Teaching staff felt that this approach ensures that they have ‘realistic’ expectations of their students, many of whom are mature aged, e.g.:

the team which is teaching the next unit will meet with the team which has just taught the previous unit. So we have a fairly in-depth talk about where the students are at, what are some of the identifiable learning problems, how they are going with the process, what steps I need to take to build into my sequencing and my understanding of the process that realistically take the students from where they are. So I’m not coming in with an overall expectation, I’m coming in with a realistic understanding. Now, that sort of linking between our subjects happens so that our expectations and what we do in terms of the process of learning are quite realistic.

‘I think that students have a right to know, not just what they are learning, but why they’re learning it and how they are learning it’

Professional Studies is a compulsory sequence of study for all students in the BApplied Science in Information Studies. It is structured to integrate theory with practice, and to allow increasing student responsibility for content, teaching and learning approaches and assessment measures. In the early stages of the sequence, for example, students learn how to use contracts to negotiate learning outcomes and assessment measures, while in their final year they assume total responsibility for content, as well as the teaching and learning approaches and assessment measures.

Information Science, according to course material, ‘focuses on the concepts, principles and theory of information and information provision, including information design, organisation, retrieval, uses and users. Information Science provides a foundation for
the education of future information professionals who will apply their knowledge of information provision to professional practice.' It is designed to encourage students' independence in learning.

This sequence of study is 'information dense,' according to both staff and students, and in an effort to pull the various strands of the unit together, in the final year unit, Theories and Issues in Information Science, all the previous knowledge the students have gained is integrated to develop an 'autonomous information professional.' To achieve this, the course has been designed so that in their final year students have control over the content objectives, the approaches to learning, the teaching approaches, the assessment criteria and assessment methods. So far, this approach has proved successful. A lecturer said:

The level of motivation and student involvement has been extremely high, because the ownership of the unit has gone over to them. I guess in a lot of ways it's affirmation of the value that we place not just on the content, but on the process of learning.

Some students, some of them found it difficult. They were not, even at this stage, ready to sort of let go. They were scared. We set up a process of consultation, and all the way through that was part of the process. We wanted them to value their own understanding, and that was the exciting part. It was hard work. We were working through the various classes and setting up structures where they could see that they had a body of knowledge that contributes to their understanding, and valuing it and believing that they had a worthwhile contribution to make.

Students and graduates alike were more cautious in their comments about the sequence. A graduate, for example, described the Information Science sequence as the most difficult, yet most rewarding aspect of the course:

Most of us hated it because it was incredibly difficult, but I also found that really rewarding. From day one, you're presented with a body of knowledge in the field, and the articles are incredibly difficult to read, but I found it really rewarding working through them and analysing them, and in our final semester focusing on one writer in the field and really delving into their views on information science and comparing them to other people. That was the most rewarding thing for me, probably because it was so hard.

Others felt that the necessary links between theory and practical application had not always been made. For example, a first year student said she had got a 'little of how it relates to practice' but was still unclear about its relevance. A final year student was much more positive about the linkages, but less so about the quantity of 'very turgid readings' she had been required to study, most of which had been 'written by people who could write what they wanted to say in about a quarter of the space using much more intelligible language.' This comment was made despite the award of a Vice-Chancellor's Development Grant to build concept mapping into the Information Science sequence to help the students make sense of the very complex readings. The same student acknowledged, however, that overall the links between theory and practice had been made:
I think they are continually stressing throughout the time we are acquiring knowledge the relationship between your theoretical knowledge base and the practical application and to understand those two. To reflect always while you’re practising and what this means for your knowledge base and whenever you are faced with a problem or a decision to be made, or something to be done or to think about, to actually sit down, to analyse what skills you have, what skills are needed, what skills you have, what knowledge is needed, what knowledge you have, and what you therefore need to do this, and if you have any gaps to go back to the literature, or to contact your friends, your colleagues, your network, to contact other sources to get that information. So they’re really teaching you a way of continuing to educate yourself and reflect on that education.

‘Part of the assessment of the teaching program should focus diagnostically on where the students are at’

The School has a definite philosophy of assessment. A member of teaching staff outlined the premises on which it is based:

Part of the assessment of the teaching program should focus diagnostically on where the students are at. For example, in assessing some of the students’ work that they do in their first year I use some of the assessment criteria which I set down and provide to students, to evaluate not merely mastery of content but to give the student feedback, and to give me feedback on where they are in terms of their ability to evaluate or to analyse or to synthesise something. One way that it can be done is through carefully thinking about what we are actually assessing when we provide an endless range of assessment items and how we can use that assessment to effectively diagnose learning needs and built on that.

Throughout the course, students experience a wide range of assessment practices, some of which are designed to test recall of knowledge and others their problem-solving abilities. Students are given scenarios in which they, as ‘Research Officers,’ are required to submit reports, oral and written, to their ‘supervisors.’ On other occasions, students are involved in the problem-setting stage, choosing and defining the problem which they will research. Such assignments often have application close to home. One student, for example, conducted a research project into the effectiveness of the services offered by the campus Student Learning Centre, producing a set of recommendations on how its marketing strategies might be improved.

Assessment practices clearly aim to develop students’ sense of personal agency. For example, the submission states that:

Students are encouraged to develop their independence in learning not only through learning experiences but also through independent learning. This is achieved by offering students choices in the areas of:

- group submissions or individual submissions;
- numbers of assessment tasks with appropriate weightings to be submitted;
• areas of application of principles;
• submission dates, within certain time limits; and
• forms of submission. (Kirk, 1993, p. 13)

Among the forms of assessment listed in the submission are descriptive and analytical essays and reports, seminar presentations, debates, group presentations and reports, as well as the development of information products such as an index or a policies and procedures manual. Many of the skills necessary for technical and scholarly writing, learning to learn and using the library are taught in a first year unit, Communication and Information Skills, and in all assessment tasks students are provided with a comprehensive set of criteria and a feedback sheet which gives detailed commentary on their achievements. However, some students who majored in Computer Information Technology, most of whose subjects are delivered by the School of Computing Science, felt that the assessment practices in this major were designed mainly to test recall of knowledge at the expense of application:

It was more like solving problems, computer problems, technical problems. So if you read your whole text book the night before you'd be right. You'd know the answers to the questions. But to actually go and apply the solutions was a totally different story. I really was sort of disappointed in that we didn’t learn much more of the application from the solution.

While students and graduates in general were happy with the assessment measures used in the course, and in particular with the degree of choice available to them regarding the form, process, and timing of assessment, assessment of group work was viewed with the same degree of scepticism as it was in other courses. A final year student doubted its relevance to the real world:

Where we worked in groups for assignments was hard. They say they do it because when we get out in the real world we’ll have to work in groups. I don’t believe that. I don’t believe from my experience that people in the real world work in groups. They have meetings, but mostly they pull together different skills for an instant and you basically all work within your own areas. But I suppose you have to be able to say at interviews that you have experience of working in groups, which is why they do it.

‘We had a number of subjects called Professional Studies which gave us the opportunity to develop plans, develop objectives and methods by which we measured those objectives’

The Professional Studies sequence comprises four subjects which give students first-hand experience of the relationship between information studies and professional practice. For example, it:
gives students the opportunity to apply information science principles and theory to professional practice and assists in the transition from student to professional. Professional Studies helps students develop professional attitudes and behaviour through interacting with clients and colleagues and observing and performing work in actual information environments.

The sequence encourages students to develop their entrepreneurial skills so that they can make informed career choices based on thorough exploration of the available options. Students prepare and evaluate themselves a professional portfolio which they develop over the three years of their degree and which includes a distillation of all the ‘knowledge, skills, activities and outcomes’ which they will take with them from the course into the workplace.

Students are encouraged to go into the workplace to make their own contacts, to interview practising professionals, to research their assignments, which usually take the form of problem-solving exercises around a genuine, real world problem within a real company or organisation. In final year, these problems must be negotiated with the organisation, a project must be implemented and it must be evaluated for its effectiveness. A lecturer gave an example of one of his students’ projects:

they are often asked to identify some area that they want to learn about, one that’s relevant to their course, and then they will almost write their own learning package—not just write it, but follow it through and then do an evaluation of it and reflect on it. I had a student who wanted to learn more about story telling for children, and she felt that she really lacked competence and skills. She didn’t know the sorts of books that the children might be interested in, but she identified all these various factors and went around to the libraries and observed, and read the background literature, and then actually gathered a group of children, delivered a program and video taped it, and then reflected back on it.

A graduate now working in the telecommunications industry told how she had to develop a learning contract to research a career in medical librarianship:

We had to have a set of objectives, professional, technical and personal objectives, and we had a goal and then we had a statement of what our objectives were, and then we had a list of the activities that we planned to undertake to achieve that. We had to set our assessment criteria, how we wanted our assessor to assess us. We actually could nominate our assessors and we set our due date. And actually, in our last professional studies course, we actually assessed ourselves as well, based on our criteria.

As students move through the sequence of studies, they gradually assume more independence in designing their own subjects and staff indicated that the resultant feeling of ownership in turn caused students to become more motivated in their studies. A member of teaching staff explained that in order to foster students’ sense of personal agency:
We moved to career exploration which allows students to look at the career opportunities in a particular area, allows them to identify the knowledge and skills that they will need through interviews with practising professionals, and through the literature, and so on, and then to look at their own knowledge and skills, work out where the gaps are, and then pursue a program to fill the gap, so that from the very beginning they are beginning to assess themselves, to get to know themselves, to know what their career anchors might be.

‘What employers say about our graduates generally is that they have a very strong capacity for sound decision-making’

Such experiences add up to a comprehensive preparation for the world of work. Graduates, students and staff of this course all agreed that employers’ needs of Information Studies graduates were many and varied. Among the most commonly mentioned were technical ability in a wide range of information retrieval and management systems, but just as important were the transferable generic skills, especially communication skills. A lecturer said:

Even though employers will list the knowledge and experience and skills they want from a student, a graduate with these generic skills, the ability to think and to plan, and to change and so on, will always do quite well even if they need that extra couple of weeks to settle in.

Staff felt generally that their graduates were well prepared for employment because they have ‘the ability to critically analyse a situation, to put all the pieces together to make an assessment or an evaluation of it, and that comes back to those intellectual abilities that are part of the process of learning.’

Graduates who had found employment, however, had a some misgivings about the degree of preparation which the course had given them. One graduate, who had found work only after dozens of interviews, felt that employers primarily, and unrealistically, wanted new graduates to have had years and years of experience. High academic results were of far less importance than proven ability in industry:

Exam results didn’t really mean much to the prospective employer. You would just sit down and, ‘Okay, you did well in this, you must have worked hard.’ Or they’d take it for granted that it was an easy course or you’d fluked it, and they were really more interested in your background and how you’d applied what you’d learned. It goes back to your professional experience, so results to them were just a number on paper unless you can perform. ‘Good on you if you got honours, but let’s see you perform.’

He had been fortunate enough to find part-time employment in industry while completing his degree but even so, felt inadequately prepared technically for the workplace:
It was a frightening experience. I mean, we were using 286 machines at university. I walked in here and there were 486's with God knows what, the works. And I think that was the major sort of down turn to my personal and professional development—all the technical and theoretical computing stuff which I did at university was outdated by the time I actually went into full-time employment. So I did one quick crash course on the system which we've got here. It was meant to go for a month, I did it in a week. They couldn't afford me out there for a month so I did it in a week.

Nevertheless, the graduates I spoke to appreciated the ability which the course had given them to transfer a body of generic skills from one learning context to another. One told how he coped with his initial confusion in industry by referring to his goal-setting experience in Professional Studies subjects:

In Professional Studies I actually had to develop realistic goals and objectives. I sort of went back and had a really good think about what I did then and sort of applied that here and it worked.

Another commented that while the course had not prepared her for the specific job she was doing, she had been able to draw on her body of generic skills to ease the transition:

I think that the course itself didn't train me to do my job now, but I think the thing it was big on was training me how to learn now, so in my job here, when I arrived, I had to write a technical document—I'd been trained in writing skills, I'd been trained in how to find out information, so I could go about doing those things and applying them in the specific situation.

I was concerned that I didn't have the specific technical skills, but the people here were very supportive too. Because I had the general skills, because I'd been taught how to learn, because I'd been taught analytical skills and conceptual skills, I was able to adapt, and I think adapting is a big part. That's where lifelong learning is important. I mean, in the computer field I think things probably change faster than in a lot of other areas, and if you can't adapt you're not going to last.

'You can do all you want with course structure and course design and looking at the balance between core and elective subjects and computer assisted learning and all the rest, but you'll only succeed if staff are aware of the need for lifelong learning'

I spoke with an academic staff developer who had been involved with the School in redesigning the curriculum. He indicated that one of the reasons for the School's success in integrating lifelong learning skills in the curriculum was that the members of staff 'valued' lifelong learning and were committed to giving their students a 'coherent picture throughout the whole of their degree.' He strongly believed that unless teaching staff adopted a consistent attitude towards lifelong learning and unless
they integrated its principles in the curriculum at the planning, implementation and evaluation stages lifelong learning would at best be only peripheral to the students’ undergraduate experience.

His sentiments were echoed by a staff member from the Student Learning Centre, who commented on the fact that the Information Studies course exemplified the principles of lifelong learning because:

they make particular attempts to involve their students in critical analysis and give them a wide range of experiences throughout the community. It’s that combination of critical analysis, reflection on what they’re doing, and I guess, looking into themselves to see what they can bring to a course or to a particular area of study, and later on to see what they’ve gained and how they’ve changed their own perception. And I’ve noticed that through many of the kinds of assignments they set that they deliberately try to encourage those areas.

