CHAPTER ONE

INTRODUCTION

Enter any university classroom on the first day of a new semester and listen to what students want to know. Invariably their interests lie in two areas. They want information about their teachers (What are they like? What do they expect of us?) and they want to know what the assessment schedule is (What assignments/examinations will we have? When are assignments due? What type of exam? Do we have lab. assignments? What is involved?).

The interest in their teachers is understandable. They will be actively involved with them over one or more semesters; these teachers will decide on the direction of the program and on the standards to be attained. Students' preoccupation with assessment is also to be expected as much is at stake on their results. Good results can ensure entry into coveted professional positions, into postgraduate programs with competitive entry criteria, and can often mean the difference between employment and unemployment. In professional courses, there is the desire to "do well" so as to maximise employment opportunities. Success in undergraduate study is seen by many students as the culmination of fifteen to twenty years of education. For better or worse, the results of the different phases of this education have been expressed in terms of the results of assessment and many students measure their own worth and their future potential in terms of their results. In a competitive system, this is the barometer by which students, their teachers, and, in many instances, their prospective employers gauge relative capacity.
Background to the study

This study is an examination of the impact that the assessment process has on undergraduate students' learning.

It is being carried out at a time when the issue of quality in higher education in Australia has been the focus of much discussion and debate for nearly a decade. The policy statement, issued by the Australian Federal Minister for Higher Education and Employment Services in 1991, *Higher Education: Quality and Diversity in the 1990s* (Baldwin, 1991), emphasised the importance of enhancing the quality of teaching. In the discussion papers written in response to the government policy statement, the Australian Vice-Chancellors' Committee, the Australian academics' unions - the Federated Australian University Staff Association (FAUSA) and the Union of Australian College Academics (UACA) - even though they found it ironic that "the Government's interest in quality has waxed as its commitment to increasing the funding of higher education has waned" (FAUSA and UACA, 1992, p. 35), expressed in strong terms their commitment to providing the teaching and scholarship that would enhance the quality of the students they were teaching.

On another level, the study is also being carried out at a time when the field of assessment has been undergoing major changes (Biggs, 1995; Gipps, 1994), when the espousal and study of constructivism in the field of educational psychology has been described as "something akin to a secular religion" (Phillips, 1995, p. 5) and when the concept of students' approaches to learning has become "one of the most influential . . . to have emerged from research into teaching and learning in higher education during the last fifteen years" (Ramsden, 1992, p. 39).

The power that assessment exerts on student learning has been the subject of many studies. For example, two key studies were carried out in the United States in the 1960s and '70s. In one, Becker, Geer and Hughes (1968) found that
students' learning was dominated by the demands of assessment tasks. In the other study, Snyder (1971) found that the stated aim of the visible curriculum often ran counter to the hidden implications of particular subjects or programs which students have to respond to if they are to survive and succeed. In particular, he found that the stated aim of the lecturer/s is more often than not superseded by the assessment demands. In one of the earlier studies in this area in the United Kingdom, Miller and Parlett (1974) used participant observation, semi-structured interviews and questionnaires to investigate students' reactions to assessment procedures. They recognised a hidden curriculum - the term coined by Snyder (1971) - operating in conjunction with the stated or visible curriculum, both impacting on individual students and on the overall teaching and learning process in many different ways. In the 1990s, Brown and Knight (1994, p. 12) expressed this relationship between assessment and the curriculum in the following way:

Assessment is at the heart of the undergraduate experience. Assessment defines what students regard as important, how they spend their time, and how they come to see themselves as students and then as graduates. It follows, then, that it is not the curriculum which shapes assessment but assessment which shapes the curriculum and embodies the purposes of higher education.

Need for the study

The situation portrayed so far appears to be relatively straightforward. The links between learning, assessment and the curriculum have been researched and the evidence of the impact of assessment is seemingly clear. Why then is there often, as Ramsden (1992, p. 17) pointed out, "an inconsistency between the outcomes of student learning as teachers and students would ideally like them to be and the reality of what students actually learn" (Ramsden's emphases).
If one examines higher education in more depth, it is obvious that the links are not so straightforward and that answers to these questions are not as simple as they might, on first reading, appear. Much of this is a result of the diversity of the system itself as well as the diversity of the people within it. This diversity is apparent in the student population within universities today, within the faculty employed and in the range of subjects and programs on offer. Diversity and complexity are further compounded by conceptual differences and by bureaucratic, social and systemic demands which impact on higher education.

The systems of higher education that exist in all industrialised countries and in many developing countries vary in many ways. At a contextual level they have varying arrangements for funding, student populations differ, varying ranges of programs are offered, faculties differ, as do the communities they serve. Some of these universities have been operating for hundreds of years, for example Oxford, Cambridge and Harvard Universities, whereas others have a much shorter history. Australia’s oldest university, the University of Sydney, is less than 150 years old. In each of these countries, as in many others, there are universities that have only recently been established and are offering university education to communities that have been, and still are, considered educationally disadvantaged. At an institutional level, Biggs (1996), in a paper discussing the assessment of learning quality, cited social and structural demands impacting on teaching and learning outcomes. While he acknowledged the need for management procedures at both the institutional and systemic levels, he also acknowledged that these procedures "determine teaching and assessment procedures, and (these) in turn impinge on students' perceptions of what and how they will learn" (Biggs, 1996, p. 14). At a conceptual level, many differences exist about the nature of higher education and its purpose (Richardson, 1981). Barnett (1990, p. 17), however, argued that while there has been much dispute about the idea of higher education, and much change and development, there exists, at the same time, a "high level of agreement over the conceptual core of higher education". This conceptual core he defines as being emancipatory in nature with students being assisted "in
becoming masters of their own thinking and development" (Barnett, 1990, p. 197).

Most academics would agree that higher education is about producing students who are capable of higher order thinking (for example, see research findings of Entwistle & Percy (1974) in the United Kingdom; Gow & Kember (1993) in Hong Kong; Knapper (1990) in Australia and Canada). While the ability to engage in higher order thinking is acknowledged as being an encompassing goal of higher education, systems of higher education in many countries are encountering criticism for not producing graduates capable of this. For example, in Australia, the National Board of Education, Employment and Training (NBEET) (1992), reported that results of surveys of employers in both Australia and the United Kingdom showed graduates lacked the ability to think creatively and flexibly, to work in teams or to communicate effectively. In the United States, there is a call - once again from planners and employers - for graduates to have better thinking skills and teamwork skills (Reich, 1992). In a report to the Senate Standing Committee on Priorities for Reform in Higher Education (1990, p. 1), Anderson said of graduates in Australian universities - "... (their) critical and analytical capacities are limited, their ability to construct and argue a case is limited". If these skills, which we can assume are higher order thinking skills, are not being acquired by graduates and yet are obviously what most academics would aim to achieve and which planners and employers require, where is the breakdown occurring? Why are graduates leaving universities not competent in the very skills their teachers identify as being at the heart of a university education? Why are there differences between the expected quality of student learning and the actual learning outcomes?

Ramsden (1992, p. 18), in his book, Learning to teach in higher education, saw these differences in the quality of learning being due to:
... differences in the ways that students go about learning and these differences can in turn be explained in terms of their experiences of teaching.

He went on to say that,

We can only improve the quality of education if we study its effects on students and look at the experience through their eyes.

To date, our knowledge of the relationship between assessment and learning is essentially based upon conventional wisdom, theorising of experts and empirical research conducted, in the main, with university teaching staff. As pointed out by Candy (1991), there is limited research that has drawn upon the actual perceptions and experiences of the learners themselves. This study seeks to redress that lack and thus to confirm or otherwise modify our existing knowledge of the relationship between learning and assessment and to move this knowledge base forward with the collaboration of undergraduate students.

One way of finding out about students' needs and their experiences in the system is to ask them to talk about them. A review of the literature into student learning, especially at the higher education level, reveals that research has been carried out in many countries throughout the whole of this century, into university teaching and into student learning but this research has generally been from the university teacher's perspective. In the last 30 years the research emphasis has broadened and a growing body of research focused on the students' experiences of learning at university has developed. This broadening of the research focus to include investigations of learning through the perspectives of both the teacher and the learner reflects the collaborative nature of the teaching-learning process, with both partners being able to contribute to the store of knowledge about this process.
Purpose of the study

Thus, the purpose of this study is to investigate the relationship between assessment and learning through the voices of undergraduate students. In particular, the study is significant in that it will improve our understanding of the ways undergraduate students approach their learning and the ways the assessment process can be designed to maximise this learning. The investigation that forms the basis of this thesis will be limited to the learners and, given this emphasis and the scale of the investigation, will not include university teachers.

Many studies are fully planned at the proposal stage and, as a result, the various stages of the research design are able to be clearly and comprehensively presented at the outset of the research report. While this study has student assessment and its impact on learning as its central issue, the research process was designed to be emergent in nature with the first phases of the study informing those that followed. The specific nature of the study emerged from the review of literature into student learning and from the first phase of the empirical research. One of the main advantages of designing the study to progress in this way was to enable it to become grounded not only in research findings reported in the literature but, as a result of the preliminary empirical phase, also grounded in students’ perceptions of learning and assessment at the undergraduate level. This way of conducting research means a deliberate but sometimes unanticipated unfolding with each phase building on previous phases akin to assembling a jigsaw puzzle: the individual pieces do not make a lot of sense at the beginning but gradually the picture takes form and eventually can be fully appreciated. (However, in this analogy, being able to use the picture on the jigsaw box as a guide does make assembling the picture easier).

The final part of this chapter provides readers with a framework for the research design - a glimpse of the whole picture - and explains the principles
underpinning the development of this design. It outlines how the different stages of the research design relate to each other and develop out of one another and how these stages complement each other and effectively investigate the ways the assessment process impacts on undergraduate student learning.

Because of the contextual nature of learning and of teaching, this study does not seek to find "laws" about student learning. Instead, learners' perceptions are probed to provide insights that will add to our store of professional knowledge and understanding. This orientation is expected to yield material that will inform university teachers at a level where they can best operationalise instructional systems that will enhance the links between assessment and learning at the classroom level.

Organisation of this report

In this study, in order to gain an accurate understanding of the relationships between assessment and learning, it was decided to centre the research directly on students' perceptions, experiences, beliefs and attitudes. This decision was based on the findings and recommendations that emerged from studies already carried out in the field of learning and assessment in higher education.

This present study is guided by two needs: the need to confirm the relationships that have been found to exist between the assessment process and student learning as stated in the literature; and the need to further explore issues that arose in the course of the study. In broad terms, confirmatory and exploratory aspects of this study are achieved through a review of the literature, through a series of interpretive, in-depth interviews in which the perceptions and experiences of learners were explored, and through a survey of a larger group of students in which specific issues that arose out of the literature review and the interview study were further investigated. Each part of the study complements the others. All provide information that assists in
gaining a richer understanding of the issues being researched. Figure 1 shows the three stages of the study and the research methods employed in each.

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<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
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<tr>
<td>Literature review</td>
<td>Literature review</td>
<td>Survey of students</td>
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<td>In-depth interviews</td>
<td>In-depth interviews</td>
<td>(n=418)</td>
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Figure 1.1: Stages 1, 2 and 3 of the study

As stated in the introductory sections of this chapter, the area of student learning at university is broad and diverse. While many issues related to student learning and assessment in higher education could be identified from the literature as being worthy of further study, it was decided that one way of arriving at a more specific focus was to ask students about their learning. The literature review in Stage 1 explored literature related to learning and to the impact of assessment on that learning. Interviews were then carried out to further delineate the specific issues to be investigated in Stage 2 of this study into assessment and learning. This first stage is reported in Chapters 2 and 3 and consists of a review of literature related to student learning and the reporting of a small-scale interview study. In these interviews, no specific reference was made by the interviewer to assessment *per se* unless it was first raised by the interviewee. The intention was to identify what, if any, aspects of assessment entered the stream of consciousness of interviewees when asked about learning. Aspects of assessment that did arise during interviews thus *emerged* rather than being forced. It was assumed that aspects of most significance or importance to students were most likely to be those tapped using this strategy. Further, it was assumed that these would be the areas of assessment which, if addressed, would result in the greatest payoff in terms of
improved learning outcomes. This approach was felt to be in keeping with the underpinning principle guiding the study that data directly obtained from students, in conjunction with the findings from previous studies into learning and assessment, would form the basis of the research.

At the end of Stage 1, specific issues in the broad area of student assessment and learning were chosen as the focus for the balance of the investigation. A conceptual framework to support and guide Stages 2 and 3 of the study was then developed. Stage 2 began, as reported in Chapter 4, with a literature review into specific aspects of assessment and learning. This was followed by a series of in-depth interviews of 42 students. Methodology and findings from these interviews are reported in Chapters 5 and 6 respectively. Stage 3, the final empirical phase of the study, explored dimensions identified from the interviews in Stage 2 as needing further investigation. In Stage 3, a survey questionnaire of 418 undergraduate students in three universities was conducted. The questionnaire was administered to collect data that would inform us of students' perceptions and beliefs about assessment and learning at a broad level and to further investigate relationships among the assessment, teaching, and learning processes. The research methodology for this final stage, and the findings emanating from it, are reported in Chapters 7 and 8. Chapter 9 presents an overview of the findings from the study, draws conclusions, outlines the implications derived from the theoretical and empirical investigations, makes recommendations based on findings, and suggests directions for further research.

In conclusion, this overview was included to assist the reader to gain a 'feel' for the design of the study and the rationale that underpins this design. The report now moves to Chapter 2 which provides the initial literature review outlined as part of Stage 1.
CHAPTER TWO

INTERACTIONS AMONG LEARNING, ASSESSMENT AND MOTIVATION

Introduction

In line with the student focused orientation of this study, a decision was made to explore literature based, wherever possible, on students' perceptions and experiences of the assessment process and its impact on their learning. This review of the literature into student learning in higher education has been carried out with three principal aims in mind:

1. providing a survey of literature relevant to this study so as to show the ways that past and present research relate to each other;
2. delineating those aspects of the literature that will provide insights into this present study; and
3. demonstrating how this present study will add new information to the existing body of knowledge.

To achieve these aims the three sections of this chapter have been organised in the following way. As already stated, the first section relates specifically to students' approaches to learning. An initial overview of recent orientations to research into learning is provided. This overview relates to empirical studies carried out in the United States and the United Kingdom in the 1960s and the 1970s into student learning and provides a foundation for more recent research into students' approaches to learning. This is followed by a critique of the literature related to learning in higher education mainly from a phenomenographic perspective. Phenomenography is directly concerned with students' experiences of learning - their descriptions of the phenomenon - and,
as a result, is considered highly relevant. Students' approaches to learning, their conceptions of learning and the contextual nature of learning are the key issues in this section of the literature review. This first section, then, focuses on research into learning from the learner's perspective.