The process of role modelling is ‘alive and well’ in the School, according to a lecturer, who summed up his understanding of the reason for the effectiveness of the teaching staff in conveying their enthusiasm for lifelong learning to the students:

I would say that role modelling is reasonably well demonstrated to students. One way that obviously it is done is having a very open process of keeping up with the literature, for a start. Being able to demonstrate to students that we are up to date with the literature, and being able to demonstrate our sense-making process. We’re using the literature, we’re using stimuli from all sorts of fields, and I think that again demonstrates the process of discovery of ideas and making sense of those ideas, building on them, and publicly reporting those research outcomes at a range of School meetings and conferences, and publications as well. It’s a dynamic process of demonstrating to our students of where we are, what we’re doing as part of our own involvement in learning.

And I guess in a lot of ways it’s actively saying to the students that our active involvement in learning contributes to their learning.

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Advice for Young Players

Teaching staff within the School had a clear vision of the role of lifelong learning in their course and the notions of 'education for education's sake,' 'an appreciation of learning,' and 'constructing meaning' figured prominently in the School's vision of the lifelong learner. Developing a sense of personal agency was held to be fundamental in a course based on self-directed learning and to those who might wish to change the focus of their own courses, teaching staff had this to say regarding:

**Course content:**

I think in a lot of courses we try to teach too much content. We should look at the content and cut it back so that the students get time to actually think about what they're reading, perhaps do less of it, but think more about it. If possible, divide your course into things they need to know now, and things they need to be aware of that they can learn for themselves later.

**Course documentation:**

Make sure the commitment to lifelong learning and learning skills is embedded in the course and subject outlines: 'We talk to students about the nature of intellectual skills, what they are and so on, and there's a progression in that sort of skills development throughout the course. We attend to it very consciously and very deliberately, and expect our students to as well.'

**Staff development:**

We set up a process of consultation and it was really exciting to see the perceptions of our role. When we start looking at our role as educators in lifelong learning, the way students perceive our role is really, really important. Some of the students saw us as facilitators of their learning, and that was certainly a very strong model that we wanted to project. Some of the students saw us as a resource person, and some of the students you could almost regard as peers.

Academic staff need some training in tertiary teaching 'to develop an understanding of adult learning and educational theory in the role of teaching/learning processes.'

Share experiences: 'We need to share information that we have in the University more widely. It's a matter of setting up courses and structures that actually allow academics to meet with each other and have time to talk to each other.'

Take time out to spend some time in a place where it's actually happening during a semester. Until you see how it actually happens in day to day terms, it doesn't make much of an impact.
A Sense of Personal Agency

BEducation in Adult Education
The University of Technology, Sydney

Introduction

The School of Adult and Language Education at the University of Technology, Sydney offers Adult Education degree programs in Aboriginal and Community Education, Language and Literacy, and Training and Human Resource Management. Entry to these courses is available only to practising professionals who are employed as adult educators or trainers in fields such as labour market programs in TAFE, Skillshare, government departments, industry, church organisations, residential settings for older people, Aboriginal education, health or legal services, and management.

Undergraduate courses in adult education are unique in Australian higher education as they can be undertaken only by mature age students, and in this School, only by mature age students who are employed in the field. The School has a policy which facilitates entry to its courses by women and disadvantaged groups such as Aboriginals and English as second language speakers. In many instances, these students have been away from the classroom for a number of years because of family or employment commitments, or they have not been able to undertake continuous education, and they enter tertiary education with a certain degree of uncertainty and insecurity. Initially, their anxiety is exacerbated by the contrast between teaching and learning approaches adopted by the School and those which they have experienced, more often than not in a traditional 'banking,' or input model of education. The teaching approaches which they encounter in this School do much to boost their self-confidence and sense of personal agency and to develop their mastery of self-organisation.

In this profile, the relevance of some of the School's values will be explored for teaching staff, students and graduates. It was apparent from the interviews conducted that a firm commitment to these values permeated all levels of the course and significantly affected learning outcomes.

Respect for individual learners and the explicit use of learners’ experience

In the course of their degrees, students in the School of Adult and Language Education are acculturated into an intellectual climate whose values are clearly articulated in its philosophy, namely:

- respect for individual learners and the explicit use of learners’ experience;
- respect for the cultural and linguistic diversity of learners;
- learners taking responsibility for their own learning;
- critique of one’s own practice as teacher and as learner;
- congruence between what is being taught and how it is being learned;
• collaboration between staff and students and the negotiation of specific learning tasks;

• group collaboration in learning;

• sensitive use of a diverse range of teaching and learning strategies;

• cooperative rather than competitive approaches in which learners are encouraged to set and attain goals which extend themselves; and

• the promotion of critical thinking and a questioning of taken-for-granted assumptions.

Recognition of prior learning is rapidly becoming entrenched in the Australian higher education system bringing with it major changes to the way administrative systems operate, curricula are designed and delivered, and teaching approaches and assessment practices adopted.

The 1993 report, *Learning from Experience Counts*, to which a team from the School of Adult and Language Education made a major contribution, defines recognition of prior learning as:

> a systematic process to accredit learning gained outside formal educational institutions, by assessing relevant learning against the standards required by a university subject or course. Recognition of prior learning recognises what individuals know or can do before undertaking a course of study, wherever or however they may have acquired their knowledge or skills. (p. vii)

The School of Adult and Language Education was a leader in the recognition of prior learning, especially its relevance for Aboriginal students, more of whom graduate from this School than any other in any Australian university. With the number of options available for Aboriginal and Torres Strait Islander students to enter the course, the School has introduced a major in Aboriginal Studies to the undergraduate degree. School documentation states that its ‘entry policy for undergraduate courses favours experience over formal qualifications and is oriented to those from disadvantaged backgrounds.’ As early as 1991 measures were in place to enable university entry or advanced standing for Aboriginal students on the basis of credit granted for learning which had occurred in contexts other than formal educational institutions, such as non-credentialled courses, or work and life experience. Learning of this nature, while it cannot be substituted for academic learning, nevertheless can be equated with it, and various methods to measure equivalence between prior learning and academic learning for university entry have been devised (e.g., interviews, portfolios, performance testing, written examinations or tests, special projects, etc.).

Disadvantaged groups are accommodated by a flexible entry system which provides for interruptions to the student’s life and career, and as a member of teaching staff put it, ‘the crucial thing is that people are able to participate when they want to.’ Another member of teaching staff stressed the importance for adult learners and practising
professionals to be able to learn by engaging in recurrent education throughout their lives, as and when they discover that they need to learn, for 'work creates needs for knowledge that are met by going back to study':

We need to link lifelong learning with access and equity. It has to be possible for groups in our society, like Aboriginal people, to be able to access higher education, it has to be an open system. It has to be easy for people to pick up a course and for people to leave a course as well. If you are a woman and you are having a baby, well, that is a life development task, particularly if you are rearing a child on your own or if you are a male, for that matter, then it ought to be possible to stop the course and to pick it up later. I think the open learning development and the use of television and the like are excellent. We need more open structures to get away from the traditional input model where people have to attend lectures.

The School recognises the reservoirs of learning which exist in students' work and life experience and the teaching approaches used are designed to draw from them and build on them. For example, an adviser said that it was essential that the learning and the course content were adapted to the learner's needs:

There is a genuine learning culture in this School. When you meet a group of students, part of the agenda is, 'What are you here for? What are your needs? What are the things you want to learn about?' as distinct from the collection culture that says, 'This subject is about this, and the assignment is about this.'

Students and graduates of the course certainly indicated that they appreciated the willingness with which staff were prepared to accept that they had other pressures on their time apart from study and in so doing contributed to their sense of self-worth which could more easily flourish in a supportive and 'safe' learning environment:

In terms of the full-time staff I have encountered, a willingness to recognise that you have other things in your life apart from this course, job pressures, family pressures, all those things that will impact on your work. There is a willingness to negotiate around that, but not to the detriment of your learning, or the standard, just a negotiation that has been made possible through a real effort to communicate.

There was an overarching belief in the School that higher education was only one stage on the lifelong learning continuum, and that they needed to recognise the wealth of informal learning their students had already acquired. For example, one staff member said:

I am not sure it is terribly good to take people straight from high school into any university degree. For various important social reasons, like the economic conditions, high unemployment and so on, the government is encouraging us very strongly to do that, but I think it is highly desirable for people to have a break between high school and university and come to study when they have made a conscious decision that they want to study, rather than because it is the automatic next step in some kind of growing up process.
Learners taking responsibility for their own learning

The course is made up of a number of core subjects which focus on the theories underpinning adult education; Skills Workshops where students develop a range of technical skills in a group context; electives which may be drawn from inside or outside the School; practicum work where students apply theory to their practice and are observed and monitored in practical teaching situations; and individual project work in which the students negotiate learning contracts with their advisers. Teaching approaches include ‘modified’ lectures, small group work, seminars, syndicate work, video simulations, case studies, role plays, experiential learning and learning contracts. Reflective practice on group or individual work is an integral part of all teaching approaches, and students are encouraged to keep reflective journals throughout their course.

Knapper and Cropley, in their book, *Lifelong Learning and Higher Education* (1991), list among the characteristics of adult learners:

- more clearly developed personal goals,
- better formulated ideas about what constitutes useful subject matter, and
- a desire to learn things that they themselves (rather than a teacher) define as worthwhile, usually because these things can be applied in some way to relatively immediate real-life situations. (p. 53)

Student-centred learning, independent learning and self-directed learning are all fundamental premises on which the course is built. For example, a staff member told me that:

we make an assumption, and the assumption is always a tentative one, that students are effectively able to direct their own learning to plan and organise what they do, they are able to make decisions about what they should learn and we build those notions into the fundamental structure of all our courses.

Student-centred learning places responsibility for the learning process firmly in the hands of the student. For many students, this responsibility is often unwelcome and in sharp contrast to any learning experience they have had in the past. For example, a first year student said that she would have appreciated a helping hand in adjusting to the new learning context where teaching staff became facilitators of learning rather than instructors who would show her what to do:

When you are left on your own to do things, you are not quite sure whether you are getting enough knowledge and whether the knowledge you are getting is correct. You sometimes feel it is a bit wishy-washy, but that is where your own self-direction comes in. It does get a lot better in the second year. You begin to adapt to it and you find out that you are really learning a lot. But in the beginning it is really hard. You sort of think, ‘When is it going to start? When are we actually going to start learning something?’

On the positive side, another commented that:
It has been wonderful having that opportunity to identify what I want to learn rather than someone setting the curriculum and just passing various subjects to get a qualification at the end, because I could see what was required for my personal development as well as my professional development, and the course helped me structure my goals more clearly.

The main way in which the teaching/learning approaches used in the School develop students who are autonomous learners is the use of negotiated learning contracts in individual project work, which is seen as the vehicle for encouraging active learning with application in the real world. The rationale behind the use of learning contracts is stated in course documentation as: their ability to cater for individual differences and to respond to individual needs; their potential for encouraging students to initiate and implement their own projects; and their focus on learning strategies and processes.

Students are required to undertake one learning contract each semester. They negotiate the topic and format of their contract with their advisers, using the Learning Contract Proposal provided by the School. A student outlined how she had made use of her first learning contract to develop training courses based on the principles of adult learning:

I only train about 12 hours in every semester, which is not nearly enough, and I am trying to get some extra experience. Already, with learning contracts, I have been able to choose my own topic in an area that I know I need to learn something in, and it is wonderful because in the first contract I did, I actually had to design a course. The courses I have been running here have just been handing out a pile of lecture notes, and standing there and doing it, and I have done it so many times that I could do it in my sleep, but I wasn't sure how to go the next step. Now I have learned how to actually design a course properly, the way it should be done and I am actually now changing things around, not the content, but changing how I am doing it. I am able to make it more interesting for the girls and for me.

Negotiated learning contexts need to be introduced to the curriculum sensitively and with adequate support from teaching staff, who must be prepared to offer adequate guidance and direction to students, especially in the initial stages:

If you are going to use learning contracts with adult students you have to recognise that although potentially this is the absolutely ideal way for them to learn, they come out of a whole tradition of teacher-directed learning and they will feel insecure and anxious and confused, probably, and even cross, and therefore you need to think carefully about how you introduce them to it, help them through to learn how to do it.

While most students found this kind of teaching approach to be stimulating and challenging, some questioned its worth, especially in relation to its emphasis on process, which is part of the School philosophy. A first year student told me that:
Some students have commented that they find it isn’t hard enough, they expected the standard to be much higher. I think they probably haven’t got their minds around the whole concept that the standard is your own standard and you can push yourself as hard as you want, and you are the one who has to answer to yourself in the end anyway, and I think that is what adult learning is all about.

Group collaboration in learning

Another feature of the curriculum is the participation by all students in Skills Workshops, in which students model exemplary teaching approaches within a supportive group environment. They are designed specifically to develop students’ technical skills, but in addition, they provide an opportunity for the development of facilitation and small group skills in a ‘safe’ environment that is based on cooperative and collaborative learning. Students attend four days of Skills Workshops, often at weekends, at every stage of the course so that they can ‘develop, practise and refine their skills.’

Most students felt that the bulk of their learning had occurred outside the classroom, in particular in these workshops and one indicated that she had enjoyed the reflective practice which they had stimulated:

reflecting on what was being conveyed, doing the assignments—we had to do a lot of seminars where we actually demonstrated what learning took place for us, and that is where everyone could pool together their ideas and share that knowledge. I think that is where the real learning took place, going out and getting together in groups, working out problems, coming back and sharing it, pooling our resources.

Another student described her experience of the workshops:

We had to actually facilitate and organise a workshop with a lot of class group work where they had to participate. You just learned so much about the different ways of actually presenting a session. The skills workshops have been so exciting for me because it is actually getting in there and doing what I so rarely do, and seeing how other people do it.