The second section of this chapter, which examines part of the body of theory related to adult learning, highlights the balance that exists between the learner and his or her environment. The aims of adult learning theorists are directed towards empowering learners so that they are in control of their learning. The two aspects of adult learning that are discussed in Section Two are Knowles' andragogical process design, which formally involves students in the planning and evaluation stages of the learning process, and Mezirow's perspective transformation theory of learning - learning in which the implementation of deep cognitive processing shapes or transforms the learner.

The literature related to both student learning in higher education examined from a phenomenographic perspective and adult learning theory relate directly to the students' motivation for learning and this becomes the focus of the third and concluding section of this chapter. The chapter closes by drawing together the key elements that emerged from the three sections and synthesising these into a conceptual framework which will be used to guide the next part of the study.

A strategy employed in this report is to systematically develop and refine a model or conceptual framework that synthesises findings associated with the impact of assessment on undergraduate students' learning. A basic framework is now introduced and serves as the foundation for conceptual framework development. This basic framework makes the assumption that there is a relationship between individual learner attributes, the teaching-learning process and learning outcomes as shown in Figure 2.1.
The nature of each of the three dimensions is systematically explored throughout this report.

**Section One:**

**Interpretive orientations to research into learning**

Research that tapped students' views and experiences through naturalistic methods began in the late 1960s. Research methods employed were what Entwistle (1984, p. 1) referred to as "the new research" where the concepts developed were "altogether more accessible to teachers and students and firmly rooted in their common experiences". Entwistle (1984, p. 13) explained the shift from the traditional, quantitative approach to this *new* methodology as a means of seeking

an empathetic understanding of what is involved in student learning derived from students' descriptions of what learning means to them. It involves a shift not just of methodology, but of perspective.

This *new* research represented a deliberate move away from research which sought to predict results to that which attempted to describe students' and, to a lesser degree, lecturers' experiences. Early examples of this form of research into student learning can be seen in the work in the US of Becker *et al.* (1968), Perry (1970) and Snyder (1971) and, in the UK, in the work of Miller and Parlett (1974). The studies undertaken by these researchers attempted to convey the
perceptions and experiences of students so as to inform us of their thoughts, feelings and reactions. The researchers acted as interpreters gathering information and, through careful analysis, translated the subjects' perceptions into a written reality. The use of interpretive research techniques is a "slice of life" approach which attempts to document as closely as possible "how people feel, what they know, how they know it, and what their concerns, perceptions and understandings are" (Wolf & Tymitz, 1976, p. 77). Through its use we are able to:

* examine and become familiar with the learner's reality;
* reflect on our beliefs and our practice;
* present data that have concomitant relationships with other facets of the teaching-learning process; and,
* add further meaning and value to related quantitative data and vice versa.

**Interpretive research into student learning in the US**

In the US, Becker and his fellow researchers became participant observers in students' everyday experiences to explore students' experiences of learning. Their main finding was that students' learning was dominated by the demands of assessment tasks.

Perry's (1970) research was in the field of students' intellectual and ethical development. As a student counsellor at Harvard University, he was interested in students' thought processes and how students coped with learning at university. He used open-ended interviews to gather data and concluded that, generally, students moved from a dualistic way of thinking (ie, all questions have answers which are either right or wrong) to a more relativistic way of thinking (ie, the realisation that most problems are complex in nature with solutions being dependent on a variety of factors).
Snyder (1971) also used open-ended interviews in his research into the hidden curriculum, finding that the stated aim of the visible curriculum often ran counter to the hidden implications of particular subjects or programs to which students have to respond if they are to survive and succeed. In particular, he found that the stated aim of the lecturer/s is more often than not superseded by the assessment demands.

**Interpretive research into student learning in the UK**

In the UK, Miller and Parlett (1974) used participant observation, semi-structured interviews and questionnaires to investigate students' reactions to assessment procedures. They called their orientation and methods of research the "illuminative" approach. The chief aim of this approach was to illuminate the practices and processes of teaching and learning as they occurred in "natural" educational settings. As a result of their analysis they were able to differentiate students according to their "cue-consciousness", that is, the way students were able to recognise or seek out cues to guide them in successfully meeting assessment requirements. Three categories were identified: cue-seekers; cue conscious; and cue deaf.

Cue-seekers "deliberately interacted with the system" (Miller & Parlett, 1974, p. 52) so as to identify cues sent out by the university staff. These students actively set about making a good impression in tutorials, picking up hints about examinations, discovering who their oral examiners would be, finding out the particular aspects of subjects that were favoured by their lecturers and generally making a good impression on staff. The cue-seekers represented the smallest proportion of the students.

The next group of students, the cue-conscious, were perceptive to cues or hints that were given by lecturers but did not actively seek these out nor deliberately set out to make a good impression on university staff.
The students described as cue-deaf were by far the largest group that Miller and Parlett (1974, p. 52) identified in their study and they found these students "believed that the impression they made on staff - if they did make one - would not affect the way in which they were marked". They believed there was a "right" body of knowledge that they must learn and if they did this then they would succeed.

In their discussion of cue-consciousness, Miller and Parlett (1974, p. 69) concluded that the cue-seekers were not "taking their teachers for a ride" but had merely used a problem-solving approach to an examination system that made it difficult for students to demonstrate the extent of their learning. These cue-seekers were highly sophisticated in their approach to learning and, far from trying to manipulate the system in an effort to limit the work they were required to do, were extremely hard workers and stood out as having great maturity "in being able to stand outside the assessment situation, to analyse it coolly and to decide how to cope with it" (Miller & Parlett, 1974, p. 69).

Linking the outcomes of these studies

These four studies link in specific ways. Miller and Parlett discussed the broad stages of Perry's developmental plan as being relevant to the understanding of cue-consciousness. They saw their cue-seeking students as being parallel to the students that Perry identified as reaching the final stages of development. Both groups of students had a "relativistic" rather than an "absolute" view of academic work and of its assessment. Cue-seekers were sophisticated and proactive in their response to assessment and Miller and Parlett surmised that this might reflect an increased intellectual maturity. At the other end of the scale, the cue-deaf students could be seen in parallel terms to those students whom Perry identified as being in the early stages of development. That is, they assumed that knowledge is essentially dualistic - everything has either a "right" or a "wrong" answer and it is the lecturer's duty to teach these to students. Miller and Parlett found similar views were held by cue-deaf
students; they believed that there was a body of "right" knowledge and that they must learn this to succeed in examinations. They also believed that all authority rested with the lecturers, that they would teach you what you needed to know, and that they would not indicate what might be in the examination - it was the students' responsibility to prepare for their examinations by learning the material provided. Miller and Parlett were less specific about the middle group, the cue-conscious students, but believed that they could possibly be seen as reaching Perry's intermediate level of development in that they perceived that there was more to doing well in examinations than just knowing a body of knowledge. Cue-conscious students viewed assessment in more relativistic terms - as having an inherent uncertainty - but, at the same time, were unable or unwilling to deal directly with it. Underpinning both Perry's study and that of Miller and Parlett is the recognition of a hidden curriculum - the term coined by Snyder (1971) - operating in conjunction with the stated or visible curriculum with both impacting on individual students and on the overall teaching and learning process in many different ways.

Becker, Geer and Hughes', Perry's, Snyder's and Miller and Parlett's studies all demonstrate that learning at university cannot be separated from assessment and that the forms of assessment used need to be considered in broad terms. Miller and Parlett (1974, p. 114), at the completion of their study, outlined some of these broader terms surrounding assessment as:

... how will its adoption affect students' involvement in the subject? What will its effect be on stress? Will revision time be shortened or lengthened? Will it help "cue-seekers" more than "cue-deaf" students? ... Should "cue-consciousness" be encouraged or discouraged?

The phenomenographic orientation to research into learning

By the late 1970s the use of interpretive research methods had become more widespread. In Sweden, researchers at the University of Gothenburg were
investigating students' approaches to learning, the outcomes, and their conceptions of learning. The research focused on exploring learning processes in relation to the content of what was being learned and developed into what one of these researchers, Ference Marton, called phenomenography. Phenomenography considers students' ways of experiencing the learning process in terms of their prior experiences. A fundamental principle of phenomenography is that people interpret experiences in qualitatively different ways and it is not possible to separate the process, or the "how", that we experience and interpret, from the content, or the "what", that we experience and interpret (Marton, 1981, 1986, 1988, 1994). To gain a full appreciation of the research and its genesis, it is useful to address the nature of the research methodology employed.

As the ways students think about learning cannot be observed by the researcher, phenomenography is a "second order" research perspective (van Rossum & Schenck, 1984) in which the individual learners are asked to reflect on and describe aspects of their learning experiences. By asking students to reflect on their own learning process, researchers are better able to see how individual learners differ and to explore their perceptions of, and reactions to, the academic demands made on them. Marton (1994, p. 4424) described phenomenography as:

... the empirical study of the limited number of qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualized, understood, perceived, and apprehended. These differing experiences, understandings, and so forth are characterized in terms of "categories of description", logically related to each other, and forming hierarchies in relation to given criteria.

The studies carried out in the early 1970s in the University of Gothenburg, investigated why some people are better at learning than others. According to Marton (1994, p. 4424), two questions formed the basis of this early
phenomenographic research: "What does it mean to say that some people are better at learning than others?" and "Why are some people better at learning than others?"

The research process they followed involved asking students to read an academic text followed by an investigation into the subject's understanding through discussion and through specific questions related to the way the learner had gone about reading and gaining an understanding of the text of the reading. The student's learning was studied under comparatively natural circumstances with the phenomenographic interview being carried out as a dialogue with the aim of uncovering the way subjects experienced a specific phenomenon within their world. Interviews are used in phenomenographic research work towards establishing phenomena as they are experienced and seek to identify themes within such phenomena and to explore these as fully as possible. Often the interviews are centred on an actual task that the subject must carry out such as reading a text or discussing a specific facet of his or her learning. To allow for analysis of the data, all interviews were audio-taped and fully transcribed. The data were analysed by using a systematic procedure involving the "delimiting" of data into a "hierarchical structure of categories, chiefly related to each other in terms of similarities and differences" (Marton & Saljo, 1984, p. 55).

Even though there is a subjective element in the initial selection of categories, this phenomenographic procedure outlined by Marton (1981), because of the steps advocated to identify and describe each category as clearly as possible, ensures "rigorous qualitative analysis" (Entwistle, 1984). According to Entwistle and Entwistle (1991, p. 210), the validity of the concepts and the categories established,

... depends partly on logical analysis, partly on the match with previous research findings, and partly on the extent to which the categories provide an accurate description of 'recognisable reality'.
The findings within the area of research into student learning, based on findings from rigorous qualitative analyses of interviews and findings from inventory surveys, mean that the results are based on complementary research perspectives and multiple research methods (Entwistle, 1974; Entwistle & Entwistle, 1991; Entwistle & Ramsden, 1983).

In Marton and Saljo's (1976) initial phenomenographic study into student learning, analysis of the data involved identifying a limited number of ways the students gained understanding and then describing these different understandings using excerpts from interviews to develop carefully defined categories or what came to be described as "categories of description". These categories formed a hierarchy which illustrated the different ways the text of the reading had been understood; this hierarchically ordered set of categories is called "the outcome space". Thus,

... by referring to this outcome space the categories of description could be compared with one another to judge how appropriate, in relation to specified criteria, was the understanding they represented (Marton, 1994, p. 4424).

By using the outcome space to describe in qualitative terms how well the learners completed the learning task, researchers were able to address the question: What does it mean to say that some people are better at learning than others? (Marton & Saljo, 1984).

Phenomenography, then, allows us to study the ways people experience their world and, through the process of delimiting the data, to explore the limited number of ways that certain phenomena appear to people, "regardless of whether they are embedded in immediate experience of the phenomenon or in reflected thought about the same phenomenon" (Marton, 1994, p. 4425). The preferred method for collecting data is through interviews with individual
subjects but data collection is not limited to this one method. Other strategies used included group interviews, observations, written responses and drawings.

Within this phenomenographic context, there is the recognition that the conceptions of the individual are not "stable entities within cognitive structures but are dynamic and depend on the particular context and task in which they are being studied" (Prosser, Trigwell & Taylor, 1994, p. 219). At the same time, research in this field has identified only a limited number of conceptions and approaches about aspects of teaching and learning (Marton, 1981, 1986).

Indeed, despite variations of approach in research methodology and despite methodological limitations any investigations might have, findings from phenomenographic studies into student learning carried out in industrialised countries throughout the world are generally in agreement; there are few areas where conflicting findings are evident.

Research into students’ approaches to learning and conceptions of learning

In their initial study, Marton and Saljo (1976) found that, depending on the students’ intentions on completing the given task, in this case, reading an academic article, they adopted either a deep or a surface approach. If their intention was to understand the author's intended meaning in the article and to integrate various components of the text, they adopted a deep approach. On the other hand, if a student's intention was to memorise details in possible anticipation of questions, then a surface approach was taken.

Subsequent researchers found that these two levels of processing material could be applied to all academic study with students adopting either a "deep" approach in acknowledgement of abstract forms of learning required in undergraduate study (Ramsden, 1988; Svensson, 1977) or a "surface" approach if the assessment emphasised the superficial aspects of material to be learned (Entwistle & Ramsden, 1983; Ramsden, 1988; Thomas & Bain, 1984). If the
curriculum is overloaded (Dahlgren, 1984; Dahlgren & Marton, 1978) and if there is a lack of freedom in the student's learning environment (Ramsden & Entwistle, 1981) then students are more likely to use a surface approach to their learning. Research has also shown that students who adopt a surface approach are often pragmatic about their university studies wishing to complete their degree with the minimum of effort (Biggs, 1988). As can be seen, the approach taken depends on the appropriateness of the curriculum in meeting the students' motivational needs (Elton, 1996; Entwistle & Waterson, 1988; Fransson, 1977).

Saljo (1979a) found that students viewed learning in different ways. After conducting an interview study in which he asked subjects “What do you actually mean by learning?”, he isolated five different categories describing conceptions of learning:

1. a quantitative increase in knowledge;
2. memorisation;
3. the acquisition and utilisation of facts and procedures;
4. the abstraction of meaning; and,
5. an interpretive approach aimed at understanding reality.

These categories are hierarchical in nature with each category subsuming previous categories. Further research has shown that students' conceptions of learning influence their approaches to study and the quality of their learning (eg, Norton & Crowley, 1995; van Rossum & Schenck, 1984).