Cooperative rather than competitive approaches in which learners are encouraged to set and attain goals which extend themselves

The School uses an ungraded system of assessment which it believes gives comprehensive formative feedback on student performance and achievement. A member of teaching staff outlined the reasons for this:

Systems of detailed grading that discriminate in a detailed way between students have a very disempowering effect in that they feel they are in the hands of the markers and the experts and they look to be told how good they are according to this almost mystical experience of being marked by someone else. Whereas, if you have a criterion referenced system then the students know what the requirements are, and they should be able to have a good idea about how well they are doing and whether they have passed or not.
The assessment system is received with varying degrees of enthusiasm by students, who question the value of a system in which no outward recognition is given to high academic achievement. This can pose problems for students, not so much when they apply for or change jobs, but when they wish to apply for entry to an Honours or postgraduate course at another institution. Staff are confident that they have overcome the problem by writing comprehensive letters of recommendation for their graduating students in which they provide qualitative feedback on their achievements, e.g.:

If entry is competitive and the student has to demonstrate why they should get in and not somebody else, then they are going to document their application anyway, and the qualitative comments from the lecturer are going to be of more value in a sense than furnishing the evidence of their excellence in some sort of magical statistic, and that is as it should be. Qualitative comments are much more helpful, saying this person has an ability to do X and Y, or, in their project they demonstrated P, Q and R and they made a contribution in this way and that— that is a much more specific description, a more meaningful description.

They also felt that those students who in their final year take electives from other discipline areas generally find that they perform well in a more ‘traditional’ assessment system where they can test their grades against those of their peers. This provided the ‘bit of norm referencing’ which the students sometimes ‘crave,’ and which one graduate obviously appreciated:

There is security in 78 per cent and there is a panic in 52 per cent, but at least you know.

A graduate who was undertaking further study in another discipline had this to say about the ungraded pass system:

Personally, I felt some people put in a great deal of effort and others put in the minimum amount, but at the end of the semester we all got pass or fail and I think people like to get the rewards for the efforts, and I know myself, I am doing this management course now, and I am getting distinctions and high distinctions and it is fabulous because I know I have put in the work and it has been acknowledged.

A quarter of the assessment in any one semester is tied to contract learning projects. Here, students negotiate with their advisers the criteria for their assessment and the form it will take. Most advisers use feedback sheets which give full commentary on the learning evident in the project, e.g.:

It addresses what I perceive to be going on in their learning, so it is not just a token comment, but it genuinely does try to address something I have seen in their assignment, where they can go further, or what their unique ability seems to be, some people have a great knack of expressing themselves concisely, for instance, so I will say that. The person may not know that, so there is a sense of helping the learner to formulate their own learning abilities.
An important feature of the School’s assessment system is the importance it places on self-assessment, e.g.:

One of the skills of the lifelong learner is the ability to assess themselves and to be able to make judgements about what they know and what they don’t know and what they need to know, and I think we need to introduce at all levels and in all different places opportunities for them to take responsibility for assessment and to practise it in various ways.

The interviews conducted in the School of Adult and Language Education suggested that there was universal belief in and commitment to the principles of lifelong learning and that all aspects of curriculum design and structure, teaching approaches and assessment practices were based on an underlying philosophy which valued autonomous learning, and individual responsibility for time management, goal setting and risk taking. A final year student summed up her learning experience in the course:

My confidence in myself has improved and I am continually looking at opportunities to further my learning and seeking or embracing these opportunities with interest rather than fear.

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Advice for Young Players

A summary of the suggestions which teaching staff made in relation to developing student-centred, self-directed learning in university courses follows. All suggestions were premised on the belief that there must be a genuine and universal commitment to lifelong learning, and 'unless you are prepared to act on the basis of your philosophy, don’t go through the pretence of it.'

Catering for student anxiety in a course based on self-directed learning:
Remember that most students have grown up in a 'banking,' or input model of education, and have quite different expectations of 'the system' from teaching staff who have moved to a self-directed paradigm. Teaching staff must be prepared to manage their own transition to the new paradigm as well as their students:

You need to be prepared to deal with the transition from fairly dependent learners to much more independent and interdependent learners. Don't expect them to be fully functioning self-directed learners in the first semester, because they won't be.

Course design: Be prepared to introduce changes at first year level so that students adapt more readily to self-directed learning:

Start right at the beginning, don't just, as many courses do, have some kind of open-ended project in the last semester of final year. If you are going to develop some of these practices and skills then you need to do them in modest and not so modest ways very early on.

Be prepared to offer students guidance and some degree of direction in the early stages so that their self-confidence is enhanced rather than destroyed. As a student said:

I think while it is very good to be very self-directed, we still need a lot of help and direction at the beginning so that we get that feeling of security before we are let out on our own.

Teaching approaches: Persevere, for:

Studies we have done suggest that almost all the problems our students meet are problems that they have with their first two learning contracts. Once they have got through that then they are flying and none of them want to go back to any other system. So if you are only going to use one or two learning contracts in your course, all you are going to see are the problems and you are going to get far less of the benefits.

Assessment practices:
Implement a standard ungraded pass assessment system throughout the whole course so that students are prepared to:

take initiatives and be creative and take risks with what they do. I think is is more difficult to take those kinds of risks in a more structured and graded course where you feel as though you need to take the softest option in order to get the highest mark.
Introduction

The BMedicine course at The University of Newcastle is world-renowned for its innovative teaching approaches, problem-based learning and integrated curriculum. This profile focuses on those aspects of curriculum design which, in their implementation, encourage students to become lifelong learners, in the first instance by providing a systematic and integrated introduction to the medical discipline; second, by creating a structure which explicitly devolves to learners a greater responsibility and opportunities for self-direction; and most importantly, by encouraging students to develop a comprehensive range of learning skills suitable for all learning contexts.

This profile, accordingly, looks first at the ways in which the Faculty has incorporated the desirable qualities of a lifelong learner (in particular, a sense of personal agency and a repertoire of learning skills) into the undergraduate curriculum, before moving to the particular mechanisms which the Faculty has established to monitor and evaluate curriculum development.

'This Faculty is nothing like anything they have come across before'

The Faculty of Medicine and Health Sciences (newly amalgamated at the beginning of 1994) at The University of Newcastle has a well-earned reputation at home and abroad for the quality of its undergraduate program. Founded in 1978 by a group of 'true believers' led by Professor David Maddison, the BMedicine course developed in response to recommendations laid down in the Karmel Report in 1973. This report found that there was little innovative teaching in Australian medical schools and that they did not 'take into account the changes occurring in modern life and our environment which may lead to new requirements in medical care.' (p. 158)

The Report favoured a changed emphasis in medical education whereby the human face of health care would replace the hard scientific approach hitherto adopted by medical schools in this country, and the committee supported the view expressed in many submissions and discussions with groups outside universities that medical departments which are:

based on the philosophy of human health and disease in the community itself will have greater impact on the student than those based narrowly on the object of training doctors to become general practitioners. The student who is community-minded and interested in people and their problems should thus become more stimulated to practice medicine in a community setting as a general practitioner than he [sic] would if, towards the end of the course, he [sic] were merely instructed in some of the practical aspects of general practice. (p. 160)
In line with these findings the then Faculty of Medicine at The University of Newcastle designed a curriculum which emphasises the importance of problem-solving and an adaptable, flexible approach to community health issues as well as communication and interpersonal skills.

Despite the innovations which this course and others like it (e.g., Community Medicine at Monash University) have introduced, medical education has continued to attract criticism. In a recent article on the medical course at Newcastle (Bell, 1994, p. 29) Professor Max Kamien, Department of General Practice, The University of Western Australia, was quoted as saying that medical education in Australia was characterised by ‘rigidity of the curriculum, overloaded students, too many detailed and irrelevant lectures, an emphasis on teaching rather than on learning, memorisation rather than the understanding of concepts.’

In its early days, the medical course at Newcastle was unique in its problem-based learning approach. The Faculty, from its inception, designed a problem-based curriculum based on a philosophy which valued process as much as content. Early course documentation set out five key areas which were to be emphasised: integration of basic and clinical sciences; problem-based learning; small group learning; progressive independence of learning; and acquisition of professional skills (Engel & Clarke, 1979, p. 73). This was to be achieved by incorporating innovative teaching and learning approaches across an ‘integrated curriculum’ comprising five domains: Professional Skills; Critical Reasoning; Identification, Prevention and Management of Illness; Population Medicine; and Self-Directed Learning. Such is the importance given to the Self-Directed Learning domain that unless students pass it they are considered to have failed the whole year.

The objectives of the medical course relate to each of these domains and aim to ensure that at the conclusion of the course the graduate demonstrates the ability to:

- engage in productive professional relationships and maintain those relationships to acquire, evaluate and communicate information;
- apply the processes of critical reasoning to medical care;
- apply his or her understanding of illness to its prevention, identification and management and to the promotion and maintenance of health;
- apply his or her understanding of the practice of medicine in a community or population context; and
- take responsibility for evaluating his or her own performance and implementing his or her own education.

‘Increasingly, people are becoming aware of the need for doing things other than teaching blocks of subjects’

The five domains replaced individual subjects taught at year levels so that instead of a sequential progression through a subject from first to final year, the subject is taught across and within the domains at the appropriate level. In this way, the basic sciences are ‘integrated’ with the clinical treatment of illness. Teaching staff in the Faculty see
the curriculum as a coherent matrix in which the discipline areas are interconnected so that students progress through the course with a broad understanding of how the various aspects of medicine fit together.

Unlike traditional medical schools, the Newcastle model does not distinguish between the pre-clinical and clinical years but introduces the students very early in the course to all aspects of patient care. Newcastle students spend time in hospitals from first year, and undertake a two month period in a country hospital in third year. They learn how to work in small groups with their tutors to hypothesise about symptoms and their causes presented by real patients in hospital or surgery settings. They establish the gaps in their knowledge and determine where and how to rectify them before they can, with authority, make their diagnoses and present their conclusions. This experience stands them in good stead when they commence their internships:

The basic things we need to do as junior doctors we were required to do as students. We had done a lot of these simple things like putting in drips and stitching people. In my internship at least I didn't have to worry about those things.

The small groups represent a microcosm of the larger year group, so that if, for example, 60 per cent of students in a particular year are female, 60 per cent of each small group are female students, and so on. This system works well to break down barriers and feelings of inadequacy and contributes in no small way to the strongly collaborative flavour of the course. The strong emphasis upon communication and interpersonal skills during the course inevitably results in a graduate who is articulate and caring—two of the trademarks of a medical graduate from Newcastle.

Many of the students entering the course have already gained a tertiary qualification of some kind, often in areas not directly related to medicine. Arts graduates and science graduates are often to be found working together to solve clinical problems or research a medical issue. Because of the emphasis upon process, these students are not disadvantaged in any way but can contribute from their own experience to the whole group's learning.

With very few formal lectures ('fixed resource sessions' are used instead), with a large number of electives from which to choose and which are taken over extended periods (a fortnight in the first two years, eight weeks in third and fifth years) and with the main emphases of the course upon problem-based learning and self-directed learning, the medical course at Newcastle is often a cultural shock to students entering either straight from school or from another field of study whose repertoire of learning skills is often constrained by previous teaching approaches. I spoke to a final year medical student who had already completed her science degree at another university and she compared the two:

If I compare it with the science degree I did before, it was much more passive—you sat there and you had lectures and then you regurgitated them, and you could be lazy. I didn’t learn how to seek out information from the library because I wasn’t forced to do it, but in this course I was forced to do it to pass, so I think that was the main incentive to get through.
In my first degree most of your day from 8.00 am to 5.00 pm was taken up with sitting in classrooms and learning that way, and I found it quite unmotivating. I found it more of a grind than this way of learning. This way is more lateral thinking and opening your mind to experiences, rather than the drudgery that my first degree was.

‘We are trying to choose people who have the sorts of skills we want to develop’

In this Faculty, medical students are selected on the basis of their academic results and their suitability for the course—two factors which are determined during an interview with a panel of teaching staff and in some instances, in conjunction with a psychometric test. Over the years, staff have been able to predict success in this self-directed learning course on the basis of students’ achievements in English and other humanities subjects and often discount the validity of high academic results in maths and sciences to indicate success in medicine. They are quick to admit that the kind of students they are looking for are those with potential to become self-directed and independent learners for as the course progresses students have an increasing responsibility for their own curriculum.

‘You could decide to learn what you wanted to learn’

A large component of the course is made up of electives in which the students can design and contract their own areas of study by setting learning objectives and outcomes, planning their methodologies, evaluating the success of the project and reflecting on the overall results. They are encouraged to spend time working in and researching allied health areas such as ambulance centres, acupuncture centres, overseas medical centres, etc., so that they can both apply what they have learned and discover what they need to learn more about. Students spoke highly of this system which they felt gave them an insight into areas of specialisation which they may wish to follow up later in their careers or in which they feel they lack confidence.

However, as teaching staff and graduates pointed out, problem-based learning and self-directed learning should not be seen as substitutes for the need to learn a certain specified body of knowledge and acquire technical competence. Striking the right balance between producing ‘pleasant charlatans’ who know how to learn without having a ‘corpus of knowledge,’ and ‘boring people who know everything but can’t do anything with it’ is one of the main concerns within the Faculty.

‘If the uncertainty becomes overwhelming, then you are going to have a program that doesn’t work’

Teaching staff must constantly flag directions and create links between topic areas and the broader disciplines so that they can support students as they feel their way through the integrated curriculum. The metaphor of the ‘matrix or the maze’ surfaced more than once in the interviews and staff were well aware that students find the first year or two of the course very difficult to negotiate. They acknowledge that they need to provide sufficient guidance as students come to terms with the problem-solving and self-directed approach, and recognise that ‘if the uncertainty becomes overwhelming, then you are going to have a program that doesn’t work; but if it is containable, then you will have a program that does work.’

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So how is the uncertainty contained? From the very beginning of the course a special Undergraduate Education Unit was established to support student learning and act as the administrative arm of the Faculty’s Undergraduate Education Committee. The unit is staffed by an Administrative Officer, an Information Officer, a Clinical Supervisor, an Assessment and Evaluation Officer and a member of staff who monitors the complex timetable. Together they keep a close check on all aspects of the undergraduate curriculum and its implementation so that everything that goes into the curriculum is monitored and the students have an easily accessible point of contact. The unit’s main purpose is to make sure the curriculum is integrated, that it is problem-based and that it meets all the course objectives.