In 1979, Ramsden identified a third approach to learning, a "strategic" approach, which he related directly to assessment. Students using the strategic approach were motivated to receive the highest grades possible in assessment tasks and to organise their study and their interactions with university staff to gain maximum effect in achieving their goals. Ramsden based this new approach on the characteristics of the students identified by Miller and Parlett
(1974) as "cue-seekers" - those students that Miller and Parlett described as being hard workers who were trying to maximise their results. While students who adopted a strategic approach can be seen as diligent and well organised, the way in which they relate their study to the assessment requirements has been described by Entwistle and Entwistle (1991), in contrast to Miller and Parlett's description, as "manipulative, even cynical" (p. 208) and being strategic was perceived by some students, wanting to demonstrate their own conceptual understanding, as "a form of cheating" (p. 219). Eley (1992) described this strategic approach, or what Biggs (1988) referred to as the "achievement" approach, as "the intent to maximise performance and grades, allocating study time and effort in systematic and deliberate fashion, and adopting deep and surface strategies according to what is judged optimal and efficient for attaining grades" (pp. 231-323).

The defining features of the three approaches to learning - deep, surface and strategic - are synthesised in Table 2.1.
<table>
<thead>
<tr>
<th>Approach</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep Approach</td>
<td>Intention to understand for oneself</td>
</tr>
<tr>
<td></td>
<td>Interacting vigorously and critically with the content</td>
</tr>
<tr>
<td></td>
<td>Relating new ideas to previous knowledge and experience</td>
</tr>
<tr>
<td></td>
<td>Relating new ideas to everyday experience</td>
</tr>
<tr>
<td></td>
<td>Integrating components through organising principles</td>
</tr>
<tr>
<td></td>
<td>Relating evidence to conclusions</td>
</tr>
<tr>
<td></td>
<td>Examining the logic of the argument</td>
</tr>
<tr>
<td>Surface Approach</td>
<td>Intention simply to reproduce parts of the content</td>
</tr>
<tr>
<td></td>
<td>Accepting ideas and information passively</td>
</tr>
<tr>
<td></td>
<td>Treating task as an external imposition</td>
</tr>
<tr>
<td></td>
<td>Concentrating only on assessment requirements</td>
</tr>
<tr>
<td></td>
<td>Not reflecting on purpose or strategies</td>
</tr>
<tr>
<td></td>
<td>Memorising facts and procedures</td>
</tr>
<tr>
<td></td>
<td>Failing to distinguish guiding principles or patterns</td>
</tr>
<tr>
<td></td>
<td>Focusing on discrete elements without integration</td>
</tr>
<tr>
<td>Strategic Approach</td>
<td>Intention to obtain highest possible grades</td>
</tr>
<tr>
<td></td>
<td>Organising time and distributing effort to greatest effect</td>
</tr>
<tr>
<td></td>
<td>Ensuring conditions and materials for studying are appropriate</td>
</tr>
<tr>
<td></td>
<td>Using previous examination papers to predict questions</td>
</tr>
<tr>
<td></td>
<td>Being alert to cues about marking schemes</td>
</tr>
</tbody>
</table>

(from Entwistle, 1987; Entwistle & Ramsden, 1983; Marton, Hounsell & Entwistle, 1984)

The distinction between deep and surface approaches to learning in higher education was confirmed in Australia by Watkins (1983), in Hungary by Entwistle and Kozeki (1985), in the United Kingdom by Hounsell (1984), Laurillard (1979), Morgan, Taylor and Gibbs, (1982), and Ramsden (1979) and in Venezuela by Diaz (1984). All these studies involved the use of semi-structured interviews. In the Netherlands, van Rossum and Schenk (1984) used an open-ended questionnaire to confirm the distinction. In Hong Kong, Kember and Gow (1991), using semi-structured interviews, confirmed the use of deep approaches by students but used the term "narrow" to describe another approach to learning used by students. Students with a "narrow" orientation to learning did seek understanding of material or tasks but these tasks were narrowly defined by the lecturer and understanding was sought in a "narrow"
step-by-step fashion with memorisation of key details. Kember and Gow concluded that this narrow orientation was adopted either as a result of the students' limited command of English or because of the nature of their schooling. Tang (1991) called this attempt to understand new information, not by rote learning but in a systematic, step-by-step fashion with memorisation of key details only occurring after each step is understood, deep memorizing. It differs from a surface approach in that students are working towards understanding rather than rote learning. Further evidence of a differing approach to learning, in some Asian countries at least, was provided by Volet and Kee (1993) who found among Singaporean students a similar differentiation between rote learning and memorization. While students used memorization as a highly rated study approach, Volet and Kee (1993) found that this approach was usually only used in preparation for examinations and, then, only in some subject areas. For example, in subjects such as history and geography, memorization was seen as a valued learning approach while in other subjects, such as literature and science, learning focused on understanding and original thinking.

While research has consistently identified three approaches to learning being taken by adult learners - deep, surface and strategic - no definite evidence has been found for gender differences in the approaches students adopt. Studies to date have employed either the Study Process Questionnaire (SPQ) (Biggs, 1979) or the Approaches to Study Inventory (ASI) (Entwistle, Hanley & Hounsell, 1979), both of which measure the three approaches to learning.

In a review of the literature on gender differences in the experience of higher education, Richardson and King (1991) found limited consistent or valid evidence for gender differences in studies which used either the SPQ or the ASI to measure gender differences. While some of the studies reviewed did report some evidence for gender differences, the interpretations of these findings were viewed as problematic because of methodological limitations. In a recent review of research using the SPQ and/or the ASI to measure approaches to
learning, Wilson, Smart and Watson (1996) concluded that while findings across studies using either of the two instruments did not identify significant differences, what was clear was that eight of the ten studies making direct gender difference comparisons did not report gender differences on either the approach to learning scales or the main study scales (Clarke, 1986; Entwistle & Entwistle, 1970; Harper & Kember, 1986; Miller, Finley & McKinley, 1990; Richardson, 1993; Watkins, 1982; Watkins & Hattie, 1985).

In their own study, Wilson et al. (1996) administered both the SPQ and the ASI to two groups of first year psychology students. The response rates for the two groups were 98 per cent and 61 per cent respectively. The first sample consisted of 46 males and 119 females and the second sample consisted of 35 males and 83 females. No significant gender differences were found with either sample on any of the three approaches to learning on either the SPQ or the ASI. They concluded that given the non-significant results, they could assert with some confidence that no gender differences existed within this population of students (Wilson et al., 1996). The extent to which these findings generalise to disciplines other than first year psychology/social science students has yet to be established.

The developmental nature of student learning

Saljo's original five conceptions of learning were extended by van Rossum, Deikers and Hamer (1985) and in 1993, Marton, Dall'Alba and Beaty, on completion of a longitudinal study, extended the above categories to include a further category and made the distinction between whether learning is seen by students as a reproduction of information, or the transformation of that information through understanding. Norton and Crowley (1995) described the conceptions in the reproducing category as being naïve conceptions and those involving the transformation of information as being sophisticated conceptions of learning. These categories are shown in Table 2.2.
Table 2.2 Categories Describing Students' Conceptions of Learning

<table>
<thead>
<tr>
<th>Description</th>
<th>Conception</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Increasing one's knowledge</td>
<td>Reproducing</td>
</tr>
<tr>
<td>B. Memorising and reproducing</td>
<td>Transforming</td>
</tr>
<tr>
<td>C. Applying facts/procedures</td>
<td></td>
</tr>
<tr>
<td>D. Understanding</td>
<td></td>
</tr>
<tr>
<td>E. Seeing something in a different way</td>
<td>Transforming</td>
</tr>
<tr>
<td>F. Changing as a person</td>
<td></td>
</tr>
</tbody>
</table>

(from Marton, Dall'Alba and Beaty, 1993)

An Australian study, the "Teaching and Learning in Tertiary Education (T&LiTE)" Project, undertaken at the Queensland University of Technology, involved among other things an exploration of students' beliefs about learning. Eight hundred and forty one undergraduate students wrote one page on their ideas about learning. They were invited to consider what they thought learning was, what they knew about their own learning and how they went about learning, factors that influenced their learning and how they know when they had learned something (Taylor, 1994). The responses, which can be found in Table 2.3, revealed that,

the majority of undergraduate respondents saw learning as the pursuit of something less complex than understanding. . . . For them learning is primarily seen as an accumulation of the knowledge of others, a view that may reflect the demands of many undergraduate university courses (Taylor, 1994, p. 72).
Table 2.3 Undergraduate Students’ Responses About Their Conceptions of Learning

<table>
<thead>
<tr>
<th>Conception</th>
<th>No. of Responses</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reproducing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing one’s knowledge</td>
<td>160</td>
<td>19.0</td>
</tr>
<tr>
<td>Memorising and reproducing</td>
<td>156</td>
<td>18.5</td>
</tr>
<tr>
<td>Applying facts/procedures</td>
<td>137</td>
<td>16.3</td>
</tr>
<tr>
<td>(Subtotal)</td>
<td>(453)</td>
<td></td>
</tr>
<tr>
<td><strong>Transforming</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding</td>
<td>321</td>
<td>38.1</td>
</tr>
<tr>
<td>Seeing something in a different way</td>
<td>47</td>
<td>5.6</td>
</tr>
<tr>
<td>Changing as a person</td>
<td>20</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>841</td>
<td></td>
</tr>
</tbody>
</table>

(from Taylor, 1994)

Other researchers have reached a similar conclusion to the T&LiTE Project research - that many students start their undergraduate degrees with naive conceptions of learning and that a developmental trend to a more sophisticated conception can occur depending, to a great extent, on the academic environment in which they undertake their studies (see Marton et al., 1993; Norton & Crowley, 1995; van Rossum et al., 1985). Several studies have found positive relationships between sophisticated conceptions of learning coupled with deep approaches to learning and high quality academic outcomes (eg, Gibbs, 1992; Martin & Ramsden, 1987; Norton & Crowley, 1995; van Rossum & Schenk, 1985). In one of these studies involving first year psychology students, Norton and Crowley (1995) found that students with sophisticated conceptions of learning performed significantly better in examinations than those students who held naive conceptions.

Conversely, in his book *Improving learning: New perspectives*, Ramsden (1988, p. 14) pointed out that there is "a huge body of data" which shows that students at both school and tertiary levels are unable to demonstrate that they understand what they have learned. One example of this was reported by Dahlgren (1978) where examination results at the end of a first year economics course in a Swedish university implied that students had a good understanding of the
concepts presented. On further investigation, however, Dahlgren found that only a small proportion of the students had a deep understanding of the basic concepts and the others, because of the "overwhelming" curriculum, had decided to abandon full understanding and directed their efforts to learning enough different pieces of knowledge to pass the examination. As the current dominant school of psychological thought regarding learning is built on the premise that all learning is constructed on the basis of prior knowledge, students' prior knowledge is one of, if not the, most critical fixed variable in student learning and has far reaching consequences in courses where a firm foundation of knowledge is a prerequisite for further learning. In an Australian example, Prosser and Millar (1989) in a study into the approaches to learning of first year physics students found that only those students who had used a deep approach had comprehensively understood and mastered the technical conceptions required as foundations for further study. Those students who had relied on a surface approach and thus had gained a limited understanding of the required technical conceptions were seen as facing difficulties as they progressed through the rest of the course.

However, are the students' conceptions of learning and the approaches they take in their learning more a reflection of the state of a higher education system under stress, in terms of being asked to do more with less, than an indication of the less than sophisticated conceptions held by students? Do the students' conceptions shown in Table 2.3 indicate the inability of an education system to provide students with opportunities to develop approaches to learning that will result in deep levels of processing information and taking on new ways of looking at their world? As the typical response to the challenge to universities to increase quality at a time of decreases in real funding and a growth in the size and diversity of the student population, is to adopt practices which are likely to encourage surface approaches to learning (Nightingale & O'Neil, 1994a), maybe the way to develop more sophisticated conceptions of learning among students and to encourage them to take a deeper approach to learning is
not so much a matter of examining the characteristics and habits of learners but of investigating the contextual nature of students' approaches to learning.

In light of the above it is timely to consider firstly, at the macro level, the purpose of higher education and secondly, at the micro level, what it is that lecturers expect students to learn and the impact of the learning environment on students' learning.

The contextual nature of student learning

Brookfield (1990, p. 53) saw education's central concern being the development of a "critically aware frame of mind, not . . . the uncritical assimilation of previously defined skills or bodies of knowledge". Knowledge can be defined in many ways but those involved in university teaching would generally acknowledge that knowledge is more than the theory or the content of a particular subject - "knowledge is about both thought and action ... the knowing that and the knowing how" (Nightingale & O'Neil, 1994b, p. 53).

Data relating to lecturers' views of higher education and their expectations of student learning, show that academic staff are concerned with fostering critical thinking skills and developing conceptual understanding in their students (Entwistle & Percy, 1971; Entwistle, 1984; Gow & Kember, 1993; Knapper, 1990). There is, however, a breakdown between lecturers' expectations (the stated curriculum) and the messages students receive about what type of learning will be rewarded (the hidden curriculum). Bergenhenegouwen (1987) called the hidden curriculum "implicit education" and contended that students have to discover these informal aspects of the curriculum by a process of trial and error. The messages students receive, this implicit or hidden curriculum, and their prior experiences of being taught will often have a more dominant impact than the actual learning activities that are designed for them (Boud, 1993). As Snyder (1971) found, more often than not it is the assessment requirements which most influence student learning.
In an interview study, Entwistle and Entwistle (1991, p. 216) found that "the anticipated examination requirements had a substantial influence on the types of understanding being sought by a student". In discussing the results of the analysis of the interviews, the researchers stated that,

Perhaps the most worrying features of the findings were, firstly, the way in which the examination distorted the efforts of the students to achieve personal understanding and, secondly, the limited extent to which some types of examination question actually tapped conceptual understanding. Students who had been developing a broadly based personal understanding of the discipline were forced into rather trivial learning activities for several weeks before they felt confident about being able to provide satisfactory examination answers. Students who had focused narrowly on reproducing their lecture notes felt confident that they could produce satisfactory answers to questions which were based directly on the lecture content and structure (Entwistle & Entwistle, 1991, p. 224).

This contextual nature of student learning and the quality of the learning outcomes would appear to emphasise the importance of focusing on the quality of the content of the curriculum, including the way the course is to be taught and assessed, and the learning processes rather than on the theory and content which students need to cover to complete a subject or a program.

Entwistle and Entwistle (1991, p. 225) concluded from their study that the way the subject is structured "seems to be a crucial issue in considering how best to encourage a deep approach to learning". Recognising the integral nature of assessment in university learning, Boud (1988) advocated that curricula are designed which utilise collaborative assessment methods to encourage students to adopt deep (or transformational) learning as these assessment methods ensure the commitment of the learner and, as a result, promote a deep approach to learning. The use of collaborative assessment aims at allowing participants to examine an issue or problem from a variety of positions, clarify
goals and develop a strategy for learning (Burgoon, Heston & McCroskey, 1974; Watson, 1980). Decisions about assessment that exclude the learner are likely to produce motivation extrinsic to the person and this increases the likelihood of surface learning.

In a study conducted at the Australian National University it was reported that "deep-level processing" was more likely to occur when assessment involved essays rather than examination (especially those which concentrated on multiple choice tests), when students felt that independent thinking was being encouraged, when students were permitted a choice in the way they learned, and when their interest was aroused (Higgs, 1988). This approach acknowledges the context-specific nature of learning which is directly influenced by the task and the nature of the intended outcomes.

Trying to teach students to adopt "deep strategies" in isolation from the learning context can be counterproductive, as shown in a study carried out by Ramsden, Beswick and Bowden (1986). They gave students training in study skills expecting a resultant "deep" approach to be adopted to learning. They found, however, that there was an increase in the use of surface approaches as students became more competent in analysing the course assessment requirements which suited surface approaches. Linked to this is the finding from interviews with students about the learning skills program: they found that students tended to emphasise the assessment component of their subjects rather than the content of learning.

In another study which took a second order perspective, Cloete and Shochet (1986) found that the difference between successful and unsuccessful students was not so much the study skills that they used but whether the students were aware of why they were using a specific strategy; that is, successful students were better able to consciously match the task with an appropriate study strategy than were unsuccessful students. Developing in students an awareness of, and the ability to adapt, their learning activities to meet the
demands of specific learning situations, giving them procedural knowledge, has an advantage over teaching students study skills in that the former is flexible and can be adjusted according to context, whereas the study skills approach tends to teach rather standardised methods and does not involve any training in how to adapt these methods in response to different learning situations (Wangerin, 1988).

Zuber-Skerritt (1987, p. 63) argued that, for first year students, a combination of elements of a study skills program focusing on standardised skills and a learning-to-learn program directly linked to the content of a specific course that the students are studying, might be a more effective approach:

In the formal university education system, there are certain constraints, rules, standards and institutional expectations which students want to know as soon as possible and which they accept in this initial developmental stage when first coming to university. Once this institutional framework and the points of reference are clear to the students, the learning to learn programme can follow and succeed.

A similar approach has been advocated by Biggs (1987) who highlighted the need for study skills to be introduced in stages thus allowing students to gradually develop study skills appropriate to the university context. Both Zuber-Skerritt (1987) and Biggs (1987) saw the development of study skills as part of the undergraduate student's academic development - the attainment of these skills is part of the academic process and, as such, should receive consideration in the planning of the overall program.

Gow and Kember (1993) in a study in Hong Kong involving university lecturers and students in 16 departments, used interviews, a questionnaire designed to gauge lecturers' conceptions of teaching along two broad orientations - learning facilitation and knowledge transmission - and Biggs' Study Process Questionnaire (SPQ) (Biggs, 1987) to measure the quality of
student learning. The SPQ assesses whether a student's primary approach to learning is deep, surface or achievement oriented. The lecturers' questionnaire and the students' Study Process Questionnaires were treated on a departmental basis. It was then possible to calculate correlations between the departmental mean scores for the learning facilitation and knowledge transmission orientations of the lecturers and the departmental mean scores from the SPQs completed by students.

Gow and Kember (1993) found that the learning facilitation orientation had a significant negative correlation with final surface approach scores and that the knowledge transmission orientation had a significant negative correlation with the final deep approach scores. That is, in departments where the predominant orientation of teachers is towards knowledge transmission, the students' use of deep approaches to learning is likely to decline for the duration of the course of study and in departments where the orientation is towards learning facilitation, there is a tendency to discourage the use of surface approaches.

Entwistle and Ramsden (1983), in a study in which 66 university departments in Britain were analysed, found in departments that students had rated as having a heavy workload and less freedom in learning, students had a higher than average score on surface approaches. The findings of this and Gow and Kember's (1993) study reflect the findings of research carried out by Saljo and the Gothenburg group in the 1970s and '80s. In one study, Saljo (1979b), on asking 90 adults aged from 15 to 73 years of age about their conceptions of learning, found that they generally distinguished between the context of their learning, the quality or the value placed on the learning, and the purpose of the learning. These distinctions point to the fact that in the classroom situation, while the learner has ultimate control of his or her learning, the demands and influences exerted by the educational and institutional processes can interact with the individual's decisions about learning and influence the way they perceive learning and their approach to learning.
Links between study time and approaches to learning

As has already been demonstrated, there is a growing body of evidence pointing to the inefficiency of relying on surface approaches to learning in terms of academic success. A further dimension of the learning process, the time spent studying, is an area that is attracting research interest.

In a study involving a class of mechanical engineering students, Kember, Jamieson, Pomfret and Wong (1995) found that there was a positive correlation between the use of a surface approach to learning with both high attendance in class and with greater hours of independent study. The high attendance in class suggested that surface learners sought "guidance and goal setting" from the lecturer. The greater number of hours spent in study is explained by the inefficiency of the surface approach and this inefficiency was demonstrated by the poor grades that these students achieved. The researchers gave the example of one student whose use of surface approaches to learning coupled with long hours of study - sixty five hours a week in comparison to the average of forty hours per week that undergraduates in the United Kingdom devote to class and independent study (McKay, 1978) - resulted in a very low grade.

In spite of this extreme example, Jamieson et al. (1995) did find, however, that while the surface approach was not an effective study strategy, students could still be successful if they were prepared to put in long hours of study. At the same time, they stressed that deep approaches are not in themselves a guarantee of success and that hard work is still required for a student to succeed. A further factor that these researchers found necessary for students to be successful, regardless of the approach chosen, was motivation. They concluded that,

Outcome is not a pure dependent variable as the nature of assessment and the way it is perceived by the student can affect both the study approach and the amount of work (Jamieson et al., 1995, p. 341).
Svensson (1977) in a study of 30 students' approaches to learning and the time spent studying found that adopting an atomistic approach to learning created problems for students. The terms atomistic and holist used by Svensson are similar to Marton and Saljo's (1984) surface and deep with atomistic describing a fragmented knowledge structure and a holistic approach referring to one in which there is an integration of knowledge so as to achieve understanding. While not describing his findings in terms of statistical relationships he did conclude that:

It was clear from the interviews that adopting an atomistic approach created problems for students. The type of learning demanded in higher education becomes exceedingly difficult to tackle in an atomistic manner. Memorisation of the many books, articles and lecture notes is an impossible, as well as unnecessary, task. Some students adopting an atomistic approach are sufficiently motivated to accept the long hours of tedious work necessary to learn this way. For others this approach makes the learning boring and irrelevant, and hence the pattern of declining effort and increased incidence of examination failure is understandable (Svensson, 1977, p. 242).

In a study involving 39 students undertaking a psychology course by external study, Parer and Benson (1989) found that students who used a deep approach to learning and who were intrinsically motivated tended to study for longer than other students. These researchers did point to the fact that the small sample that they used and the methods employed did not allow any statistically significant relationship to be established.

Kember et al. (1995) cited a study by Lee (1991) in which Parer and Benson's procedures were replicated. Lee (in Kember et al. 1995) found that students using deep approaches to learning were better able to handle a heavy workload. Instead of feeling stressed, they saw their academic tasks as a challenge. This supported Entwistle and Entwistle's (1988) findings that
students' approaches to learning are related to their motivation: fear of failure being associated with a surface approach to study; and intrinsic motivation being linked to deep approaches to study. This motivational factor was corroborated by Abouserie (1995) who found that students' motivation and self-esteem have a significant effect on the way they interact with information and with learning in general and stressed that personality characteristics, as well as other factors impacting on student learning, should be taken into account when attempting to modify students' approaches to learning.

While both Svensson (1977) and Parer and Benson (1989) did not find a significant relationship between longer hours of study and surface approaches to learning and, indeed, tended to find that longer hours of study were associated with deep approaches to learning, Kember et al. (1995, p. 336) suggested that, with the inclusion of their study, "all of the three studies can be seen as congruent if the number of hours spent studying is seen as a function of the inter-relationship between study strategy, motive, and the nature of the study task".

Ways students shape their understanding

Another relatively new aspect of research into students' approaches to learning is the area of understanding and the different forms it takes. The adoption of either a deep or a surface approach to learning is crucial to the level of understanding reached. Those students who adopt a deep-transforming approach will be seeking to gain understanding through their learning by interacting critically with the material to be learnt, relating new learning to previous knowledge and experiences, integrating components and focusing more deeply on the underlying meaning rather than isolated parts of the whole.

Marton (1984) saw the range of responses available to students as forming an outcome space which contains distinguishable levels of understanding and
distinctive forms of expression of responses in each level. Marton (1984, p. 214) concluded that "understanding depends on the linkages made between new information and previous knowledge and experience".

The ability to make these linkages was described by Coles (1990) as an elaborated approach. Coles, writing about medical students, described the most successful students as those who adopted this elaborated approach in which they linked their clinical experiences (or those they had read about) with knowledge they were expected to learn. By reflecting on, and making links with, the professional, "hands-on" experiences, students were better able to understand the theoretical components of their course.

Entwistle and Entwistle (1991), in an interview-based study using final year undergraduate students, made findings about the way understanding is developed and formulated five analytical categories to describe the forms of understanding uncovered in the interviews (see Table 2.4).

Table 2.4 Forms of Understanding

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Reproducing content from lecture notes without a clear structure</td>
</tr>
<tr>
<td>B.</td>
<td>Reproducing content and logical framework from lecture notes</td>
</tr>
<tr>
<td>C.</td>
<td>Using own structure for individual topics, mainly from lecture notes</td>
</tr>
<tr>
<td>D.</td>
<td>Adjusting structures from strategic reading to meet examination requirements</td>
</tr>
<tr>
<td>E.</td>
<td>Developing an individual conception of the discipline from wide reading</td>
</tr>
</tbody>
</table>

(from Entwistle & Entwistle, 1991)

These forms of understanding appear to parallel the conceptions of learning described by Marton et al. (1993) and relate to the ways students shape their understanding. This shaping of understanding to meet different course requirements illustrates the way assessment can drive learning. In their hierarchy of forms of understanding, Entwistle and Entwistle found it "worrying" that only the last form of understanding is directed towards understanding the discipline itself. In the first four forms of understanding, it is the assessment and not other broader dimensions of the curriculum that determines the form of understanding that the student chooses. Writing in
1996, Biggs (p. 9) expressed similar concerns to Entwistle and Entwistle about the pre-eminence of assessment requirements in determining the depth of understanding that students reach:

Given that many of these students were studying in order to practise as professionals rather than to pass examinations, this is indeed worrying, because for many students the assessment system seems to be pre-empting a professionally relevant level of understanding of their coursework.

As with the conceptions of learning, these forms of understanding move from a dependence on the lecturer's input to the ability or need to achieve full personal understanding. Entwistle and Entwistle (1991) saw this ability to effectively transform information into fully internalised and integrated structures as representing Svensson's (1977) skill in learning and suggested that it may be the most important characteristic of academically successful students.

Section One summary

A number of factors related to learning at university have emerged from this first section of the literature review. These factors can be placed into two main categories:

1. issues related to students' orientations to learning; and
2. factors that impact on students and influence their orientations to learning.

The first category consists of:

- the approach students take to learning;
- students' conceptions of learning; and
- students' intentions for completing given tasks.
The second category of factors that impact on students and influence their orientation to learning include contextual factors such as:

- the design of the explicit curriculum;
- messages received from the implicit curriculum;
- the assessment requirements;
- the level of involvement in decisions about their learning (especially about assessment tasks);
- the development of study skills;
- the teaching strategies used; and
- faculty and institutional influences.

Students generally favour one approach to learning that can be said to be the approach which, in ideal circumstances they would adopt when learning. The two main approaches to learning which have been identified are *deep and surface approaches*. A third approach, a *strategic approach*, is adopted by students whose concentration is on gaining the best possible marks. This strategic approach consists of using either deep or surface strategies in achieving their goal. An *elaborated approach* is another approach to learning that has been identified and refers to the ability of students to link their practical experiences (e.g., those gained during the Practicum, Clinical Experience, or Professional Experience or those practical experiences students read about) with the knowledge they are expected to learn. The approach students adopt is influenced by contextual factors and by their own personal attributes. One writer in the field of learning challenges the outcomes of teaching oriented to gain "deep" learning. While research over the last twenty years has suggested that learning approaches which result in deep learning are built around the personal experiences of the learner (Marton & Saljo, 1984; Ramsden, 1988; 1992), Barnett (1994, p. 97) saw a potential dilemma in this process of promoting student learning of high quality, that is, deep learning:
The problem, so far unrecognized by the "meaning" and "deep learning" advocates, is that pedagogical strategies oriented in this way may be a form of reproduction after all. What we may be doing is to foster the kind of learning that both academics and the state want. In this learning, students come to feel at home in the cognitive world presented to them or, indeed, which they construct for themselves.

To conclude:

- learning is context specific and directly related to the task;
- the messages students receive from the implicit curriculum and from previous experiences will often have a more dominant impact on student learning than the activities that make up the explicit curriculum (Boud, 1993);
- many students start their undergraduate degrees with naive approaches to learning and a developmental trend to a more sophisticated approach may occur depending, to a great extent, on the academic environment in which they learn (eg. Marton et al., 1993; van Rossum & Schenck, 1984);
- students shape their understanding to meet different course (assessment) requirements (Entwistle & Entwistle, 1991);
- more often than not it is the assessment requirements which most influence student learning (Boud, 1993);
- students’ self-esteem and motivation have a significant effect on the ways they interact with information and learning in general and should be considered when attempting to modify students’ approaches to learning; and
- students’ approaches to learning are related to their motivation: fear of failure being associated with a surface approach to study; and intrinsic motivation being linked to deep approaches to study.
Section Two:  
Literature related to adult learning

The second area of learning that I wish to discuss is that of adult learning. While phenomenographic research into learning is directed towards understanding learners' experiences from their viewpoint and in their natural learning environment, literature related to adult learning is also directed to exploring learning with the learner being central to the educational process. Selected aspects of adult learning theory are included as they add another dimension to the way students at universities are affected by the teaching-learning process. Literature related to adult learning theory was reviewed to identify areas of promise that might support and enrich findings in Section 1. The most promising works identified were those of Knowles and Mezirow and, thus, they have been specifically selected for inclusion. Knowles' concept of andragogy is examined as this is a concept that has been widely embraced in post-secondary education and is seen as having much to offer in empowering learners at all levels of education. According to the seven elements that constitute the andragogical process (Knowles, 1984), learning becomes the "construction of meaning through experience" (Pratt, 1993, p. 16) and so is focused primarily on the learner and his or her needs. This is followed by an investigation of Mezirow's theory of transformational learning.

Empowering the learner

The researcher most closely associated with the concept of adult learning during the last 25 years, however, has been Malcolm Knowles. Knowles (1980, p. 43) introduced the concept of andragogy which he presented as "the art and science of helping adults learn" as contrasted to the art and science of helping children learn. Knowles (1980) viewed adult learners as being self-reliant, intrinsically motivated, having a rich range of experiences to bring to their learning, and favouring collaborative rather than competitive methods of learning. Initially he introduced this concept in terms of andragogy versus
pedagogy in the first edition of his book *The Modern Practice of Adult Education* but by 1980, and the publication of the second edition of this book, Knowles had rethought this distinction and, instead, subtitled his book *From Pedagogy to Andragogy*. Knowles, in his later writing, saw pedagogy and andragogy as being on a continuum ranging from teacher-directed to learner-directed and that both approaches are appropriate for either children or adults depending on the learning context.