The Information Officer, for instance, monitors all material given to the students to ensure that consistency and appropriateness to year level are maintained across the five domains, to ensure that the library is able to provide the relevant resource materials and to ensure that students are assessed only on the ‘approved’ curriculum. The Information Officer is a librarian and is responsible for monitoring all course materials prepared by academics as well as providing all the normal information services common to libraries everywhere. She liaises with all the other libraries in the university, the hospital and regional libraries, as well as with academic staff and students to identify problem areas in the curriculum and to suggest where new materials are needed. As the Information Officer has responsibility for monitoring all course materials, the degree to which this is done can be easily detected. The University’s on-line facilities are available to the regional and hospital libraries and servicing them and resourcing them is an important part of the Information Officer’s role.

In certain disciplines the Information Officer and academics have worked together to target key areas of the course which need indepth treatment. These are starred in course materials so that students can focus on them, knowing that they are essential aspects of the course.

The central unit is responsible for all timetabling matters and as the more advanced students often are working to individual timetables, this can present difficulties. As well, the unit is responsible for the production of all course materials and examination papers, gathering and processing feedback from students and staff on all aspects of the course, and generally works ‘at the coal face’ by keeping a firm finger on curriculum development. The Assessment and Evaluation Officer liaises with academic staff to set and assess examination papers and assignments, to check that assessment is linked to course objectives and to design ‘model’ answers which are available for students after the examinations and which they can challenge before final grades are allocated. Assessment is made on a pass/fail basis with grades being awarded only in the final two years of the course for the purpose of awarding honours. Though this system is intended to eliminate competitiveness between students and promote the climate of collaboration and cooperation which they will encounter in their professional lives, inevitably dissatisfaction arises when students feel that their efforts have not been rewarded.

In departing from the more traditional graded system of assessment, the Faculty recognises that students lose some of their ability to ‘cross-calibrate themselves against other students’ and are often concerned that their hard work is not distinguished from
the less than hard work of their peers. Students often voice their dissatisfaction, especially in the early years, when ‘satisfactory’ can represent 99 per cent as well as 51 per cent and the Faculty tries to overcome this problem by involving students in the process of establishing and monitoring assessment procedures and in evaluating ‘model’ answers:

Students might say, ‘We think this is an ambiguous question, and a lot of us took this question to mean such and such, rather than such and such, so please accept these alternatives.’ You might read that and say, ‘In spite of our quality control that slipped through the net, so, yes, that is right and we will accept that.’

‘It is essential that students are taught the techniques of accessing information’

Information and computer literacy are fundamental to the course and are incorporated into it from first year. One of the very first problem-solving exercises for students is called ‘Fishing Trip,’ and this involves the students in hands-on library searches for information relevant to survival on an island. In this way they learn to define what information they require, access it, retrieve it, and make use of it in context and within the framework of the task to be completed. The library provides the normal range of support services within the Faculty and as well provides a necessary link to resources for staff and students working in country centres. It produces a joint publication in conjunction with the Area Health Service and this is distributed to all medical practitioners in the area and the university community as a means of keeping up-to-date with recent developments.

Computer literacy is also taught ‘in context.’ Since 1989 the Faculty has supported a Medical Informatics Unit which teaches and assesses students in the basic skills and concepts of information management in medicine as well as reaching out into the community by providing access to the latest computer tools to professionals outside the university. Instruction is tied closely to the students’ problem-solving exercises which they do in tutorials and the program focuses on privacy, security and legal issues associated with information management. The unit coordinator is responsible for the academic content of the course and the preparation of course materials, organising speakers for the fixed resource sessions which have replaced formal lectures, and coordinating tutors from the various disciplines involved in the teaching program.

‘Equity occurs through curriculum change’

In 1986 the Faculty of Medicine established the Aboriginal and Torres Strait Islander Students’ Liaison Office to support the growing number of students from indigenous backgrounds. To date there have been four graduates and at the end of 1993 17 Aboriginal and Torres Strait Islander students were enrolled in the course.

The centre provides the physical space, resources, counselling and study skills services necessary to support Aboriginal and Torres Strait Islander students who face particular difficulties when they enter university. A counsellor outlined some of the major disjunctions which they experienced as: alienation from the rest of the student body; cultural differences in values and attitudes, especially in the way in which learning and
personal interactions between doctor and patient occur; frustration; and low self-esteem. Staff in the centre ‘work towards creating an environment where learning for Aboriginal and Torres Strait Islander students can occur within the context of the whole Faculty.’ A large part of the study skills counsellors’ role is involved with helping the students to change their expectations of themselves and to meet the expectations of their communities after they graduate.

The new curriculum, which was piloted in 1992 and has since been fully implemented, includes a component of Aboriginal Health, and presents a broader cultural view of medicine from different perspectives. This is aimed directly at breaking down the barriers between races and ‘making medicine grow’:

I mean, you obviously can’t take Physical Chemistry 202 and add Aboriginal Perspective—it’s not possible. But you can take a course like genetics and you can talk about, say, the genetic distance between races to explore whether the genetic distance within races is greater than that between races, and come to some realisation about homogeneity from that, and then look at the social implications of misinterpreting genetic knowledge and so on.

‘Our principles are basically being put on hold for a year or two’

Whereas prospective students undergo an intensive interview process before they are accepted into the course, graduates from the course are rarely interviewed to determine their suitability for the intern program run by the hospital of their choice. Instead, they are selected solely on the basis of their academic results. A graduate admitted that even though he had been employed by his preferred hospital, he was disappointed in the selection procedures involved in this important stage of his career:

There was no interview, so they never eyeballed me and they didn’t know what I was like. There is nothing concrete that I can grab on to and tell you that this is what they wanted—they really had to go on my marks and where I came in the year and where I wanted to go.

This poses a problem for teaching staff in the Faculty who see much of their groundwork in extending students’ repertoires of learning skills being undermined. One member of teaching staff was highly critical of what happens to medical students once they graduate:

What we have achieved is being undermined by the natural career development that all our graduates are forced into in their immediate postgraduate year.

The Postgraduate Medical Council currently coordinates the continuing education programs offered in hospitals during the internship years. Graduates from the course, when they enter their internship program, inevitably find that their way of learning is unceremoniously stood on its head. In the hospitals they often encounter highly structured and formal teaching approaches which they felt they had left behind at the end of secondary school.
While the graduates were comfortable with their levels of technical competence on commencement of their internships and with their ability to learn practically and ‘on the spot,’ staff in the Faculty would like to have more control over continuing postgraduate education so that the teaching/learning approaches to which the students have become accustomed over the five year course could be further developed during the internship years. One staff member described some of the difficulties he saw in the present system:

I see the internship as a major limiting factor. We have a curriculum that is problem-based and community-oriented, with a lot of emphasis on population medicine, not just individual patient management but the need to look at the whole community. Our students graduate, and like every other graduate go into a hospital system which tends to be a tertiary referral, large teaching hospital where their main job in the first intern year is acute management of very sick people on a very individual basis, with virtually no opportunity for any community oriented perspective.

So, in a sense, what we have tried to achieve is being undermined by the natural career development that all our graduates are forced into in their immediate postgraduate year, and that year tends to be one with a lot of overtime and minimal study as well.

To help overcome this, the Faculty, in conjunction with the Hunter Postgraduate Medical Institute, recently made a joint appointment of an Assistant Dean to supervise postgraduate education. In the past, the Faculty has involved staff at professorial level in the intern program at John Hunter Hospital; however, at least one member of staff felt strongly that this was not enough to counteract the prevailing attitudes towards interns:

Medical students when they graduate have the luxury of being guaranteed a job because they get a paid internship for one year. Now, medical education needs to be built into that because historically interns have been treated like slaves and they have been employed by a hospital system that doesn’t really care if they learn or not. The change I would like to make is that the universities should have much more influence on what actually happens to their graduates and how they progress naturally in terms of career development.

There is a growing move in the profession towards a cumulative point system for attendance at continuing education programs, which ‘means that it may be a much more formal application to lifelong learning; something that is evident; people will want evidence that they are engaging in lifelong learning and point systems have become much more evident.’ This is not unique to the medical profession; increasingly, practitioners across the board are being asked by their associations to provide formal evidence that they have engaged in continuing education programs for accreditation purposes.
‘They taught us a method’

The emphasis on process in the course inevitably means that students learn how to learn in a variety of contexts and how to apply the problem-solving approach to all new learning situations. They are introduced to ‘the method’ by means of the ‘learning spiral,’ which sees students revisiting at a later stage of the course what they have already learned at an earlier level. While resisting its often mechanical nature, a graduate spoke of his appreciation of this approach in hindsight:

They used to talk about this spiral, which we hated, but looking back it was so good. There was a lot of real wisdom in it. You picked up little bits of information on a topic in the lower parts and then as you went up you picked up more and more and more, so that you were constantly reviewing things and building on the knowledge, and I think that was very good.

Especially in the first year of the course, students are often confused and unclear about the extent and depth of the learning expected of them. Though they know they will return to the issue or topic later in the course, in the first turn of the spiral they were sometimes uncertain about how much they need to learn and indicated that they would like more guidance in this area. Drinan (1991, p. 318) recognised that ‘it can be too easy in problem-based courses for students to believe that they are only required to solve a problem and so guess their way from problem to solution without seriously engaging either sources of information or mental facilities.’ The medical course aims to overcome this potential hazard by teaching students to use critical reasoning to define, research and resolve problems against a framework of critical evaluation. They use a similar problem-solving approach during clinical diagnosis and scientific research, and course documentation describes it as a sequential procedure involving identification of ‘the nature and breadth of the problem, researching information to both understand and solve the problem and suggesting solutions.’

Students and graduates of the course spoke highly of the way they had learned to distinguish between a surface and deep level learning and to develop a body of learning skills appropriate to whatever learning context they might find themselves in.

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Prevailing Attitudes: A Snapshot

It was clear from the interviews that the Faculty at all levels was committed to the centrality of lifelong learning in the course and in the medical profession more generally. Staff were very positive about the need to have clearly articulated course aims and objectives in course documentation which must be addressed in practice and were confident that in their course they ‘practise what they preach.’ Role modelling by staff members is particularly important in developing lifelong learners (‘If the boss does it, you do it’), as is support for innovative measures in the course from the highest administrative levels.

Students receive a systematic, integrated introduction to the discipline based on an underlying philosophical commitment to self-directed learning:

I think the main step that we took in practice was that not only did we have that as part of our philosophy but that we elected both to teach and assess by domain and not by subject. This has really forced us to embrace our undergraduate program objectives, many of which are concerned with issues like lifelong learning.

Despite the incremental progression towards self-directed learning and the opportunity in the advanced years for students to design their own curricula, some students and graduates feel that the course would benefit from greater direction in the early years:

We needed more direction early on so that people could realise what was expected. Then as they start to move on through the years, then I think give them more autonomy and explain to them that ‘now you should be able to do this problem, and if you’re not, then we can help you.’

A graduate of the course described how it had contributed to her sense of personal agency and the development of a repertoire of learning skills:

This course produces people who are technically competent to look after the patients, people who know what they are doing and are competent in what they are doing. Also, people who are able to work on their own to a certain extent, who are self-reliant, who can make decisions when they need to be made, quickly, and people who will think about a problem before they go and ask—people who will investigate different possibilities or different research and the latest treatment of something, as well as asking what they should be doing.
A Repertoire of Learning Skills

B Applied Science (Systems Agriculture)
University of Western Sydney, Hawkesbury

Introduction

The B Applied Science (Systems Agriculture) course is widely recognised as one of the most innovative experiential learning courses in Australia. This profile attempts to give a feel for some of the more innovative aspects of the course, such as its work experience programs, group facilitations and assessment practices which contribute to the students' repertoire of learning skills.

Students are brought face-to-face with their own strengths and weaknesses in the experiential learning program which sees them struggle to make their own meaning from a variety of learning experiences. While many graduates of this course find work in areas outside the agricultural field, they are able to adapt the learning strategies they have acquired in the course to whatever workplace they enter.

'A learning community'

The Hawkesbury campus of the University of Western Sydney (Australia's only federated network university) is set on 1400 ha of agricultural land outside the historic town of Richmond. The land has been seriously depleted since the lagoon and marsh areas were drained commencing in the late 1800's and the tree-studded flats were turned into grazing paddocks for cattle, sheep, horses and deer. Now a virtual 'green desert,' the campus supports a student population in excess of 4,000 and the Faculties of Management, Health and Humanities, Science and Technology and Agriculture, Horticulture and Social Ecology as well as a new TAFE College which, from 1994, will offer agriculture and horticulture courses articulating with those offered by the Faculty of Agriculture and Horticulture.

The current B Applied Science (Systems Agriculture) course was set up in 1978 by a group of 'founding fathers,' among them the current Head of School, Professor Richard Bawden. Like B Medicine at the University of Newcastle, the course was designed to redress what was seen as a very real weakness in agricultural education, which, at the time, was concerned exclusively with agricultural technology and economic issues. In addition, and in line with the University's mission 'to provide excellence in higher education, research and associated community service within Greater Western Sydney,' the course aimed to meet the needs of the farming community in the surrounding area and to respond to the social conditions of the whole region.

Learning in the School of Agriculture and Rural Development is very much a community affair and expresses itself in a number of ways. With a poet-in-residence in 1993 and an artist-in-residence (the 'residence' being a converted piggery) scheduled for 1994, the University brings the community to its campus for performances, exhibitions and other cultural events which give a broader perspective.
to academic learning. The School has set up enterprise learning projects in local secondary schools and staff liaise with school principals and teachers to explain the experiential learning approach on which systems agriculture is based. Students from the School work closely with farmers and service industries designing and conducting research projects and spend some considerable time living and working with farming families. The research centre on campus undertakes collaborative projects with the community and involves it in decision-making, especially in relation to waste management and pollution control. Though still at an embryonic stage, the School has:

- dreams of public participation into allotments out there on our lands, where people can grow their own vegetables on our land which they lease. We would like to pull out the plug and let the swamp refill, and put trees back, and so on. We have a real interest in electronic media and we want to link as much with technological high schools as we do with other schools, and we want to involve ourselves much more explicitly with non-government organisations, the church, and so on.