The concept of andragogy has led to much debate and critical analysis. Indeed, even though it is the most widely recognised theory of adult learning and the most widely applied in practice (Knowles & Associates, 1984), it also presents a conundrum. As Merriam and Caffarella (1991, p. 250) pointed out, "since andragogy now appears to be situation-specific and not unique to adults, technically it does not qualify as a theory of adult learning".

The issue of the age of the learner and the most appropriate form of instruction should not detract from what the concepts that underpin andragogy have to offer. As Duke (1992, p. 67) wrote:

> The separation of andragogy from pedagogy as a distinct professional discipline has exaggerated the differences between teaching younger and older people. It draws an artificially sharp line between the learning of young adults at eighteen and that of those over twenty-one, called mature students.

What is significant about Knowles' theory is that it has been so eagerly embraced; embraced because it relates so readily to the field of post-compulsory education and because it is seen as a theory that empowers the learner. This comfortable fit of adult learner with the concept of andragogy is evident when one examines the seven elements that make up Knowles' (1984, pp. 15-18) "andragogical process design":

1. climate setting;
2. involving learners in planning their learning;
3. involving learners in diagnosing their personal needs for learning;
4. involving learners in formulating personal learning objectives;
5. involving learners in designing learning plans for their own learning;
6. helping learners carry out these learning plans; and,
7. involving learners in evaluating their own learning.

This andragogical process design is built on the understanding that students are gradually involved in making decisions about, and taking control of, their learning. While learners' natural dispositions to being self-directed vary, it is generally conceded that learners need support and encouragement in gaining control of the learning process. As implied by the elements of Knowles' andragogical process, learner control is a process as well as a characteristic possessed in varying degrees by learners. Candy (1991, p. 9) referred to the various control positions of teachers and learners as being more like a continuum than a dichotomy.

It is perhaps useful to think of teachers and learners as occupying positions on a continuum extending from teacher-control at one extreme to learner-control at the other, where the deliberate surrendering of certain prerogatives by the teacher is accompanied by the concomitant acceptance of responsibility by the learner or learners.

Learner control, viewed as a characteristic, is possessed in varying degrees by learners. By the time students embark on undergraduate study, their sense of control over the learning situation will have been shaped and moulded by their previous educational experiences. Learner competence or control is a construct that, while developed over many years, is fragile and subject to change. On the other hand, learner control viewed in this way - as a developed characteristic - could be seen to be immutable. In fact, it has been acknowledged that a learner may show evidence of being in control and self-directed in one formal learning
situation and yet, in another, exhibit signs of needing and expecting direction and strong teacher control (Bagnall, 1987; Candy, 1991).

In the main, research into andragogy has been theoretically rather than empirically based. It has, however, been applied to certain scales and analysis to explore the ways students apply it in their learning. In one such study, Delahaye, Limerick and Hearne (1994), using a Student Orientation Questionnaire to test their hypothesis that there was a continuum between pedagogy and andragogy, found that a more complex relationship could be suggested from their findings. The relationship between the two theories was not linear, as hypothesised, but orthogonal with learners passing through four stages of learning. In Stage 1 the learner has a complete pedagogical orientation - in other words, is completely reliant on the teacher for direction. The move to Stage 2 encompasses an orientation to both pedagogy and andragogy. A move from this dual orientation to an andragogical orientation in which the teacher becomes the facilitator offering support and guidance is the basis of Stage 3. The final stage, Stage 4, is characterised by the student having neither an orientation to pedagogy nor andragogy but becoming completely self-directed.

**Transformational learning**

Learning, according to the tenets encompassed in Knowles' andragogical process design, becomes the "construction of meaning through experience . . . with an emphasis on individual interpretation, integration, and even transformation of knowledge" (Pratt, 1993, pp. 16-17). This transformational learning is generally linked to development through reflection. Mezirow (1991) saw transformational learning occurring when part of our experiences leads us to reflect on ideas and beliefs that have guided us up to that point. Indeed, critical reflection is central to the whole change process. Reflection that involves critically assessing and modifying our beliefs can cause us to change our perspectives when confronted with subsequent experiences. This type of learning is viewed as a personal construct:
Meaning exists within ourselves rather than in external forms such as books . . . the personal meanings that we attribute to our experience are acquired and validated through human interaction . . . Since information, ideas, and contexts change, our present interpretations of reality are always subject to revision or replacement (Mezirow, 1991, p. xiv).

Transformational learning is about change and the changes that transformational learning produce are more far-reaching changes than those that are generally related to learning. Clark (1993, p. 47) wrote that, "transformational learning *shapes* people; they are different afterward, in ways both they and others can recognize" (Clark's emphasis). Because each individual has his or her own personal construct of meaning, what Mezirow calls *meaning systems*, then not only do we perceive experience according to our personal meaning systems but these meaning systems can, as a result of what Mezirow (1990a, p. 2) referred to as one's "habits of expectation", distort or limit perception.

Mezirow's perspective transformation theory is put forward as unique to adults because it requires "a certain level of cognitive (and perhaps psychological) development" (Merriam, 1993, p. 109). Mezirow (1991, p. 199) saw andragogy and transformation theory bearing a close relationship, with andragogy assisting adults "to learn in a way that enhances their capability to function as self-directed learners". When learners do encounter trouble with new issues or concepts, when they have trouble in relating to new material or when they lack motivation, "the educator must actively encourage reflective discourse through which learners can examine the justification for their meaning schemes and perspectives as well as focussing on the new data presented" (Mezirow, 1991, p. 201). For Mezirow (1990b, p. 375), the ultimate goal of transformational learning was to "control our experiences rather than be controlled by them".
The final step in Mezirow's process of transformational learning is the validation of one's constructed knowledge through rational discourse. This rational discourse can be thought of as the verbal articulation of the critical reflection or, what Clark (1993, p. 54) referred to as "reflection made public". In this process one's interpretations and conclusions are argued freely and objectively with the aim of affirming the truth of the newly constructed knowledge. Mezirow (1989) does acknowledge, however, that these are ideal conditions and generally unobtainable. In her critique of transformational learning, Clark (1993) pointed out that while Mezirow does not adequately explain how rational discourse occurs in less-than-ideal conditions, he does make it clear that the cogency of argument eventually determines the validity of the constructed knowledge.

This verbal articulation of critical reflection that forms the final step in Mezirow's process of transformational learning can be seen to coincide with those adult learners that Saljo (1979c) described as making the process of learning an "object of reflection". These learners are able to discuss and analyse their learning and are able to determine which learning strategies are most effective in different learning contexts. In effect, they are able to engage in the rational discourse that Mezirow sees as the validation of transformational learning.

**Section Two summary**

Several key points arise out of this brief examination of Knowles’ andragogical process design and Mezirow’s process of transformational learning that relate to this present study. Firstly, the conditions that enhance learning in adults and can lead to transformational learning mirror those conditions that promote deep learning. Secondly, learning is context specific - students’ decisions about whether to engage in deep levels of learning, to be persistent in their learning in the face of difficulties and to develop independent learning skills, depend to a great extent on the curriculum, the instructional design and the level of self-
direction that is supported and encouraged. Both these points relate directly to the students' motivation as the interaction of students with their learning environment and, more specifically, with the assessment program, influence the approach students take to their learning. This interaction between motivation, learning and assessment form the basis of the concluding section of this chapter.

Section Three:
Linking motivation, learning and assessment

No study of learning and assessment would be complete without looking at the motivational forces that determine the ways students go about their learning, the factors that direct their efforts, and the impact that the outcomes of learning have on their future efforts. These outcomes of learning are generally expressed in terms of assessment outcomes. Thus, passing examinations, receiving satisfactory grades for assignments and being considered to have gained a satisfactory grasp of the requisite skills and knowledge are all indicators of successful learning. This review of literature into students' conceptions of learning, approaches to learning, and forms of understanding has already highlighted the powerful force that assessment has in directing students' efforts and in shaping their understanding. Similarly it has shown that students' intentions, that is their motivational goals, are directly linked to the approach they take to learning and to the assessment program. It has been illustrated that where the explicit curriculum runs counter to the assessment program, the assessment program (rather than the explicit curriculum) will dominate students' learning. It has also been shown that the requirements of the assessment tasks will generally motivate students either to seek understanding or to minimise their efforts and adopt a more superficial approach. The most significant factors about motivation, assessment and learning that emerge from literature reviewed to this point are summarised below in Table 2.5.
Table 2.5  Links Between Learning, Assessment and Motivation

* More often than not it is the assessment requirements which most influence student learning (eg, Becker et al., 1968; Miller & Parlett, 1974; Snyder, 1971).

* Depending on students' intentions or motivations, they adopt either a surface or a deep approach to their learning or a strategic approach which can include surface or deep elements (Marton & Saljo, 1976).

* Students who are intrinsically motivated and use deep approaches to learning tend to study for longer periods than other students (Parer & Benson, 1989).

* Assessment decisions that exclude the learner can lead to motivation extrinsic to the task and increase the likelihood of surface learning (Boud, 1988; Higgs, 1988).

* Students' motivation and self-esteem have a significant effect on the way they interact with information and with learning in general. Personality characteristics, as well as other factors impacting on student learning, should be taken into account when attempting to modify students' approaches to learning (Abouserie, 1995).

In this final part of the chapter, motivational factors that affect learning will be reviewed. Students enter their undergraduate courses, with their own individual characteristics. These include their ability levels, their goals, the confidence they have in themselves, their beliefs and values. These characteristics help to determine the ways students perceive learning and go about their learning - their beliefs and their actions. This review is carried out with the aim of identifying the motivational processes which influence the ways students go about their learning, the interplay between learners' goals and the way success and failure outcomes interact with these goals and, finally, to present research findings that will provide insights into student learning. Before any inferences can be made, the basic construct of motivation needs to be examined.

**What is motivation?**

The study of motivation examines the causes of goal-oriented activity (Beck, 1983; Hull, 1943; Veroff, 1969). Motivation has been studied in terms of need satisfaction (Maslow, 1962; Weiner, 1972) and drive reduction (Hill, 1985). In more recent years, motivation has been defined as a state (eg, a student's
motivation toward a specific task) or as a trait (Brophy, 1987; Keller, 1983). State motivation is dependent on the learning context whereas trait motivation is more fixed and refers to a student’s motivation to learning in general terms (Frymier & Shulman, 1995). Trait motivation can be perceived to be one of the student’s individual personal characteristics that he or she brings to the learning process - a more enduring predisposition to learning in general. State motivation is context specific and is often influenced in the learning situation, by such things as teachers’ expectations, instructional design and modelling of behaviours by teachers (Brophy, 1987). A learner may be highly motivated because of his or her particular interest in a subject and the way it is presented (state motivation) whereas, overall, his or her general motivation to formal learning is relatively low (trait motivation). In the teaching-learning context, state motivation highlights the teacher as an active agent capable of stimulating the development of student motivation toward learning (Christophel, 1990). The implication of this view of motivation and learning is that it is the teaching-learning process or "how" students are taught that is important in terms of learning outcomes rather than the content of the teaching (Ames, 1986; Dweck, 1986).

While there are different ways of looking at motivation, three components are generally seen to be important in the different models of motivation:

* beliefs about one’s ability to perform a task (expectancy component);
* beliefs about the importance and value of a task (value component);
and,
* feelings about one’s self or the emotional reaction to the task (affective components) (Pintrich, 1994, p. 28).

No two are mutually exclusive; each interacts with the other components and affects the motivated behaviour (Pintrich, 1994). Motivation to learning usually takes a sequential form: student energy, volition, direction, involvement and completion (Wlodkowski, 1978). If there is a breakdown in one of the five
areas, the process may be weakened or come to a stop. Three aspects of motivated behaviour are traditionally considered to be the outcomes of student motivation: 1) the choice of one activity over another; 2) the level of engagement or involvement in a task; and, 3) the learner’s persistence at a task (Pintrich 1994; Pintrich, Marx & Boyle, 1993). However, in the last 20 to 25 years the study of motivation has moved away from an emphasis on external contingencies and on internal affective states to a social-cognitive approach (Dweck, 1986). These external contingencies and internal states, though, are not ignored but are seen as “part of a process whose workings are best penetrated by focusing on organizing cognitive variables” (Dweck, 1986, p. 1040).

How are motivation and achievement related?

Theories of learning generally treat motivation as a concept that is an adjunct to the principles for generating learning (Gredler, 1992). These theories typically point to some form of environmental manipulation (such as making the material to be studied relevant and interesting) as resulting in student motivation (Weiner, 1974a). Perry and his fellow researchers (Perry, 1991; Perry & Dickson, 1988; Perry & Magnusson, 1989; Perry & Penner, 1990) have shown that students’ beliefs about how their personal characteristics or attributes influence their environment, their perceived control, are related to achievement and to aspects of the teaching-learning environment. Pintrich et al. (1993) suggested four general motivational constructs - goals, values, self-efficacy and control beliefs - as potential mediators in the process of conceptual change related to student learning. Pintrich et al. (1993, p. 167) highlighted the “theoretical difficulties of a cold, or overly rational, model of conceptual change that focuses only on student cognition without considering the ways in which students’ motivational beliefs about themselves as learners and the roles of individuals in a classroom learning community can facilitate or hinder conceptual change”.
Two theorists who specifically address the concept of self in the learning process are Weiner and Bandura (Gredler, 1992). Weiner’s attributional theory and Bandura’s self-efficacy theory, attempt to explain differing ways in which students’ expectations influence their subsequent behaviour. Proponents of attribution theory view the student and his or her causal beliefs about success and failure as the primary source of motivation. Self-efficacy theory argues that the acquisition of complex skills depends to a great degree on the learner’s sense of self-efficacy. Both theories are socially constructed - students’ self-efficacy and their causal beliefs regarding success and failure are influenced by the conditions of learning and the reactions of those around them. While both theories examine motivation and learning from different perspectives, each provides insights into the ways students perceive their learning, and how they respond to the contextual influences in the learning situation.

**Attribution theory**

The aim of attribution theory is to identify the ways individuals arrive at explanations for events. Weiner’s (1979) attribution theory focused on the individual’s search for understanding of why events occur and sought to address the effects on motivation of the individual’s beliefs about success and failure outcomes. The theory brings together three areas of interest in psychological theory: motivation, emotions, and attribution research (Gredler, 1992).

Attribution theory began with the work of Fritz Heider who investigated the causes of events as perceived and developed by “the man in the street” (Heider, 1958). Heider was influenced by Lewin’s statement that behaviour is a function of the person interacting with the environment (Gredler, 1992). According to Heider (1958), the outcomes of human action were based on factors within the person and factors within the environment. Later research carried out by Heider was based on the assumption that the perceived cause of behaviour was directly related to this internal-external dimension. Using
Heider’s theory, Rotter (1966) developed the *locus of control* construct to analyse behaviour. According to Rotter (1966) the perceived causes of behaviour could be placed on a continuum between the extremes of internal and external locus of control. People who believe that outcomes (reinforcements) are the result of their effort and take responsibility for their actions are *inner-directed*. People who believe that there is no relationship between their behaviour and the outcomes (reinforcements) but believe that other factors are in control of their destiny are *outer-directed*. For example, success in an examination may be attributed to hard work (internal locus) or to good luck (external locus).

Weiner’s work developed from Heider’s and was strongly influenced by Atkinson’s (1958, 1964) theory of achievement motivation. Atkinson’s theory addressed the differences between people with high achievement needs and those with low achievement needs. Atkinson’s premise was that motivation was a function of task variables and the individual’s disposition to seek success or to avoid failure. Weiner’s work extended beyond these earlier theories in that he investigated the *subsequent effects* that could result from attributions. He found that the effects were not always uniform and that causal inferences are not unidimensional but provide complex sources of information about subsequent outcomes (Weiner & Kukla, 1970). Using this multidimensional analysis, for example, a poor grade attributed to lack of ability will be expected to recur whereas a poor grade attributed to lack of effort may not be expected to recur as effort is subject to change (see McMahan, 1973; Weiner, Neirenberg & Goldstein, 1976).

*The attributional process*

The attributional model of motivation is developed around two key components. These are (1) the individual’s attributions for success and failure outcomes and (2) the dimensions of these attributions. Individuals generally analyse success and failure outcomes using the following pattern of events: the perceived cause is identified; there is an affective reaction to the attribution;
expectancies for the future emerge; and, finally, there is a tendency to behave in a specific way as a result of the outcome. Weiner (1985) isolated ability and effort as the most dominant causes for success and failure with task difficulty, luck, illness, fatigue, mood, and help from others also being among the attributes that are causes typically selected for success and failure. Each of these attributes has a set of dimensions that influences motivation. These dimensions are locus of causality, stability, and controllability. Each is bipolar. Table 2.6 provides an overview of these dimensions, their properties and provides a description of each.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of causality</td>
<td>Internal/External eg, ability is internal/luck is external.</td>
<td>Refers to the origin of the perceived attribution.</td>
</tr>
<tr>
<td>Stability</td>
<td>Stable/Unstable eg, ability is stable/help from others is unstable.</td>
<td>Refers to the constancy of the perceived attribution.</td>
</tr>
<tr>
<td>Controllability</td>
<td>Controllable/uncontrollable eg, effort is controllable/ability is uncontrollable.</td>
<td>Refers to whether the attribution can or cannot be controlled.</td>
</tr>
</tbody>
</table>

(Adapted from Gredler, 1992)

The causal inferences that individuals derive from their attempts to comprehend events in their lives are linked primarily to their self-esteem (Gredler, 1992). Causes attributed to self can either enhance a person’s self-esteem or contribute to a negative self-image. The association for stable attributions is the scope of expectancy change for success and failure. The controllability dimension works in two ways. Firstly, attributions that are under control can either lead to feelings of competence (in the case of success) or guilt (in the case of failure). Secondly, controllability influences the way one interprets interpersonal interactions - for example, students will be more inclined to assist a classmate who has missed class through illness or misadventure (uncontrollable cause) and less inclined to assist a classmate who...
has missed class for a cause that is in his or her control. This association between self-efficacy and control beliefs can be complex and produce behaviour outcomes that are influenced by students' perceptions of the environment in which they are performing. For example, a student may have a high self-efficacy belief in terms of being able to learn material for an examination - and so be motivated to spend time and effort in doing this. However, the same student may feel that the grading procedures are such that only a very high mark will result in any grade above a basic pass and that his or her studying won't result in more than a pass (a low-control belief). That student might decide on the basis of this latter factor not to study as much. In Table 2.7 the three dimensions of attributes and the ways these causal dimensions can interact with students' self-efficacy and resultant self-esteem are illustrated.
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Example</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Outcomes</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Internal cause    | Student works hard and gains a high grade in examination. | Positive effects on self-esteem  
                      |                                | Feelings of pride and competence  
                      |                                | Heightened sense of confidence  
                      |                                | Enhanced possibility of future  
                      |                                | engagement in achievement-related  
                      |                                | tasks (Weiner et al., 1976)  
                      |                                | Expectations of future success  |
| Controllable cause|                                              |                                                                          |
| Stable cause      |                                              |                                                                          |
| **Negative Outcomes** |                                              |                                                                          |
| Internal cause    | Student works hard and fails examination.    | Negative effects on self-esteem  
                      |                                | Feelings of embarrassment and/or  
                      |                                | guilt, incompetence, hopelessness  
                      |                                | and/or apathy                  |
| Controllable cause|                                              |                                                                          |
| Stable cause      |                                              |                                                                          |
| **Positive Outcomes** |                                              |                                                                          |
| External cause    | Student gains a high mark as a result of paper being marked by a known “easy” marker. | Feelings of gratitude  
                      |                                | Feelings of pride not experienced  
                      |                                | Lowered expectations of success in the future |
| Uncontrollable    |                                              |                                                                          |
| **Negative Outcomes** |                                              |                                                                          |
| External cause    | Student gains a poor mark as a result of paper being marked by a known “hard” marker. | Feelings of anger |
| Uncontrollable    |                                              |                                                                          |
| **Negative Outcomes** |                                              |                                                                          |
| Internal cause    | Failed examination perceived to be a result of lack of ability. | Negative emotional response  
                      |                                | Exerts negative influence on future  
                      |                                | achievement-related behaviour  
                      |                                | (Weiner, 1985)                   |
| Uncontrollable    |                                              |                                                                          |
| Stable cause      |                                              |                                                                          |

Goal-oriented behaviour in the attributional model, then, is influenced by the success or failure outcome, the attribution perceived by the individual to be the cause of the outcome, and the dimensions of this causal attribution. In the attributional process, the individual uses three primary sources of information to identify a causal attribution. These sources are known as *antecedents* and refer to (1) specific information cues (eg, past learning experiences), (2) the person’s internal cognitive structure, referred to as *causal schema*, and (3) the individual’s predispositions. Each of these antecedents of causal inferences leads individuals to make judgements about themselves that impact on their motivation. For example, studies have shown that failure at a task where others succeed is viewed as a lack of ability (Weiner, 1974b), a poor success
record is associated with lack of ability and success for a person with a poor success record is generally attributed to luck (Weiner, 1977). Another finding related to antecedents of causal inferences is that failure at a difficult task is attributed to either a lack of ability or a lack of effort; failure at an easy task is attributed to both lack of ability and lack of effort (Kun & Weiner, 1973). In terms of predispositions, it has been found that individuals with high achievement needs tend to attribute any failure to lack of effort and subsequently increase their efforts in the belief that this will lead to success. However, people low in achievement needs often do not ascribe initial failure to lack of effort, and, as a result, tend to stop trying (Weiner & Kukla, 1970). Over time, the effects of attributions for success or failure exert an ongoing, cumulative influence on the individual’s self-esteem, his or her goal expectancies and the causal attributions they ascribe to achievement situations.

Self-efficacy theory

Another theory that relates learner behaviour, the learning situation or environment and cognitive aspects of learners is self-efficacy theory. Attribution theory is concerned with the links that exist between the student carrying out a task and the success or failure outcome; self-efficacy refers to students’ beliefs about their ability to perform the task and so influence the outcome (Bandura, 1986; Schunk, 1985). Perceived self-efficacy is “not a fixed act or simply a matter of knowing what to do” (Bandura, 1982, p. 122) as both personal and situational factors interact to influence the individual’s beliefs. The construct of self-efficacy is related to the individual’s beliefs about his or her ability to perform tasks or achieve goals in specific situations (Schunk, 1985). Therefore, students may have different levels of self-efficacy for different tasks rather than an overall level of self-efficacy for all tasks. An example of this is that a student may have a high level of self-efficacy for practical tasks and a low level of self-efficacy for essay-type examinations. As well as being linked to students’ confidence in their ability to perform tasks, self-efficacy relates to students’ use of learning strategies and their general
cognitive engagement (Pintrich & Schrauben, 1992). In other words, students who believe they can successfully perform an academic task are not only more likely to try harder and be more persistent in their efforts but are also more likely to think and study using deeper processing (or deep learning) strategies (Pintrich, 1994). Bandura (1986) attributed one's sense of self-efficacy to four main sources of information:

1. enactive attainment - eg, repeated success raises one's feeling of self-efficacy, repeated failure lowers one's sense of self-efficacy;
2. the performance of similar individuals - eg, seeing a peer successfully perform a task can raise one's own judgement of efficacy;
3. verbal persuasion - eg, a friend may counter one's doubts regarding their ability to perform a task; and
4. one's physiological state - eg, fatigue may have a negative influence on one's sense of efficacy whereas high energy levels may produce a different effect.

In his early work, Bandura (1969, 1971) emphasised the role of behaviour modelling in the learning process. In later research, Bandura (1986) studied social and cognitive factors that influence learning and identified the learner's capacity for self-regulation and self-reflection as being critical factors in the learning process. Both Bandura's and Weiner's theories involved the interaction of behaviour, environment, and the individual. Bandura (1986, p. 23) wrote that "behavior, cognitive, and other personal factors, and environmental influences all operate interactively as determinants of each other". This relationship is known as reciprocal determinism (Bandura, 1974) and refers to the effects that are produced by events in one's life (Bandura, 1978, 1986). The relative influence exerted by each of these factors varies according to the individual and the situation. Table 2.8 is a summarised account of the effects of perceived high and low self-efficacy on the individual's present and future performance.
### Table 2.8 Effects of Perceived High and Low Self-Efficacy

<table>
<thead>
<tr>
<th></th>
<th>High Self-efficacy</th>
<th>Low Self-Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task-related effects</strong></td>
<td>Effort strengthened when confronted with difficulties</td>
<td>Efforts lessened when confronted with difficulties</td>
</tr>
<tr>
<td></td>
<td>Previously learned skills are challenged and then strengthened</td>
<td>Learner may decide to give up when confronted with difficulties</td>
</tr>
<tr>
<td></td>
<td>Both effort and attention are concentrated on the task</td>
<td>Attention is focused away from the task and directed to the learner’s personal deficiencies</td>
</tr>
<tr>
<td></td>
<td>More likely to use deeper processing strategies</td>
<td>Less likely to used deeper processing strategies</td>
</tr>
<tr>
<td><strong>Long-term effects</strong></td>
<td>Self-development promoted as a result of learner’s involvement in complex tasks and experiences</td>
<td>Self-development hindered by avoidance of tasks and experiences</td>
</tr>
<tr>
<td></td>
<td>Low stress/anxiety levels in difficult situations</td>
<td>High stress/anxiety levels in difficult situations</td>
</tr>
<tr>
<td></td>
<td>High expectations of success</td>
<td>Low expectations of success</td>
</tr>
<tr>
<td></td>
<td>High persistence at task</td>
<td>Low persistence at task</td>
</tr>
<tr>
<td></td>
<td>Sets high goals</td>
<td>Sets low goals</td>
</tr>
<tr>
<td></td>
<td>Lack of effort rather than lack of ability typical cause of failure</td>
<td>Individual perceives personal deficiencies as cause of failure</td>
</tr>
</tbody>
</table>

(from Bandura, 1986; Pintrich & Schrauben, 1992)

As can be seen from Table 2.8, perceived self-efficacy can exercise considerable influence over the learner’s behaviour. This self-regulatory function is influenced by cognitive structures that act as reference points for behaviour and its outcomes and by the cognitive processes that perceive, evaluate and regulate behaviour (Bandura, 1978). As a result of these self-evaluative systems, learners can direct their behaviour towards activities that provide satisfaction and avoid activities that provide negative reinforcement. That is, they can set goals for themselves and evaluate their performances in achieving these goals. In the learning context, those students with a high sense of self-efficacy are more likely to set high goals for themselves, increase their efforts when faced with difficult tasks, persist at those tasks and involve themselves in a range of tasks and experiences. Conversely, students with low self-efficacy are more
likely to lessen their efforts or give up when faced with a difficult learning situation, focus on their personal deficiencies, lower their goals so as to avoid anxiety and stress and, as a result, limit the range of situations and tasks they become involved in. This takes on added significance when related to students' approaches to assessment tasks. Students with high self-efficacy have high goal expectations of themselves and are motivated to outlay time and effort to reach these goals. Students with low self-efficacy have a low goal expectation of themselves and approach challenging or difficult assessment tasks with anxiety and limited confidence. In the school context, Thomas, Inentosch and Rohwer (1987) found that self-efficacy was a better predictor of achievement than their selected measure of academic ability. Indeed, achievement goals and the impact these have on achievement and motivation has become the focus of many studies in recent years.

Goal theory

Goal theories of motivation focus on the aims or purposes of students' achievement behaviour (Elliott & Dweck, 1980; Maehr & Nicholls, 1980; Nicholls, Pastashnick & Nolen, 1985). Goals are viewed as the cognitive representations of the different purposes that students have in different achievement situations (Pintrich, 1994). One of the crucial distinctions in goal theory is whether the goal orientation is intrinsic or extrinsic. Harter (1981) found that some students presented intrinsic rationales for their goal orientation (e.g., mastery, challenge, curiosity, learning) while other students' goal orientations were more extrinsic to the task (e.g., rewards, grades, peer or parental approval). Intrinsic and extrinsic goal orientations are often considered to be extreme points on a bipolar continuum from intrinsic to extrinsic (see Dweck & Leggett, 1988). More recent research, however, suggests that individuals may have both intrinsic and extrinsic goal orientations to a task at the same time (Pintrich & Garcia, 1991). It has been found that students who are high in intrinsic goal orientation and low in extrinsic goal orientation were the most cognitively engaged of all students - using deep learning strategies
(Deci & Ryan, 1985). Students who were very low in intrinsic goal orientation but who had a high level of extrinsic goal orientation, were found to have higher levels of cognitive engagement than those who had low intrinsic and extrinsic goal orientations. Pintrich (1994, p. 32) argued that in situations “that often arise in many required college courses . . . when students are low in both intrinsic and extrinsic goal levels, endorsing at least extrinsic goals should result in more cognitive engagement”.