‘A fresh approach to dealing with a situation’

From its beginning in the late nineteenth century, the Hawkesbury College of Agriculture trained people to be practical, hands-on managers of farms. The College Prospectus of 1893 stated its aims as being: ‘to train young men in the practice and science of agriculture’ on a working farm which conducted ‘experiments in the various branches of agriculture.’ Its original purpose has changed dramatically over the decades for whereas the College’s earlier emphasis was upon improving productivity, increasingly it has moved to a recognition of the importance of developing ‘rural practices which do not degrade biophysical or sociocultural environments but enhance them’ (Bawden, 1990, p. 1065). Along with this change in emphasis there has been a concurrent focus upon the process of learning and the ethics of rural development—how to manage the land without destroying it, how to incorporate community attitudes and values into the curriculum, etc.

No longer is agricultural education confined to the basics such as animal husbandry, scientific analysis of water, soils and organisms, operating plant and machinery, or agronomy. While recognising the need for its graduates to possess a body of technical skills and substantive knowledge of the field, the School of Agriculture and Rural Development stresses the need for them to acquire other vital, but often overlooked skills, the skills of ‘taking initiative and responsibility; thinking broadly, creatively and clearly; understanding complex situations; making decisions; solving problems; communicating; working together with cooperative and uncooperative people’ (AGPAK SA3, p. 8). The aims and objectives outlined here are in line with the findings of a survey conducted in 1990 by Agrimark Consultants Pty Ltd for the Review of Agricultural and Related Education, and entitled Survey of Agricultural Education Needs. The survey determined that the needs of the three main employer groups of agricultural graduates (Commercial/Sales; Research and Development/Technical; and Practical/Production) were remarkably similar, namely: technical competence, communication skills, interpersonal skills, flexibility, adaptability and problem-solving ability, leadership skills and practical experience.

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The course aims to provide its graduates with a comprehensive body of skills and a ‘fresh approach to dealing with a situation.’ Students learn how to transfer skills from one context to another and how to ‘chart economically viable and environmentally responsible courses through today’s complexity and uncertainty’—and to ‘understand the situation and manage realistic improvements to it’ (AGPAK SA3, p. 5). Using systems theory, an holistic approach to problem-solving or situation improving, students learn to see the larger picture, ‘to see the forests instead of the trees,’ to focus on the overall purpose of an enterprise, to identify inter-relationships between its component parts, and to cope with and manage change.

‘It’s very much a personal development course’

Graduates from the course are characterised by their sense of self-worth and self-confidence, their ability to communicate, empathise and work with people, their adaptability to a range of different learning contexts, and their proactive attitude towards change. I spoke to a graduate from the course who described what she considered to be the distinguishing features of a Systems Agriculture graduate in terms of her own experience:

My employers have had a few graduates here before who haven’t lasted and they pointed out that their biggest deficiency was that they had skills but didn’t know how to apply them—they weren’t able to think about what was appropriate in that situation. Whereas, what they like most about my work is that when I am put into a situation I can work autonomously and be responsible and think the situation through, rather than just trying to work to some prescription. The course allowed you to develop those skills and it provided an environment that allowed you to experiment with those abilities and develop the confidence to use them.

However, many graduates from the course are unable to find work in their chosen field. A member of teaching staff described this as ‘the ultimate tragedy’ as it precluded them from making the developmental changes in agriculture which they had been working towards and said that while:

the feedback we get from employers is that, ‘Your graduates see the world differently. They have a very broad perspective, they are marvellous communicators, they are project oriented, they’re self-starters and self-finishers and they are very ambitious,’

most of them are not employed in agriculture. This is a concern to staff and students alike and recognition has been made that the technical and research aspects of the course need to be boosted to give graduates of the course more employment opportunities. Students to whom I spoke, while they recognised their adaptability and flexibility, nevertheless felt at a disadvantage when applying for jobs requiring high levels of technical competence and experience, though they felt that they had the edge in jobs which stressed communication skills and flexibility.
‘You develop your own process so that you don’t have to be taught so much—you can teach yourself’

Learning how to learn is built into all stages of the Systems Agriculture course on the premise that if students understand why and how they learn, they are better able to ‘inform action,’ and transfer to any situation the learning skills and problem-solving abilities they have acquired. In the introductory phase of the course, students become familiar with learning theory and like students from other experiential courses, they soon adopt ‘an almost automatic way of acting, using the process of learning.’ There is a firm belief in the School that exposure to and immersion in learning theory accelerates the students’ growth into lifelong learners as they quickly become accustomed to challenging conventional wisdom and developing new ways of thinking and knowing which result in deep level rather than surface learning. This approach flies in the face of more traditional teaching/learning approaches because:

by getting students to both understand the process of learning and then to practise that theory in their studies, it enables them to be good learners, effective learners and to be able to self-manage their learning. What we normally tend to see in universities is that the academic staff do most of the critical thinking, they synthesise out of that what they perceive to be the main elements and they deliver those elements to the students as ‘knowledge.’ I see a lot of teaching which deals with certainty, but not with uncertainty, and it’s dealing with uncertainty which is the challenge.

The curriculum, despite the fact that it undergoes major changes each year (‘We accept curriculum as a totally radical process of transformation’) and is never the same for any two cohorts of students, nevertheless offers an incremental devolution of responsibility for learning from staff to students. In their first year, students experience a curriculum in which staff initiate approximately 70 per cent of the learning tasks. By second year, the 70:30 per cent ratio becomes a 60:40 per cent ratio with students wholly initiating at least some of the learning tasks. In third year, the students accept full responsibility for their own learning, designing, researching and implementing projects which will have direct bearing on their future careers.

The course is divided into three phases, each of two semesters. In the first two phases, students are gradually weaned from dependence on teaching staff by undertaking a number of set learning tasks which involve increasing degrees of problem-solving. Two of the set tasks in the first year of the course require students to work outside the University, and these tasks are designed to help students learn that people have different ways of viewing situations and different methods of resolving problems, all of which require high levels of interpersonal and communication skills. Students felt that the focus on experiential learning gave them a head start in lifelong learning:

We go out and do projects, and they’re real situations and we work with real clients. We learn from the mistakes we make and the chance we have to improve things. It’s those real experiences that make it all worthwhile, I think.
In their second year, students spend an extended period living and working on a farm and analysing the farming situation using an holistic approach encompassing not only the prevailing agricultural and economic conditions, but the farming family and local community as well. This experience is, for most students, a kind of 'enlightenment' where the purpose of the course and the experiential learning approach suddenly crystallise. In their third year, students work on their own projects which are designed to lead into their future careers and which can see them working abroad, often in developing countries. I spoke to a group of second year students who were getting ready to embark on a two month field trip to the New Guinea highlands researching the effects of World Vision's agricultural projects on the culture of the native population. A paid consultancy, the initial stages of the project were being funded by the students themselves through garage sales and various money-raising ventures. They were excited at the prospect of the new experience and at the employment openings that it offered them.

'We changed our metaphor from "throwing students in at the deep end" to "being in the deep end, swimming, when the students arrive"'

Most students entering the course come from traditional secondary school backgrounds and few are used to the open-ended inquiry that characterises learning in Systems Agriculture. Some even have difficulty distinguishing content knowledge from the learning process or the teaching staff from the students:

There are no subjects, well, there are, but not any definite subjects. There are no teachers—you don't get teachers. You approach the people you want to approach yourself. I mean, it's just completely different from school. There are no similarities.

Both staff and students openly admit that this, a learning environment which encourages self-direction, can be self-defeating if it is not handled sensitively and supportively. The teaching staff need to be accessible and willing to help students overcome their feelings of insecurity and inadequacy while they analyse their own strengths and weaknesses and preferred learning styles. It is often difficult for staff who have been at the institution for a long time to relinquish their 'instructor' role and instead learn how to facilitate student learning. Even those who have been able to make the transition admit that sometimes they revert to their 'natural tendency to tell people' rather than encouraging students to tell them.

Each student is part of a facilitation group which meets weekly to explore problems, suggest solutions and share ideas. A graduate described the invaluable contribution these facilitators had made to the learning experience:

I'd say the most valuable experience was when you got one of those committed lecturers, ones that had a passion for the work they were doing, and a couple of equally motivated students and you sat down in a group session talking about some sort of problem or issue you were facing in the course, and that was just such a powerful experience. One-to-one facilitation, face-to-face facilitation was excellent. You weren't tied to one facilitator; if you didn't like the one you got, then you could pick another one. When it really counts, they're there.
During the interviews lecturers, students and graduates voiced their misgivings about the first year experience which they felt lacked structure and direction to an uncomfortable degree. Most of the students and graduates I spoke to felt that it was not until half-way through their second year that they had understood the course or that they had gained some insight into where the course was leading them. Students commented that 'the lecturers had one weakness in the first year—they relied on people to come out of school and be autonomous immediately.' If staff were not able to provide appropriate learning experiences for the students, then, inevitably they floundered. While the course is acknowledged to be 'experience rich,' it nevertheless has a 'flip side,' namely the slower than normal generation of the students' knowledge base. More than one member of teaching staff acknowledged that 'the transformation of experience into intellectual frameworks seems not to be as good as we would like.'

Though some older, more entrenched attitudes towards education still persist within the School ('Not everyone is going to be totally comfortable with the idea of students taking on board autonomy of learning'), there is clearly evident a high degree of commitment to the philosophy and the vision of the 'leaders.'

'I think we could prepare better resource materials' 

One of the reasons advanced for this was the lack of an extensive body of resource materials. The course demands intensive one-to-one facilitation and staff often experience burn-out because of the high energy levels required of them and consequently realise the need to support student learning with quality resource material, both produced in the School and provided by the Library. The School has produced a series of AGPAKs, or booklets outlining in detail the course philosophy and learning objectives for the various subject areas. Though these are under constant review, a member of staff admitted that there was room for improvement in this area:

I think we could prepare better resource material, but that doesn't seem to be appearing at the rate that I personally would like to see. We need to provide good experiences, appropriate experiences to this style of learning, and appropriate resources so the students can access the conceptual material and the knowledge fairly easily. The resource material has to be organised so that the students win when they go to access material. I think that's a pretty key thing.

The AGPAKs are clearly written and concise explanatory booklets which can be used in conjunction with other resource material to help students find their way through what must initially appear to be a confusing maze of new approaches. AGPAK SA3, What systems agriculture courses are all about, for instance, introduces students to the basic premises on which the course is built. Teaching and learning within the School are based on three different 'ways of knowing': propositional, practical and experiential. Students are encouraged to use all three in the course of their degree and to validate the knowledge they acquire in each against three different kinds of criteria: against existing knowledge; against what can be demonstrated; and against what can be felt internally and individually. The primary focus, however, is on experiential learning, or 'learning by being.' At all stages of the course students are encouraged to tackle complex issues and change with a view to improving the situation. Using an action research methodology, students learn how to identify and experience a problem,
consider changes which might improve the situation, reflect upon their likely outcomes and implement proposals for improvement—at the same time as they reflect and critically evaluate their own learning. Problem-solving, contract learning, self-directed learning and facilitation groups are all employed to help the student reach his or her potential as a learner. These approaches necessitate an extensive resource base as no two student projects are the same.

The University Library, while fully committed to lifelong learning and the role of information literacy in the process, is nevertheless constrained by prevailing budgetary restrictions and its resource collection for many years has borne the brunt of severe under-funding. However, the Librarian made it clear that although poorly funded in the past, the Library is making the best use of the resources it has by developing electronic systems for information retrieval. The staff, she said:

have been led to accept change, to come forth with innovative ideas, to be proactive, to be involved in decision-making; they see it as their library and they take enormous pride in what they do—all of them, not just the professionals but all of them.

The Library plays an important role in developing university/community relations by coordinating a Friends of the Library group, organising public performances of plays and poetry readings and hosting public lectures. It is currently engaged in preparing and acquiring material suitable for television broadcast through PAGE, shown on SBS and through initiatives like this is making a valuable contribution to lifelong learning:

This institution has signed a contract with Wollongong University to be part of the distance education push through SBS for continuing education and postgraduate education. We will now be taking some of our courses and turning them into the television distance mode and that will enhance our teaching on campus. It is also shifting the way we are teaching away from the lecture approach so that we are giving students a body of information, asking them to read material, to think about it and then to come back and discuss it.

'Assessment is really like working with the students rather than saying "Here's a hoop, you have to jump through it"'

Assessment in the course tests the knowledge that each student has acquired as well as how they have developed and utilised it in practice. Students negotiate learning contracts with their lecturers, or facilitators, in which they specify their learning objectives on which they are assessed. They are required to present learning documents with each assignment and in final year must submit a graduation document which analyses in depth the learning they have experienced in the course of their degree. These documents are comprehensive expositions of personal development as well as critical and reflective analyses of the students' learning. They provide evidence that the student has worked his or her way around the learning cycle and that he or she has developed the necessary skills to qualify as a systems agriculturalist, an autonomous learner and an effective communicator, three hallmarks of the Systems
Agriculture course. The documents are used in conjunction with oral presentations by
the students outlining and defending their research projects to a panel comprising
teaching staff and external practitioners, and often some fellow students.

At various stages throughout the course, students undergo 'assessment points' which
act as indicators of achievement and build students' confidence levels, as well as acting
as 'props' or achievable goals in the early stages of the course. In final year, students
undergo four interviews, or 'program clinics,' where the content and methodology of
the research program they have designed are assessed. A final year student described
the program clinics:

A program clinic is all about the projects you are doing, what competencies you want
to learn, how you're learning them, and our graduation interviews—that's where you
sum it all up and you say, 'I've learned this throughout the year, and I've done it
through these projects, and this is what I've got out of these projects, and this is related
to this, and this is related to that, and I feel a bigger person because of it,' and all that
sort of thing. If the lecturers feel that you haven't brought something out, then they'll
start to question you on it and you have to show that you have got it. They want to
see that you have developed not just in your communication and people skills, but in
your science and technology base and your management base as well.

Students in this course experienced the same sorts of difficulties with group work
(inequalities in the distribution of work, averaging of the group mark, etc.) as their
peers in other courses based on experiential learning. Their group work experience
was often compounded by their initial confusion in the experiential learning approach,
but these difficulties were largely resolved by final year:

The best thing is when you are working with a group of people and you have those
terrible times when the group dynamics are just shocking and you look at yourself
and the group and you read about group things, and you get over all these problems—
you work through them. Because you've done it with a group of people, it's a real
achievement—not only that the group has been able to work together but that you've
achieved a project, and if that project has been working with industry, then you receive
recognition from outside as well.

Overall, students and graduates felt that the assessment measures in place caused
students to take responsibility for self-assessment, in the first instance, and ultimately
to become less competitive ('You're really competing with yourself') and more
collaborative learners. They learned how to monitor their comprehension at all stages
of the course and to evaluate their own learning. In this way they developed a
repertoire of learning skills which they could take with them into the real world and on
which they could confidently build in the future.
Cautionary Tales

The following ‘cautionary tales’ express some of the ‘accumulated wisdom’ of teaching staff in the School.

First, they stressed the need for all staff to believe in the experiential learning approach, to be committed to it, and to share and participate in the formulation of the values expressed in the course philosophy.

Second, they felt that teaching staff in such courses must be role models for the learning approaches which they are promoting and must be able to provide a comprehensive range of learning experiences suited to a whole range of student learners.

Third, it is vital that teaching staff provide a strong support base and adequate direction and guidance for first year students so that they gain confidence earlier, rather than later in the course.

Fourth, the course must provide opportunities for students to develop their propositional and practical knowledge at the same rate as their experiential knowledge.

And lastly, it is imperative that teaching staff do not expect too much autonomous learning too soon. With the best will in the world, students will cling to their established ways of learning and knowing and only gradually adapt to an experiential learning approach. Staff must be prepared to ‘let go’ of their students but not ‘let them drown.’ In the words of a final year student:

I guess I was continually waiting for someone to tell me what to do. I wanted to know what I had put into my project, I wanted to know what the lecturers wanted me to know. Whereas now, I don’t really care what the lecturers want me to know—it’s what I want to know, and I’m going to go and find out.

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A Repertoire of Learning Skills

Business (Management)
Victoria University of Technology

Introduction

The Victoria University of Technology is one of the country’s newest universities. Founded in 1990 following the amalgamation of the Western Institute of Technology and Footscray Institute of Technology, the Victoria University of Technology operates on five campuses: City, Footscray, Werribee, Melton and St Albans. The St Albans campus is situated in the industrial heartland of the western metropolitan region of Melbourne and caters for a student population of about 4,000 comprising disadvantaged groups, speakers of English as a second language, women and mature age students, as well as managers with no formal education and school leavers from the area.

Its Faculty of Business is made up of five departments: Accountancy and Law; Applied Economics; Business Computing; Hospitality and Tourism Management; and Management. Within the Department of Management there are three areas of undergraduate specialisation: administrative management; human resources development; and management or manufacturing management.

The Victoria University of Technology has been a trail-blazer in the area of credit transfer and articulation. The St Albans, Werribee and Melton Campuses house both a TAFE and higher education sector. The Pathways Project, funded by the Office of Higher Education, recommended articulation pathways across all the Victoria University of Technology faculties, including Business.

The focus of this profile will be upon the opportunities for articulation and credit transfer at the Victoria University of Technology and in addition, the cooperative education program which operates within the Faculty of Business. Both of these encourage students to develop a range of learning skills which they can apply in a number of different contexts, whether in higher education or industry.

‘We were a university established for the west. We listened to what the community wanted’

The St Albans campus (formerly part of Western Institute) of the Victoria University of Technology stands in a semi-rural landscape that is rapidly being overtaken by encroaching housing and industrial developments. The diverse multicultural population which it services in Melbourne’s western region formerly had limited access to university education, with the only existing higher education institution, Footscray Institute of Technology, serving a population higher than that of Tasmania. The participation rate in higher education in the region was lower than the Victorian average.
When the Western Institute was in its planning stages, every effort was made to involve
the local community in contributing to the provision of courses that would be relevant
to their own special needs. As their needs were predominantly related to their
workplace, it is not surprising that the Victoria University of Technology has
developed a reputation as a vocational university which caters for the special needs of
disadvantaged groups, multicultural minorities, Kooris, women and second language
students. In the first few years of its existence, the Western Institute had a selection
process which was based on past academic performance at secondary and TAFE level
and a pre-selection test as well as a commitment to providing a high percentage of
places to people living and working in the Western suburbs.

Special assistance is available to help mature age, and in particular women students
make the transition from the community to university and to give them the necessary
confidence to break with their cultural and family traditions in order to leave the home
and enter university life. These students need a special kind of care—pastoral
care—to help them make the transition, and the Victoria University of Technology
prides itself on its counselling services which offer both personal and remedial help to
reduce their anxiety levels and boost their confidence levels so that they acquire a
sense of personal agency by achieving their higher education objectives.

The Victoria University of Technology is a university with a mission to lift the
educational opportunities and standards for the people of its region. Its mission
statement, in draft form at the time of interview, states that its purpose is:

    to be recognised as a quality university, its reputation based upon the provision of
    excellent courses conducted by using best practice teaching methods; through its
    productive high quality and relevant research in designated areas, which extend the
    boundaries of knowledge and its application; and as a university which provides the
    residents of its region with a fair go through an effective emphasis on student access
    and participation.

As a lecturer said, the Victoria University of Technology’s mission is dictated by the
economic and social conditions of the region:

    If you consider our student population and where our students come from, it is to
    provide access and equity to disadvantaged students, students who don’t have role
    models, students who don’t have the confidence levels. One of the main objectives
    was to develop programs that were appropriate to students’ vocational needs,
    especially students in the western suburbs, as well as to have a gentle approach so that
    their confidence level would increase and they would be able to cope with and deal
    with the outside world. That was a very strong objective.

Many teaching staff pointed out that the original mission of the Western Institute was
grounded in a commitment to learning for life and to education as a broadening
experience. Some of Western Institute’s philosophy underpins the present University’s
attitude to curriculum design, access and participation. However, some commented
that the original ideals had become somewhat dissipated in recent years, and that the

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University needed to renew its commitment to providing a broad education for its students by facilitating interdisciplinary studies and making explicit connections between fields of study:

Our students do come from a background where their parents haven't had any tertiary education. They are very focused on their immediate environment and their goals are quite limited in many ways, and I think a broader education does try to change those views and it enables them to function as more fully rounded people.

'A window to their potential'

The Victoria University of Technology is acknowledged as an early leader in developing policies for articulation and credit transfer to help its students reach their full academic potential and identify their preferred learning style and context. In January 1992, the Victoria University of Technology, in conjunction with other universities, embarked on a Credit Transfer Project across all faculties and campuses. The development of a national system of credit transfer (defined by the Australian Vice-Chancellors' Committee as 'the granting of advanced standing by institutions—either in the same or a different sector—to students on the basis of previous study undertaken in another institution—and potentially on the basis of recognition of prior learning' (Australian Vice-Chancellors’ Committee, 1992, Glossary), was foreshadowed in the Dawkins White Paper of 1988 which stated that membership of the Unified National System would be dependent upon the provision of improved mechanisms for credit transfer.

The Victoria University of Technology’s project was formalised under the title, 'Pathways.' The Pathways Project received large scale funding from the Office of Higher Education in order to 'develop multi-directional articulation pathways between TAFE and higher education for students.' The Australian Vice-Chancellors’ Committee defines ‘articulation’ as ‘the specific design of education and training programs in ways which facilitate and maximise opportunities for credit transfer, and/or for students to proceed from one level of education/training to the next (not necessarily with credit) (Australian Vice-Chancellors’ Committee, 1992, Glossary)'.

Put simply, Pathways opens up access between the TAFE and higher education sectors on the basis of studies already completed in one or other sector, either within one particular university or TAFE college, or between universities and TAFE colleges in other locations, and, as well, on the basis of achievement, training or work completed in the workplace. The important factor is that the articulation process operates both ways. Students wishing to upgrade their qualifications from the TAFE sector may apply through the Victoria Tertiary Admissions Centre for entry into the Victoria University of Technology, and university students who feel they may be more suited to study in the TAFE system may apply directly to the on-campus TAFE division of the Victoria University of Technology.

The Pathways Project at the Victoria University of Technology appointed a staff of six to undertake an intensive 18 month study of the existing policies and procedures for articulation and to design new ones, to analyse TAFE and University courses for areas of commonality for which credit could be granted to articulating students ('what we
are saying is that some of this subject, plus some of this subject, plus some of that one will give you credit in this subject'), and to promote recognition of the credit transfer policies both within the University and the broader community. Their work has not been limited to the TAFE-higher education interface at the Victoria University of Technology (TAFE colleges and higher education institutions exist side by side on three of the Victoria University of Technology’s five campuses), but has extended into all TAFE colleges in the western metropolitan region and into some schools. Officers of the Project have liaised with the education community on all levels to promote the twin policies of articulation and credit transfer.

In conjunction with the University’s Computer Aided Learning Centre, Pathways Project staff have developed an interactive touch screen information system called the ‘Pathways Explorer.’ The package can be accessed by students in the libraries of each campus and there are plans to market it to other universities in the near future. The package enables students to key in their preferred TAFE or higher education option and to establish what credit they may be eligible for once they have gained a place at the Victoria University of Technology.

Among its many achievements, the Pathways Project team, in conjunction with Pathways Project teams from other universities, counts modifications introduced by the Victorian Tertiary Admissions Centre to its application for tertiary entry form:

TAFE students, when they want to articulate, have to go through the Victoria Tertiary Admissions Centre system. The Victoria Tertiary Admissions Centre form is designed for Year 12 students and we found that it really did disadvantage some TAFE students in the way they interpret the form and complete the form. We were able to take those issues to student records and to Victoria Tertiary Admissions Centre and let them know, and they have in fact changed the design, added a few questions that are designed for articulating students.

As well, the information system in this University was designed for a specific purpose and specific results. It really didn’t give you any information on articulating students. So an officer worked with student records and with students so that the record keeping system has been vastly improved. We have worked with Victoria Tertiary Admissions Centre so that they can flag the articulating student right from the start. In future, we can with confidence follow the progress of these articulating students and instead of anecdotal evidence we can actually say, ‘Yes, TAFE students do as well as any other, they are not disadvantaged by having gone through TAFE first.’

Staff in the Faculty of Business see the Pathways Project as one of the means of encouraging lifelong learning (‘it caters for students in the western region so they can have a pathway to lifelong learning’), because it recognises prior learning in various contexts. They see the inclusion of mature age students in undergraduate courses as an essential part of the process of drawing on life experience to enrich formal study:

We need to make sure that equal access is given to mature age students because they bring so much life experience to courses and subjects, and the students respond so well to their experience. If they work in a group with those students they just learn so much.
I think students from a very early age seem to have to be focused into a very narrow tunnel, and they really are so busy achieving and marks are so important to them that they lose the idea of learning as a pleasurable experience. Mature age students have thought about the values associated with learning and their own values, and they come to it with such a different attitude.

Recent government pressures to boost the number of school leavers entering tertiary institutions at the expense of mature age students are strongly resisted by teaching staff in the Department of Management:

We would have a lot more mature age people coming back into learning if we didn’t have that quota. And we see, especially in management programs, that you can do so much more with mature age people.

‘We encourage students to stay at the Victoria University of Technology and pick the sector that is right for them at the moment’

The Faculty of Business Pathways Officer has acknowledged that some students, given the opportunity to enter a tertiary course, will often choose a course that is either not suited to their needs or not appropriate to their standard of academic achievement:

Students are making all sorts of decisions when they are 17 or 18 years old and it is not until they get halfway through the course that they realise that is not really what they wanted. Now those students will probably spend most of their [undergraduate] life on contract, being what we call ‘show cause’ students (i.e., ‘show us why you should stay here’) and come out after five or six years with a lousy degree.

What we want to do is to encourage them to say, ‘Well, possibly I made a bad choice and I’m not ready for the learning style in higher education yet. I’ll move over to TAFE—it’s not a backward move, it’s a different move.’ TAFE will give them the vocational skills to be employed at the end, and then if time and circumstances change they can come back to higher ed.

The Pathways Project has found that this is, in fact, what happens and that students with a TAFE qualification or some credit for studies achieved in the TAFE sector and the accompanying additional level of maturity that comes with post-secondary study, do very well indeed in university courses. Their contribution in class was acknowledged by a lecturer:

A lot of those who do come in have studied part time at TAFE for three or four years and they’re used to study and they’re very high achievers. They want to continue. They come in and settle down and they contribute a lot to the running of the classes because they contribute well in discussions.

Conversely, they have found that those students who have enrolled in the University under enormous pressure from their families to acquire a university degree, sometimes flounder academically or are unwilling to take the six or so years to complete a degree part-time while they hold down a job. These students may then decide to opt for a
TAFE program on the understanding that they will be able to return to university and gain credit transfers based on their achievements in the TAFE sector, when their work commitments permit. A member of teaching staff summed up the need for flexible entry points to university to facilitate lifelong learning:

You get a lot of people who are scrambling into universities who are not ready yet, who would be better served by going to other institutions. Timing is important when it comes to higher education. You have to be ready to do what you are going to do because if you’re not ready you won’t perform and you won’t enjoy it and it could put you off something that could be worthwhile in the future.

‘We try to ensure that students develop the ability to learn outside the traditional classroom’

The Victoria University of Technology, like many Australian universities, has developed a cooperative education program with industry which students can undertake in the third year of their degree before returning for a final year at university. During their time in industry the students are treated as regular, paid employees, subject to the same terms and conditions as permanent staff.