In research into classroom learning, researchers have argued that close links exist between intrinsic motivation and self-regulated learning and, as a result, intrinsic motivation encourages a move towards independent learning (Corno & Mandinach, 1983; Corno & Rohrkmper, 1985; Pintrich & De Groot, 1990). Other research studies have shown that students benefit most from learning situations when they pursue learning goals (Dweck & Elliot, 1983) or task goals (Nicholls, 1984) - that is, when they seek understanding and mastery or competence. A mastery goal orientation relates positively to self-reports of confidence and cognitive strategies that result in learning that could be described as deep or transformational (Fincham & Cain, 1986; Nolen, 1988; Pintrich & Garcia, 1991). The findings of motivational researchers coincide with the findings derived from research into students’ approaches to learning: students are most likely to use deep approaches to learning and persist at difficult tasks when they are confident in their abilities and are seeking understanding rather than rewards extrinsic to the task.

Extrinsic motivation is related to performance goals (Dweck & Elliot, 1983) or ego goals (Nicholls, 1984) in which students want to demonstrate their ability or superiority, or to gain approval. In comparison to students who pursue learning or task goals, students whose goals are related to performance or ego demonstrate a poorer recall of information when required to carry out tasks requiring deeper levels of comprehension or understanding (Benware & Deci, 1984; Graham & Golan, 1991). These students focus on competing with their fellow students (Ames & Archer, 1988) which generally results in surface
learning (Dweck & Leggett, 1988). Research findings suggest that students adopting a more intrinsic orientation based on mastery and learning try harder, persist longer, and adopt more effective problem-solving strategies than those students with an extrinsic orientation based on performance or ego goals (Ames, 1992; Pintrich & Schrauben, 1992). Thus, the learning approach as well as effort are perceived to be important in achieving one’s goals. Research at the school level has found that competitive classroom settings promote performance goals while co-operative structures, with an emphasis on self-mastery, promote learning goals (Ames, 1984).

A third type of goal has been identified - a work-avoidant goal (Duda & Nicholls, 1992; Meece & Holt, 1993). This avoidance motivation refers to students who have poor perceptions of their ability and who wish to complete their studies with the minimum of thought or effort. These students have been found to have the greatest use of rote-learning (Nolen, 1988) or effort-minimising strategies (Meece & Holt, 1993) when compared to task-oriented or ego-oriented students.

A fourth type of motivational goal has been suggested - one related to individuals’ epistemic goals (Kruglanski, 1990a, 1990b, 1996). Epistemic goals refer to learners’ motivations towards knowledge as an object and, it has been suggested, will influence their information processing and knowledge acquisition. According to this goal orientation, an individual student’s goals for knowledge, learning, and for classroom life in general may have a significant impact on the conceptual change process related to student learning (Kruglanski, 1990a, 1990b, 1996).

Motivation and the teaching-learning context

The place of the teacher is central to any discussion of student learning. In the case of academic learning, learning is not like everyday learning which is directly experienced but is, to use Laurillard’s (1993) term, ‘mediated’ by the
teacher. Many studies have been carried out into the effects that the teacher has on learning. Research studies pertinent to this present study come from the field of communication studies and relate to the direct impact of the teacher within the teaching-learning context. These studies involve research into teacher immediacy - defined as the degree of perceived psychological and/or physical closeness between people (Mehrabian, 1967) - and the impact this has on student motivation and learning. While this is a specialised field of research, findings can be seen to have a direct relationship to this study as they relate to the teaching-learning process, student motivation and involvement, and levels of learning.

Findings from research into teacher immediacy highlight the relationship between dimensions of the teaching context and student learning. In one experimental study, Kelly and Gorham (1988) found that immediacy’s arousal stimuli were highly associated with enhanced memory, attentional focus, and recall. In 1990, Christophel reported on two major studies into the relationship between teacher immediacy and student state motivation and the combined impact of these factors on learning. In the first study, 562 undergraduate and postgraduate students were required to complete three survey instruments exploring motivation, immediacy, and learning respectively based on the class immediately before the one in which they served as subjects. In the second study, of the 624 students surveyed, half the students were randomly assigned to complete the motivation and immediacy scales. The remaining students completed the motivation and learning scales. In this study, participants were asked to complete the instruments based on the class in which they served as subjects. Surveys were administered in classes approximately half way through the semester so that sufficient time had been provided for the development of student classroom motivation toward learning, for teachers’ immediacy behaviour patterns to emerge and be observed, and for students to be able to make an assessment of their own individual progress. Results supported the theory of immediacy’s positive influence, although often indirect, on all levels of learning. The second study confirmed results of earlier
research which had indicated higher teacher immediacy was associated with higher levels of learning. Christophel (1990) used correlational analyses to test the relationship between trait and state motivation and learning. In all instances, state motivation correlated much higher with learning than did trait motivation. The researcher made the conclusion that, "The unique variance regarding students' motivation and learning was unequivocally attributable to state motivation" (Christophel, 1990, p. 337). The findings of this and other studies clearly show that teacher immediacy impacts positively on learning in combination with student state motivation. Similarly, the findings support the theory that student state motivation levels are modifiable within the teaching-learning context.

**Section Three summary**

Our goals or motivations are what direct us in our actions; in the learning context, they impact on our learning and on subsequent learning outcomes. These outcomes represent the knowledge and skills of each student and are generally formally expressed in terms of assessment achievements. While motivation is a personal construct, research findings show that it is strongly influenced by the learning context and is modified by the demands of the curriculum and particularly by the assessment component of the curriculum.

**Conclusion**

Writing in 1986, Biggs put forward a series of questions that learners ask themselves when setting out to learn something. While these questions may take different forms for different learners and be couched in varying ways, the questions do attempt to highlight the process that learners go through to achieve their desired learning outcomes. The questions Biggs suggested (1986, p. 143) were:
Motives          “What do I want?”
Goals            “What will it look like when I’ve got there?”
Task demands     “What do I need to get there?”
Context          “What resources have I got to use?”
Abilities        “What constraints must I contend with?”
Strategies       “What am I capable of doing?”

“Well, then. How do I go about it?”

The questions are particularly relevant in relation to the various dimensions of learning discussed in this chapter. While each component may be teased out and examined in isolation, learning outcomes may be considered to be the result of the interplay between the factors Biggs has outlined. The connection between the motive or intention for learning, the strategies employed and the approach taken has been established.

Whilst the aim of higher education is to foster critical thinking and to develop conceptual understanding, many studies have shown that students can pass their courses at university with less than a deep understanding of the basic concepts. The dissonance that often occurs between the goals of academic teachers and the education process in place - the first advancing the ideals of promoting critical thinking and developing deep conceptual understanding while the latter has been shown to use teaching approaches which foster rote-learning and surface approaches - has been demonstrated. The literature suggests that while the teaching-learning context can be successful in promoting the use of deep approaches to learning and the development of conceptions of learning in which the transformation of knowledge through understanding and reflection, unless the curriculum and the instructional design actively reflect this orientation, the demands of the assessment process will dominate students’ learning. An overview of the influence that some key contextual factors can have on achieving positive learning outcomes is provided in Table 2.9.
Table 2.9 Positive Learning Outcomes Related to the Teaching-Learning Context

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Learning Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Implicit and explicit curricula focused on the quality of the content and the learning processes.</td>
<td>* Encourages and supports students in learning which is oriented to gaining depth of understanding and developing sophisticated conceptions of learning.</td>
</tr>
<tr>
<td>* Focus on assessment requiring independent thinking, involving choice, and which arouses the student's interest.</td>
<td>* More likely to produce deep approaches to learning and sophisticated conceptions of learning.</td>
</tr>
<tr>
<td>* Implementation of ongoing study skills programs that develop students' ability to match the learning (assessment) task with the appropriate study strategy.</td>
<td>* Students better able to monitor the quality of their learning and, so, become self-directed.</td>
</tr>
<tr>
<td>* The use of teaching strategies which are focused on the facilitation of learning (rather than transmission of knowledge).</td>
<td>* Tendency to discourage students' use of surface approaches.</td>
</tr>
</tbody>
</table>

In contrast, Table 2.10 provides an overview of the influence that these contextual factors can have on producing negative learning outcomes. It becomes obvious that the design of the curriculum, the assessment process and the instructional strategies employed all impact on the student and, more particularly, on student motivation.
Table 2.10 Negative Learning Outcomes Related to the Teaching-Learning Context

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Learning Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Implicit and explicit curricula focused on the theory and content students need</td>
<td>* Encourages and supports students in learning which is oriented to using surface</td>
</tr>
<tr>
<td>to complete subject/program (rather than on quality).</td>
<td>approach to learning and to maintaining naive conceptions of learning.</td>
</tr>
<tr>
<td>* Focus on assessment which limits the need to develop conceptual understanding</td>
<td>* Encourages and supports likelihood of students adopting surface approaches and</td>
</tr>
<tr>
<td>and which requires reproduction of course content (rather than transformation of</td>
<td>having a conception of learning that focuses on the reproducing of knowledge.</td>
</tr>
<tr>
<td>knowledge through understanding).</td>
<td></td>
</tr>
<tr>
<td>* The use of study skills programs that are isolated from the learning context.</td>
<td>* Increases the likelihood that students emphasise the assessment component (rather</td>
</tr>
<tr>
<td></td>
<td>than the content of learning).</td>
</tr>
</tbody>
</table>

What has emerged from this review is that learning is strongly influenced by the context in which it occurs. While this influence can be most clearly seen, perhaps, at the individual subject level it extends beyond the classroom and includes course, faculty and institutional dimensions. Drawing together the main points from each of the three sections of this chapter, it is this contextual influence that dominates. The following are the main points that emerged:

- learning is context specific and is generally task specific;
- students’ previous learning experiences impact on future learning;
- students’ goals or motivations are modified by the demands of curriculum, more particularly by the assessment requirements;
- course requirements and, more particularly assessment requirements, impact on students’ understanding and learning outcomes;
- students respond to the dominant messages conveyed by either the explicit or the implicit curriculum;
- contextual factors impact on students’ conceptions of learning; and
- students’ conceptions of learning impact on their learning outcomes.

These findings now enable further illumination of aspects of the conceptual framework introduced as the Initial Learning Outcomes Model in Figure 2.1. This
illumination is encapsulated in the expanded model which is represented in Figure 2.2, the Context-based Learning Outcomes Model.

![Diagram of the Context-based Learning Outcomes Model]

**Figure 2.2 The Context-based Learning Outcomes Model**

The first dimension of the Learning Outcomes model, students' personal attributes, remains the same. The personal attributes that students bring to the learning situation include their ability and personality, their self-esteem, their goals and the outcomes of their previous learning experiences. These characteristics in no way represent the complete set of attributes that make up each student's individuality but are seen as vital characteristics that impact on the learning process. They represent not only relatively fixed characteristics such as intelligence and aptitude but also context-related characteristics such as self-esteem and the goals that we set for ourselves and which influence our thoughts and actions.

The second dimension, the teaching-learning process, has been expanded from a unidimensional step, which was a generalised conception of factors that contribute to the teaching-learning process, to a fuller illumination of the
relationships that exist between the specific teaching-learning context, the student’s conception of learning, approach to learning and motivation. As stated in Section One, the specific teaching-learning context includes factors such as:

- the design of the explicit curriculum;
- messages received from the implicit curriculum;
- the assessment requirements;
- the level of involvement in decisions about their learning (especially about assessment tasks);
- the development of study skills;
- the teaching strategies used; and
- faculty and institutional influences.

As many students start their undergraduate study with naive, reproducing conceptions of learning, a developmental trend to more sophisticated, transformational conceptions of learning may only occur if the academic environment, or in other words the specific learning context, encourages and supports this development. The interaction between the individual student, the learning context and their academic orientation is clear. This interaction impacts on, and includes, students’ intentions or motivation for learning. Research findings of Entwistle (1988), Parer and Benson (1989) and Abouserie (1995), among others, have indicated the impact that motivation has on the ways students interact with information and approach their learning. In light of research findings from the field of motivation and student learning, the nature of student motivation examined in conjunction with aspects of the learning context reveal the impact of that context on student learning outcomes and on their future learning. This impact can influence the ways students view learning, their expectations, the ways they approach and persist at their present and future learning, their interactions with other students and with their teachers, the nature of their learning and their learning outcomes. These dimensions of the learning process coupled with the student’s personal
attributes interact to affect the student’s approach to learning and this in turn impacts on the learning outcomes.

In the next chapter, this conceptual framework will be used as the basis for exploring students’ perceptions, experiences and beliefs about assessment and learning. Through the process of investigating the various dimensions of, and relationships among, the components that make up the conceptual framework, issues will emerge and questions arise that will lead to fuller understandings of the dynamics that exist among these components. The Preliminary Investigation which is the focus of Chapter 3 moves us into the second phase of Stage 1 of this study.
CHAPTER THREE

THE PRELIMINARY INVESTIGATION

Introduction

This study is based on students’ perceptions and experiences of learning at the undergraduate level. This focus on students was inspired by the writings of Philip Candy and Paul Ramsden and of others who argue that the learner should be at the centre of any research into student assessment and learning. As Candy (1991, p. 439) argued in his book on lifelong learning, the number of reported studies that deal “adequately” with the experiences of individual learners is small and many researchers tend to ignore individual differences, even though “the learner’s subjective construing of the situation significantly influences the strategies he or she employs, which in turn is a major factor in the outcomes obtained”.

In a similar vein, Allan (1996, p. 93) in a recent article about learning outcomes in higher education, pointed to the fact that assessment and learning are becoming increasingly outcome-led. As a result of this movement from the traditional university approach which “emphasises input and process” to an “outcome-led design”, Allan (1996, pp. 104-105) concluded that the challenge to designers of curricula in higher education is

to harness the use of learning outcomes to view learning from the perspective of the learner, rather than the lecturer, and thereby to enrich the quality of learning experienced by undergraduate students.
Research design

This chapter is an account of the final part of Stage 1 of the study. It gives an overview of the research design and the findings from a series of ten interviews which were conducted to gain further data about (1) learning at university and (2) the key relationships between assessment and learning that individual students identify as most influencing their learning. As stated in Chapter 1, the data collection strategies that were considered to be most appropriate in finding out about students’ experiences and perceptions of assessment and learning at the undergraduate level were firstly, a review of the literature and secondly, in-depth interviews of undergraduate students. The literature review, presented in Chapter 2, focused on phenomenographic research into student learning which was concerned with students’ descriptions of their experiences, adult learning theory and motivational theories. The interview phase or, what has been termed in this report, the Preliminary Investigation, is the focus of this chapter.

This interview phase of the study, then, was carried out for three reasons:

1. to probe and analyse the multifaceted nature of learning through the perceptions, beliefs and values of the students interviewed so that insights could be derived from the data that were collected and analysed;
2. to fine tune the conceptual framework and to identify key issues that required further investigation; and, most importantly,
3. to research the learning experiences of individual students undertaking undergraduate study.

In unison with the outcomes of the literature review into student learning, assessment and motivation, the findings from this preliminary investigation were intended to be used to determine the issues to be explored, the questions that need to be asked, and the relationships to be investigated in Stage Two. In
essence, Stage One was designed to ensure actual student perceptions were instrumental in shaping the direction of the later investigation.