At the Victoria University of Technology, about 20 per cent of students enrolled in the Management, particularly Manufacturing Management degrees are able to find places in industry, though the program’s coordinator admitted that the number of places had been severely curtailed during the recent recession. The coordinator and other program officers liaise with industry management throughout the region to secure places for their students, often meeting some resistance as ‘the manufacturing managers are not used to getting people with a manufacturing management qualification.’

A high proportion of cooperative education students is offered permanent positions on completion of their degrees (‘these are carrots for the students, they see this as a way of stitching up something for later on’), but the participating organisations are under no compulsion to offer them continuing employment. Rather, ‘it is a way for them in the long run to sample a potential recruit without making a long-term commitment.’

Every six weeks the officers of the cooperative education program visit the students on site to gather feedback from them and their supervisors on the effectiveness of the venture. Periodically, the employers submit appraisals reporting on students’ progress and project work within their organisations. These projects may be part and parcel of their particular job, or they may be over and above their specific responsibilities.

Teaching staff in the Department have found that students benefit enormously from their work experience in terms of self-confidence, independence and the extension of their repertoire of learning skills:

That year out is a real experience in terms of not just learning technical information, picking up on skills related to their accounting, economics or whatever, but they actually change as people, they become more self-confident, more self-assured, so when they graduate they are quite independent.
Staff in the Department of Management and their students and graduates in general tended to view lifelong learning as a means of dipping in and out of education as and when it became possible or desirable. The vocational emphasis of the University was reflected in the general belief that students needed to be prepared for a world of change where up-dating of professional skills was essential to ensure continuing development. There was an obvious commitment to the Pathways Project and the cooperative education program as two means of reaching understanding of personal strengths, weaknesses and preferred learning styles and developing an extensive repertoire of learning skills.

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Prevailing Attitudes: A Snapshot

In all the interviews we asked participants to describe their ‘ideal learner,’ the kind of learner whom they hoped would graduate from their course. Staff, students and graduates from the Department of Management envisioned a graduate who would embody the following qualities, all of which can be subsumed under the various qualities listed in the profile of the lifelong learner given earlier in this report:

- enthusiasm;
- interest in their discipline area;
- commitment to their own personal and professional development;
- information literacy;
- open-mindedness;
- a collaborative approach to learning;
- highly developed communication skills;
- highly developed interpersonal skills;
- adaptability to and flexibility in different learning contexts in the workplace;
- and
- practicality.

The students and graduates of the course generally had a more pragmatic, short-term vocational view of lifelong learning than the teaching staff. One graduate, for example, felt that lifelong learning was ‘the continuation of learning in order to prosper.’

Teaching staff, however, demonstrated a much broader conception of lifelong learning as a process extending through all levels of formal schooling to all kinds of informal learning.

A lecturer summed up the Department’s vision of the lifelong learner as:

Somebody who is an adaptable and flexible learner; one who can look at a situation and draw upon all the different skills that they’ve been given and make a decision based on that. It’s not all going to be perfect out there and so you’ve got to learn to adapt to different situations. We stress change, and that change is good. We’d expect them to be capable of picking up whatever is thrown at them. We expect them to be really quite flexible.
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A Catalog of Goals of Higher Education


The following catalogue of goals was developed by Howard Bowen for his study on Investment of Learning: The Individual and Social Value of American Higher Education. The goals have been identified in a reading of more than 1,000 goal statements in the writings of noted educational philosophers and critics of the past and present, reports of public commissions and faculty committees, and statements of leading educators in speeches, articles, and institutional reports.

I. Goals for individual students

A. Cognitive Learning

1. Verbal skills. Ability to comprehend through reading and listening and to speak and write clearly and correctly. Effectiveness in the organization and presentation of ideas in writing and in discussion. Possibly some acquaintance with a foreign language.

2. Quantitative skills. Ability to understand elementary concepts of mathematics and to handle simple statistical data and statistical reasoning. Possibly some understanding of the rudiments of accounting and the uses of computers.

3. Substantive knowledge. Acquaintance with the cultural heritage of the West and possibly of other traditions. Awareness of the contemporary world of philosophy, natural science, art, literature, social change, and social issues. Command of vocabulary, facts, and principles in one or more selected fields of knowledge.

4. Rationality. Ability and disposition to think logically on the basis of useful assumptions. Capacity to see facts and events objectively—distinguishing the normative, ideological, and emotive from the positive and factual. Disposition to weigh evidence, evaluate facts and ideas critically, and to think independently. Ability to analyze and synthesize.


6. **Esthetic sensibility.** Knowledge, interest, and responsiveness to literature, the fine arts, and natural beauty.

7. **Creativeness.** Imagination and originality in formulating new hypotheses and ideas and in the producing of new works of art.

8. **Intellectual integrity.** Understanding of the idea of ‘truth’ and of its contingent nature. Disposition to seek and speak the truth. Conscientiousness of inquiry and accuracy in reporting results.

9. **Wisdom.** Balanced perspective, judgment, and prudence.


B. Emotional and moral development

1. **Personal self-discovery.** Knowledge of one’s own talents, interests, values, aspirations, and weaknesses. Discovery of unique personal identity.


3. **Human sympathy.** Understanding of human beings. Humane outlook. Capacity for empathy, thoughtfulness, compassion, respect, tolerance, and cooperation toward others including persons of different backgrounds. Democratic and nonauthoritarian disposition. Skill in two-way communication with others.

4. **Morality.** A valid and internalized but not dogmatic set of moral principles. Moral sensitivity and courage. Sense of social consciousness and social responsibility.

5. **Religious interest.** Serious and thoughtful exploration of purpose, value, and meaning.

6. **Refinement of taste, conduct, and manner.**

C. Practical Competence

1. **Traits of value in practical affairs generally.** Virtually all of the goals included under cognitive learning and emotional and moral development are applicable to practical affairs. In addition, the following traits, which are more specifically related to achievement in practical affairs, may be mentioned:

   a. **Need for achievement.** Motivation toward accomplishment. Initiative, energy, drive, persistence, self-discipline.

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2 Esthetic sensibility is often classified under affective development rather than cognitive learning. It contains elements of both.
b. **Future orientation.** Ability to plan ahead and to be prudent in risk taking.

c. **Adaptability.** Tolerance of new ideas or practices. Willingness to accept change. Versatility and resourcefulness in coping with problems and crises. Capacity to learn from experience. Willingness to negotiate and compromise. Keeping options open.

d. **Leadership.** Capacity to win the confidence of others, willingness to assume responsibility, organizational ability, decisiveness, disposition to take counsel.

2. **Citizenship.** Understanding of and commitment to democracy. Knowledge of governmental institutions and procedures. Awareness of major social issues. Ability to withstand propaganda and political argumentation. Disposition and ability to participate actively in civic, political, economic, professional, educational, and other voluntary organizations. Orientation toward international understanding and world community. Ability to deal with bureaucracies. Disposition toward law observance.

3. **Economic productivity.** Knowledge and skills needed for first job and for growth in productivity through experience and on-the-job training. Adaptability and mobility. Sound career decisions. Capacity to bring humanistic values to the workplace and to derive meaning from work.

4. **Sound family life.** Personal qualities making for stable families. Knowledge and skill relating to child development.

5. **Consumer efficiency.** Sound choice of values relating to style of life. Skill in stretching consumer dollars. Ability to cope with taxes, credit, insurance, investments, legal issues, etc. Ability to recognize deceptive sales practices and to withstand high-pressure sales tactics.

6. **Fruitful leisure.** Wisdom in allocation of time among work, leisure, and other pursuits. Development of tastes and skills in literature, the arts, nature, sports, hobbies, community participation, etc. Lifelong education, formal and informal, as a productive use of leisure. Resourcefulness in overcoming boredom, finding renewal, and discovering satisfying and rewarding uses of leisure time.

7. **Health.** Understanding of the basic principles for cultivating physical and mental health. Knowledge of how and when to use the professional health care system.

D. Direct satisfactions and enjoyments from college education.

1. During the college years.

2. In late life.
II Goal for Society$^3$

A. Preservation and dissemination of the cultural heritage.

B. Discovery and dissemination of knowledge and advancement of philosophical and religious thought, literature, and the fine arts - all regarded as valuable in their own right without reference to ulterior ends.

C. ‘Improvement’ in the motives, values, aspirations, attitudes, and behavior of members of the general population.

D. Progress in the broad social welfare as reflected in religion, health, order, justice, information, care of the underprivileged, etc. Progress toward the identification and solution of social problems.

E. Economic efficiency and growth.

F. Enhancement of national prestige and power.

G. Progress toward human equality.

H. Progress toward personal freedom and autonomy.

I. Rendering of useful services to various groups of society.

J. Direct satisfactions and enjoyment received by the population from living in a world of advancing knowledge, technology, ideas, and arts.

K. Over the long periods of time, exerting a significant and favorable influence on the course of history as reflected in the evaluation of the basic culture including the fundamental social institutions.

$^3$ These goals may be achieved through instruction, through research and related activities, or through public services.
Advertisement Calling for Submissions to the Study

Academic Staff Development Unit
Queensland University Of Technology
Call for submissions

The Enabling Characteristics Of Undergraduate Education

The Higher Education Council of the National Board of Employment, Education and Training, jointly with the Australian Vice-Chancellors’ Committee, has commissioned a study of those characteristics of undergraduate education which enable and encourage graduates to engage in formal and informal learning throughout their lives.

The study will examine the degree of active commitment by institutions of higher education to their graduates’ willingness and ability to continue learning throughout life. It will investigate and make recommendations on the ways in which the higher education system itself, and the individual institutions within it, can promote and implement the principles of lifelong learning and enhance students’ ‘learning-to-learn’ skills in the course of their undergraduate studies. In particular, it will provide information on those aspects of:

- course content
- course structures
- teaching modes
- assessment practices
- student support services

that embody the principles of lifelong learning. The Report will make recommendations for organisational, curricular, institutional and staff development aspects of lifelong learning and will identify and provide information on a number of instances of ‘best practice’ in a range of Australian institutions.

The Project Director, Assoc Prof Philip Candy (Director, Academic Staff Development Unit, QUT) is seeking written submissions on any of the above aspects of the study from interested persons, graduates, employers, professional associations, institutions of higher education, academic development units, staff associations, student groups, libraries and student support services.
Enquiries and written submissions should be directed to:

Dr R G Crebert
Academic Staff Development Unit
Queensland University of Technology
GPO Box 2434
Brisbane
Queensland 4001

Closing date for submissions: 31 August 1993
### Responses to the Call for Submissions

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<td>Associate Librarian, User Services, University of Central Queensland.</td>
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<td>CEDAM, Australian National University.</td>
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<td>Bradley, Professor Denise</td>
<td>Deputy Vice-Chancellor (Academic), University of South Australia.</td>
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<td>Senior Management Group, Library, The University of Melbourne.</td>
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<td>Bundy, Mr Alan</td>
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<td>Librarian, Learning Strategies Support, TAFE-TEQ, Brisbane.</td>
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<td>Advisory Centre for University Education, The University of Adelaide.</td>
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<td>Head, Language and Learning Services, Monash University.</td>
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<td>USQ Student Association, University of Southern Queensland.</td>
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<td>Crombie, Dr Alastair</td>
<td>Executive Director, Australian Association of Adult and Community Education Inc.</td>
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<td>50</td>
<td>Crow, Dr Don</td>
<td>Principal Lecturer, School of Integrated Business Studies, Auckland Institute of Technology, Auckland, New Zealand.</td>
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Parslow, Mr Graham, Education Group, Australian Society of Biochemistry and Molecular Biology.
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Kimber, Professor David, Associate Dean, Faculty of Business, Royal Melbourne Institute of Technology.
Kirk, Assoc Professor Joyce, Deputy Chair, Board of Education, Australian Library and Information Association.
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<th>Name</th>
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<tr>
<td>Kirk, Assoc Professor Joyce</td>
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<td>Knowles, Assoc Professor David</td>
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<td>Long, Dr Eleanor</td>
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<td>McKay, Professor Ron</td>
<td>Deputy Vice-Chancellor, Northern Territory University.</td>
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<td>McKenzie, Ms Anita</td>
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<td>Morley, Ms Diane</td>
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<td>Powell, Dr John</td>
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<td>Queeney, Dr Donna</td>
<td>Penn State University.</td>
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<td>Shore, Ms Margaret and Naylor</td>
<td>Lecturers in Further Education and Training, TAFE, Sunshine Coast, Queensland.</td>
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<td>Stokes, Dr Gil</td>
<td>Campus=Link, Expert Access Pty. Ltd.</td>
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<td>Trigwell, Dr Keith</td>
<td>Director, Centre for Teaching and Learning, University of Technology, Sydney.</td>
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<td>Webb, Dr Carolyn</td>
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<td>Webster, Dr J. A.</td>
<td>Chief Executive, The Institution of Engineers, Australia.</td>
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<tr>
<td>Weeks, Mrs Patricia</td>
<td>Academic Staff Development Unit, Queensland University of Technology.</td>
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<td>Wilkins, Dr P. S.</td>
<td>Assistant Secretary General, Australian Medical Association Ltd.</td>
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<td>Worsnop, Mr Percy</td>
<td>Project Manager, Australian Chamber of Commerce and Industry.</td>
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Appendix D


List of Courses
Randomly Selected for Comparative Purposes

Courses by Department of Employment, Education and Training Fields of Study

Agriculture
Bachelor of Rural Science, University of New England, Armidale
Bachelor of Agricultural Science, The University of Queensland

Architecture
Bachelor of Surveying, The University of Newcastle

Arts, Humanities, Social Sciences
Bachelor of Arts (Journalism), Bond University
Bachelor of Arts (Fine Arts), Northern Territory University

Business
Bachelor of Business (Accounting), Australian Catholic University

Education
Bachelor of Education (General Primary), University of Western Sydney, Nepean
Bachelor of Education (Early Childhood), The University of Wollongong

Engineering
Bachelor of Engineering in Civil Engineering, Swinburne University of Technology

Health
Bachelor of Applied Science in Physiotherapy, University of South Australia
Bachelor of Medicine and Bachelor of Surgery, The University of Western Australia

Law
Bachelor of Laws, The University of Tasmania, Hobart
Bachelor of Laws, Flinders University of South Australia

Science
Bachelor of Science (Chemistry), University College, University of NSW, Australian Defence Force Academy
Bachelor of Applied Science in Computer Science, University of Canberra
Bachelor of Information Technology, Bond University

Veterinary Science
Bachelor of Veterinary Science, The University of Queensland
Bachelor of Veterinary Science, The University of Melbourne
List of Case Study Programs
Selected for Indepth Profiling

Courses by Department of Employment, Education and Training Fields of Study

Agriculture
Bachelor of Applied Science (Systems Agriculture), The University of Western Sydney, Hawkesbury.

Architecture
Bachelor of Applied Science in Environmental Design, The University of Canberra.

Arts, Humanities, Social Sciences
Bachelor of Arts (Visual Arts), Edith Cowan University.

Business
Bachelor of Business (Management), Victoria University of Technology.
Bachelor of Commerce in Accounting, The University of New South Wales.

Education
Bachelor of Education in Adult Education, The University of Technology, Sydney.

Engineering
Bachelor of Engineering in Communication Engineering, Royal Melbourne Institute of Technology.

Health
Bachelor of Medicine, The University of Newcastle.
Bachelor of Medicine, Monash University (Community Medicine strand).
Bachelor of Nursing, Griffith University.

Law
Bachelor of Laws (LLB), Queensland University of Technology.

Science
Bachelor of Science, The University of Adelaide (Physiology strand).
Bachelor of Applied Science in Information Studies, The University of Technology, Sydney.

Bachelor of Computing, The University of Tasmania.

Veterinary Science

Bachelor of Veterinary Science, Murdoch University.

Additional courses and programs

Liberal and General Studies Program, The University of New South Wales.

Context Curriculum, The University of Melbourne.

Campus =Link programs at Queensland University of Technology.

Student support services:

Study skills units

Study Skills Centre, The Australian National University.

The Language and Learning Service, Advisory Centre for University Education, The University of Adelaide.

Libraries

The University of Melbourne Library.
Schedule of Questions used in Interviewing members of Academic Staff

Lifelong learning

1. Can you outline your own understanding of lifelong learning?

2. Apart from knowledge and technical proficiency, what outcomes do you feel universities should be aiming for?

3. What are some of the ways in which universities can foster lifelong learning in their undergraduate students?

4. What scope is there for staff to engage in lifelong learning?

5. Why do you think your course is such a good example of lifelong learning in practice? Why is it ‘special’?

6. What advice would you offer to colleagues wanting to give greater emphasis to lifelong learning in their curricula, or to introduce innovative practices such as you have implemented? What are some of the pitfalls you would warn them about and what are some of the benefits to be gained?

7. What kind of learner are you hoping will graduate from your course? Can you describe your ‘ideal’ graduate?

8. What kind of qualities do you feel employers are looking for in new graduates?

9. To what extent do you involve the professions/employers/industry in developing your curriculum?

10. What do you do to promote continuing education to your students?

11. As far as you know, do the professional associations for which you are preparing graduates have any policies on lifelong learning? If so, do these influence accreditation practices?

Institutional commitment to lifelong learning

12. Do you think your university in general is committed to the idea of lifelong learning? Can you elaborate on this?

13. How have you been made aware of your university’s attitude towards lifelong learning? (e.g., mission statement, public rhetoric, policies, academic staff development units, etc.)

14. Can you give me any examples where the university has supported particular initiatives you have taken to introduce lifelong learning into your course?
15. On the other hand, is there anything at your university that works against putting more emphasis on lifelong learning in the undergraduate curriculum?

16. What aspect of the undergraduate curriculum would you most like to change so that there is a greater emphasis on lifelong learning?

17. How would you go about doing this?

18. What are your views on a common foundation year program?

**Course structure**

19. Are there any aspects of the way the course is structured that teach the students to become lifelong learners? Can you describe them?

20. How is the course structured so that the students move from being dependent learners to independent learners? How do you do that?

**Course content**

21. What are your views on the amount of content in the curriculum?

22. How do you overcome the problem of being tempted to pack too much into the curriculum?

23. What kind of balance is there between theoretical and practical content?

24. What provision is there to teach the students ‘learning to learn’ skills?

25. What provision is there to teach them how to access information in the library?

**Teaching methods**

26. To what extent do you make use of guest lecturers, real world experience through field trips, practicums, internships, cooperative education programs, etc.?

27. What particular teaching methods do you think are most successful in encouraging lifelong learning?

28. What provision exists for collaborative learning, work experience, cooperative learning, project work, case studies, problem-based learning, reflective practice, etc.? Can you give some specific examples that show how these put the principles of lifelong learning to work?

29. What teaching approaches do you use to develop your students’ transferable skills (e.g., communication skills, logical, lateral, flexible and creative thinking, analysis, problem-solving, team work, etc.)? Can you describe how they work?

30. Do you have your teaching evaluated regularly by your students?

**Assessment practices**

31. What specific means of assessment do you use to encourage students’ problem-solving abilities and analytical skills?

32. To what extent do your students have input into the assessment measures?
33. What kind of feedback do you give to the students?

34. How do you assess/can you assess students’ transferable/generic skills? Can you give an example?

Support services

35. How do you involve the university’s support services in the design and delivery of your course? (e.g., the academic staff development unit, library, CBE, student services). Can you give some examples?

36. Can you suggest any ways they could improve their support for students/academics in your course?

Conclusion

37. In your view, what measures does your university need to take to ensure lifelong learning is incorporated into the undergraduate curriculum?

38. What would a greater focus on lifelong learning mean for the higher education system generally?

39. What would it mean for your graduates in terms of their employment prospects and their careers?

41. Is there anything you would like to add?
In recent years, considerable attention has been paid to the quality of teaching in higher education, and indeed Governments and institutions have channelled large amounts of money into improving practices. In 1989, HERDSA (a professional association dedicated to the improvement of teaching and learning quality) published a Checklist on Valuing Teaching, but its focus was on the responsibilities of institutions, rather than individual academics.

This present document has been prepared with the needs of individual teachers—mainly undergraduate lecturers, tutors and demonstrators—in mind. Based on a large body of research literature, and on considerable ‘hands on’ experience in higher education institutions, this checklist consists of a number of self-check questions or prompts that can be used by individual teachers or by course teams and other groups to think about their practice, not just in the classroom, but across the range of teaching-related activities. Not every question will be relevant to every situation, and even when they are relevant, they have to be interpreted in your particular context. Similarly, these questions cannot possibly be exhaustive; not only are there a variety of perspectives on good teaching but a lot more is known about effective teaching than can be conveyed in a few pages.

Despite these reservations, the questions should provide a useful and, it is to be hoped, non-threatening introduction to undergraduate teaching in higher education. Some academics who commented on earlier drafts stated that they felt ‘overwhelmed’, ‘intimidated’ or even ‘guilty’ when they thought about all the things they failed to do: others responded that they were unsure whether, and if so how, they could build these practices into their own teaching. There are two responses to these concerns. Firstly, although the questions are ‘leading’, this is not an evaluation or test; it is just an opportunity to challenge yourself or jog your memory. Secondly, there is usually help available, either from HERDSA publications (such as the Green Guide series) or from bibliographies and reading lists, or from staff developers and other colleagues. (HERDSA publications are available from PROBLARC, University of Western Sydney—Macarthur)

The important thing now—whether individually or as a group—is to set aside time to read through the prompts themselves and, when you encounter an area in which you would like to improve, resolve to do something about it. At the heart of all good teaching is student learning, and your students can only benefit if you actively seek ways to assist them to become better learners.

The Higher Education Research and Development Society of Australasia Inc. (HERDSA) is a professional association for those involved in teaching and/or research and development in higher education. HERDSA is committed to the improvement of the quality of teaching and learning.

HERDSA welcomes comments and debate on the issues raised by the checklist. Correspondence should be addressed to The President, Higher Education Research and Development Society of Australasia, C/- PROBLARC, PO Box 555, Campbelltown. NSW2560, Australia

First edition December 1992
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Designing for learning

A large part of learning is influenced by the ways that students perceive the course/subject and the expectations of the teacher. Formal course/subject requirements, content, teaching methods, assessment policies and practices and the provision of learning resources are all aspects of the teaching design which will have an impact on student learning. Students learn most effectively when these aspects fit together coherently for them, and when they perceive that course content is related to their own interests and values and to their longer term goals.

1. What do you do to inform students of course/subject requirements and help them to understand the reasons for them?

2. When you can, do you find out about students' expectations of your subject and use this information to adapt your curriculum?

3. How do you build upon students' life experience in your subjects and in your teaching?

4. Do you ensure that there is consistency between your subject objectives, the ways you teach and the ways you assess?

5. What opportunities do you give students to choose aspects of course work or assessment which are relevant to their interests and experience?

6. How do you encourage students to make effective use of libraries and other learning resources?

7. Do you take note of the gender, ethnicity and other characteristics of students in your classes and respond to their learning needs?

Relating to students

Learning is not a purely intellectual activity. It also involves ethical and personal development. For such development to occur there needs to be a climate of mutual respect, trust and open communication in which ethical and personal beliefs can be examined without anxiety. Students need to be able to discuss concerns and misunderstandings with their teacher and other students.

8. How do you indicate to students that you respect their values and beliefs without necessarily accepting those values and beliefs?

9. In what ways do you assist students to reflect on the values they hold and to develop ethically?

10. What do you do to encourage students to become aware of the potential for learning from each other and of the benefits of working in groups?

11. In what ways do you provide personal assistance to students, and/or refer them to the range of resources and agencies which are available to assist them?
Teaching for learning

Students' learning and skill development may be enhanced in many ways. However, in order to learn and develop skills and understanding in a subject or profession students must actively engage themselves. Active engagement is assisted by such things as appropriate role models, precisely structured learning activities and by encouragement to think about learning processes.

12. How do you show students your enthusiasm in the subject?

13. Do you make a conscious effort to be an effective role model for thinking and practice in your profession or discipline?

14. What approaches do you use to induct students into research and other forms of active scholarly involvement?

15. What steps do you take to extend the range of learning activities that you draw upon in your teaching?

16. How do you allow for students preferring to learn and participate in different ways?

17. What approaches do you use to help students to reflect upon their own learning intentions, behaviour and practice and to develop effective skills for lifelong learning?

18. What strategies do you adopt to help students look critically at accepted knowledge and practice in your discipline or profession?

19. What work do you include to make explicit the forms of thinking and writing in your discipline, and to help students develop competence in these?

20. How do you frame questions to help students learn effectively?

21. How do you encourage questions from students and respond in a way that facilitates their learning?

22. How do you check that your explanations are clear to students?

23. How do you respond when students indicate difficulties with content, pace, emphasis, or style?

24. If necessary, how do you find out about the causes of disruptive behaviour and remedy them?

Assessing and giving feedback

Students' approaches to learning are directly affected by the type of assessment that is used. If assessment allows for inappropriate role learning, then some students will respond accordingly. Effective assessment strategies encourage students to engage deeply with the content material of the course. Such strategies need to provide constructive feedback to students as quickly as possible as well as being valid and reliable measures of achievement.

25. How do you help students develop habits of routinely assessing their own work?
26. What strategies do you use to provide immediate feedback to students to help them improve their performance?

27. Do you identify for students the specific strengths and weaknesses of their performance and offer precise feedback about how to improve?

28. In what ways do you ensure that your assessment methods accurately assess the learning outcomes that you intended?

Evaluating teaching

Evaluation of teaching and subjects/courses for purposes of development involves collecting information from a range of sources by a range of methods and using that information to make changes. The information collected should include more than outcome measures. Since the quality of student learning is related to the way students learn, information from the students on their learning processes can be an important component of evaluation.

29. What forms of information about your teaching and your subjects do you collect on a regular basis?

30. How do you change your approaches to teaching and/or your design of your subjects in the light of the information obtained?

31. How do you find out about the approaches students take to their learning and the ways your teaching and/or your subject design affects that approach?

32. How do you use the information obtained from student assignment and examination work in evaluating your teaching and/or your subjects?

Developing professionally

For the quality of teaching and learning to improve staff should actively extend their knowledge and skills not only in their discipline or profession but also in their teaching. This may involve discussing teaching and learning issues with colleagues, reading about teaching strategies, participating in teaching development activities, reflecting upon teaching practice and engaging in research in relation to it. For senior staff members it may also involve providing developmental support or more junior members teaching in the course and also valuing their ideas.

33. What do you do to keep your expertise in your own field up to date?

34. How do you stay in touch with developments in teaching in your own discipline or profession?

35. What opportunities do you make to discuss aspects of learning and teaching with colleagues?

36. What opportunities do you make to receive feedback on your teaching from colleagues?

37. How do you go about developing your skills and expertise as a teacher?
38. What strategies do you employ to reflect upon your teaching practices and identity areas for development?

39. Do you participate in seminars, courses, or conferences which focus on learning and teaching?

40. What reading or what research relating to teaching and learning do you do?

41. In what ways do you ensure that your more junior colleagues receive your help and support?

Influencing the context of your Institution

Some aspects of teaching and learning are influenced by the institutional, political and social contexts in which they occur. Good teaching involves recognising these influences and responding at the departmental/institution/community level to enhance teaching and learning.

42. What opportunities do you create to discuss with students the wider conditions that affect their learning?

43. In what ways do you contribute to decision-making processes in your institution in order to enhance learning and teaching?

44. In what ways do you maintain and develop communication with your colleagues who teach related subjects in your department/division?

45. How do you ensure that your institution is using a comprehensive approach to teaching achievement for the purposes of tenure, promotion and developmental review?

46. Do you make use of your professional association to raise issues of curriculum concern for the discipline?

47. In what ways do you maintain your familiarity with national or local policy directions, monitor effects on teaching and learning, and voice your concerns in appropriate forums?
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