Thus, the interviews were entered into with the aim of exploring what was important for the subjects within their own particular "world". As stated in Chapter 1, what was learned from the in-depth interviews depended to a great degree on the quality of the interactions between the interviewer and the informant, the researcher's ability to interpret what he or she was told, and, allied to this, the researcher's own value frame (Baxter, Eyles & Willms, 1992). In order to maximise what was learnt and to ensure the validity of the research, it was necessary, using Filstead's (1970) words, to get "close to the data".

Use of semi-structured interviews

To obtain data about individual learners within their learning context, a data collection strategy that involved direct contact with individual learners was required. In addition, a technique that allowed for the gathering of data that would lead to a comprehensive understanding of the impact of assessment on students' learning within a specific context but, at the same time, was adaptable enough to allow for further probing of issues where necessary, was considered essential.

The semi-structured in-depth interview was chosen as the data collection technique in this phase of the study as it was viewed as the most appropriate way to research the experiences of individual learners. Through a semi-structured in-depth interview, students would be given the opportunity to discuss their experiences of learning at university and be encouraged, through the interviewer's probing of issues raised in the course of the interviews, to think deeply and critically about the attitudes and beliefs they hold about learning and their perceptions of the experiences they have had of the teaching-learning process. The two central components of the conceptual framework at the end of Chapter 2 (see Figure 2.2 the Context Based Learning Outcomes Model -
the Learning Process and the Teaching-learning Context) formed the basis for the design of the interview guide.

In-depth interviews attempt to explore the thoughts, perceptions and feelings experienced by informants. They seek to uncover how people “attach meaning to and organise their lives, and how this in turn influences their actions” (Minichiello, Aroni, Timewell, & Alexander, 1990, p. 6). By conducting the interviews within a specific context, the researcher seeks to understand the life of a given group within its own social, cultural, physical world (Kielhofner, 1982). Because of the many differing constructions that people can put on their reality and the dynamic nature of these constructions, it is necessary for the researcher to focus not only on the actions of the subject but also on the underlying beliefs and perceptions that influence and govern these actions. The dynamic relationship between beliefs and understanding on the one hand and action on the other is expressed succinctly by Mezirow (1991, p. xiv),

... the personal meanings that we attribute to our experiences are acquired and validated through human interaction and communication... Since information, ideas, and contexts change, our present interpretations of reality are always subject to revision or replacement.

While the interviews probed students' experiences and perceptions and so required the subjects to think deeply about their learning, they were conducted in a relaxed, conversational style to allow students to freely identify and discuss issues of personal importance. Entwistle and Entwistle (1991, p.210), in describing a small scale interview study that they had carried out, found this "unusually interactive form of interviewing... essential to enable students to give full expression to experiences which they seemed previously not to have considered in any systematic way".

The anecdotal data that emerge from this type of interview are doubly valuable: for the researcher, the data provide a rich source of information about
the issue under study; for the reader, the data often resonate with his or her experience and so become a natural source of generalisation for that person (Stake, 1978). This “naturalistic generalisation” allows the reader to transfer his or her experience to other situations. As expressed by Madaus, Scriven and Stufflebeam (1988, p.282), naturalistic generalisation is to arrive at “by recognition, the similarities of objects and issues in and out of context and (to sense) the natural co-variations of happenings. To generalise this way is to be both intuitive and empirical”. As this first phase of the empirical investigation used a very small sample of students, however, any attempt to transfer the findings to other student populations or learning contexts needs to be done with caution - at the same time, the general findings are enriched and illustrated by the anecdotal data provided by the study (Burns, 1994).

Not only does the semi-structured in-depth interview allow the interviewer to collect rich sources of data, it provides “a desirable combination of objectivity and depth” (Borg & Gall, 1989, p.452). Borg and Gall (1989) viewed it as being the most appropriate form of interview for educational research as it “often permits (the) gathering (of) valuable data that could not be successfully obtained by any other approach”. Probing questions can be used to encourage informants to expand on something. Follow-up questions can be asked to elicit further information which either clarifies answers that have been given or provides new insights into the same issue.

The desirability of using interviews to collect data for educational research was summarised by Clarke (1995, p. 2) who gave four reasons for using interviews to gain students' perceptions rather than using a survey instrument:

First, there is always a concern that any a priori set of statements to which individuals respond using a forced-choice format does not necessarily allow the students to indicate what is salient to them. Second, the instruments focus on either just one type of learning environment . . . or the 'generic (university) classroom' . . . Third, each is based on a relatively small number of underlying
dimensions, manifested as subscales, that may deny the complexity of classroom life. And fourth, the instruments do not investigate why students perceive their classrooms the way they do (Clarke's emphasis).

Structure of the interviews

An interview guide was developed to facilitate the effective conducting of the interviews (see Table 3.1). The guide consisted of twelve questions designed to give the interviews focus and a sense of direction. While a structured interview would have used these questions, and these questions only, in semi-structured interviews while each of the questions in the Interview Guide is asked during the course of the interview, the questions are not an end in themselves but a springboard to explore a certain issue under investigation. In the semi-structured interviews conducted in this study, the questions in the Interview Guide were asked, in most instances, in the order they appear in Table 3.1 and formed the foundation of each interview. Some questions in the Interview Guide dealt specifically with these separate areas while others overlapped and ranged across two or three different focus areas. For example: How would you define learning? and What do you think the key to real learning is? deal specifically with students' conceptions of learning and Why did you decide to do this course? investigated students' motivations, whereas What were the experiences from which you learned the most? explored students' conceptions of learning, conditions of learning, motivation and so on.
Table 3.1 Interview Guide for the Preliminary Interviews

1. What experiences have you had at university that have helped you to learn?
2. What were the experiences from which you learned the most?
3. What have you learned about "how to learn" that you wished the lecturers or tutors had explained to you at the beginning of your university course?
4. Have you discovered different ways of learning different things?
5. Have any of your tutors or lecturers provided learning experiences or organised their teaching in ways that you found helped you to learn?
6. In your course you may have come across new concepts or techniques that you found very difficult to learn. Can you take me through in detail, step by step, how you went about mastering this knowledge?
7. What do you think the key to real learning is?
8. What do you think good teaching is?
9. Students are motivated in different ways. Do you think this also applies to lecturers?
10. How would you define learning?
11. Has your approach to learning changed from when you first started university? If "yes", in what way?
12. Why did you decide to do this course?

As a result of this inter-relatedness of many facets of learning, as manifested in the literature review, the questions in the interview guide built on each other and provided opportunities for exploring similar or related issues in ever-increasing depth if so required. The questions:

- Have you discovered different ways of learning different things?
- Have any of your tutors or lecturers provided learning experience or organised their teaching in ways that you found helped you to learn?
- In your course you may have come across new concepts or techniques that you found very difficult to learn. Can you take me through, step by step, how you went about mastering this knowledge?

are examples of questions in which the interviewer was able to develop a very clear, well developed picture of the student's experiences and beliefs about a range of learning related issues.

In the interview guide, five questions related to students' conceptions of learning, eight questions dealt either directly or indirectly with the conditions
of learning and five questions explored students' motivation for learning. This breakdown of the focus of the investigation and the questions used to guide the interviews is provided in Table 3.2.

Table 3.2 Analysis of Items in Interview Guide

**The learning process:**
1. What experiences have you had at university that have helped you to learn?
2. What were the experiences from which you learned the most?
3. What have you learned about "how to learn" that you wished the lecturers or tutors had explained to you at the beginning of your university course?
4. Have you discovered different ways of learning different things?
5. In your course you may have come across new concepts or techniques that you found difficult to learn. Can you take me through, step by step, how you went about mastering this knowledge?
6. What do you think the key to real learning is?
7. How would you define learning?

**The Teaching-learning Context:**
5. Have any of your tutors or lecturers provided learning experiences or organised teaching ways that you found helped you to learn?
8. What do you think good teaching is?
9. Students are motivated in different ways. Do you think this also applies to lecturers?
11. Has your approach to learning changed from when you first started university?
   If "yes", in what way?

The interviews began with general questions about students' experiences of learning at university while questions requiring more thought, or for students to be specific, were left until the second half of the interview. This deliberate ordering of questions was selected with the intention of allowing the subjects time to relax into the interview and to have already started thinking and discussing issues about learning before being confronted with very direct questions such as: *What do you think good teaching is?*

The first question, *What experiences have you had at university that have helped you to learn?*, was designed to encourage students to begin thinking and talking about their learning at university not just in the context of their present year of study but in terms of their overall experience. This focus on their learning experiences throughout the whole course was maintained during the interview,
as for example, in the third question - *What have you learned about “how to learn” that you wished the lecturers or tutors had explained to you at the beginning of your university course?* The penultimate question, *Has your approach to learning changed from when you first started university?* If “yes”, in what way?, attempted to draw together the students’ views on learning and the way in which the university context and personal factors, amongst other things, had affected their learning.

**Role of the interviewer**

In the interview situation, the researcher is required not only to identify the significant experiences of the subjects but also to explore fully the understandings and beliefs that the participants have formed about these experiences and the ways in which this has affected their subsequent behaviour and/or perceptions. The researcher needs to be fully attuned to the fact that,

> ... people act on the basis of meaning ... to understand the actions of people, they must know the everyday meaning on which these actions are constructed. Otherwise, researchers may erroneously substitute their own meaning for the meaning of subjects, setting up fictitious and inaccurate accounts (Spier (1973) and Blumer (1969) as cited in Kielhofner, 1982,p.70).

The challenge for the interviewer, then, is to remain open-minded and refrain from bias. To minimise the likelihood of bias occurring, it is necessary to remain non-judgmental and neutral no matter what he or she is being told by the subject (Merriam, 1988). This does not mean that the subject cannot be challenged or questioned deeply to fully inform the data but it does mean that the interviewer needs to be careful not to skew the results of the interview because the subject felt uncomfortable about revealing further detail as a result of the interviewer’s verbal and/or non-verbal reactions. While face-to-face interviews mean that the interviewer needs to be aware of his or her responses, at the same time they do allow the researcher to read the non-verbal
communication cues of the subject which may have a bearing on the data and which can indicate confusion, lack of understanding, surprise and other reactions that provide direction for the interviewer (Oyster, Hanten & Llorens, 1987). As a result, the interviews can clarify any ambiguity on the part of either participant.

In any study involving subjects providing accounts and interpretations of their experiences, beliefs and ways of acting, caution needs to be exercised in the interpretation. Disparities are often revealed between the recall of events and the actual event (see, for example, the many studies into clinical reasoning and teacher thinking), and in accounts of ways of acting and what is done. While not consciously wishing to misinform, it is often the "ideal" that is sought (and so forms part of the later recounting of experiences) but not always met. Similarly, individual's perceptions are frequently "skewed" or re-arranged in one's thinking by subsequent events or merely the passing of time.

Selection of informants

Ten students were interviewed. The ten students interviewed were drawn from what Entwistle and Entwistle (1991) describe as "an opportunity sample", or what Berdie, Anderson and Niebuhr (1986) call a "convenience sample", in that they were known to the interviewer and some, at least, were aware of the research into student learning that she was undertaking. It should be noted, however, that they had been told that the study was about "the ways students go about their learning". While assessment and learning are at the heart of this study, the aim for these interviews was that any reference to, or discussion of, assessment issues should emanate from the participants. In this way, it was considered that those issues that were of most importance to students would be most likely to emerge.

These ten students had either just completed their degrees or were in their final year of undergraduate study. The subjects' areas of university study covered
the following: agriculture (1 student); computer science (1); education (2); health sciences (2); the humanities (2); leisure studies (1); and, visual arts (1). At this stage of the investigation, the emphasis was on gaining a broad cross-section of students' ideas about learning at university. While the sample cannot be described in any terms as representative, it does cover a range of different disciplines and professional preparation courses seen as sufficiently diverse to capture both the diversity and the commonality of student perceptions and insights into the learning experiences of undergraduates. The ten students interviewed had attended or were attending three different universities situated in the Greater Sydney area. In qualitative research, sampling decisions are guided by the analysis of the data as it is being collected. The aim of this preliminary investigation was to "fix" a specific focus for the study. Sampling, then, was guided by the emergence of an issue or issues. Ten students were interviewed. Though more students could have been interviewed, it was obvious by the end of the tenth interview that themes of importance to students had emerged.

While these ten students were known either directly or indirectly by the researcher, care was taken that none of the subjects felt in any way coerced or obligated to participate in the study. The covering letter and informed consent form signed by all participants are included in Appendix 1.

Data collection

The interviews were conducted over a two week period. The interviews lasted from forty five minutes to just over one hour and were carried out at a time and place agreed upon by both the interviewer and the interviewee. Each interview was audio-taped, fully transcribed and analysed. Every effort was made to establish a relaxed, friendly climate in order to facilitate an effective interview. The purpose of the interview was explained to each participant at the outset, they were then invited to complete the Informed Consent form and
were given time to peruse the questions in the Interview Guide before the interview commenced.

During the interviews probing questions were used to elicit further information where necessary. If points of clarification were needed, the interviewee was asked to provide further explanatory information, give examples or provide a rationale for their viewpoints or perceptions. While the interview climate was supportive and friendly, students were challenged to explain or elaborate where necessary. In essence, the interview was conducted so as to elicit information, to probe experiences and perceptions and to encourage each participant to think deeply about pertinent issues and to discuss them in detail. Field notes were written after each interview noting the researcher’s perceptions of the interview and of any feature which may affect the nature of the data collected.

_Ethical Considerations_

The importance of the data collection instruments and data collection processes meeting acceptable ethical standards is widely recognised in research circles. It can be assumed that where these standards are breached there may be a threat to the integrity of data as well as to the rights of respondents. Careful consideration of pertinent ethical issues was a feature of each phase of the study. In this study, all data collection strategies were designed to meet criteria for the ethical conduct of research. Ethics approval was obtained from the Ethics Committee of the University of Western Sydney, Nepean (see Appendix 2).

In this investigation close monitoring of ethical standards against six conditions outlined by Fox (1969, pp. 384-389) was an integral part of the process. These conditions are included in Appendix 3. In concert with these conditions, the following points were cited, in the first ethics application which addressed the
student interviews, as being a summary of the ethical considerations necessary for the integrity of this study:

- the purpose of the research is to improve teaching and learning in universities;
- no coercion will be involved in recruiting subjects;
- detailed information will be provided to participants about the project and about their rights;
- subjects may withdraw from the project at any time;
- subjects will be debriefed and will receive a summary of the research findings if they so wish;
- anonymity of subjects is assured; and
- data will be stored safely and may be accessed by researcher and supervisor only.

**Data analysis**

The analysis was broadly based on the following procedures suggested by Marton (1981) for phenomenographic investigations. As themes began to emerge as the data were analysed, they were grouped together to establish "categories of description" (Entwistle & Entwistle, 1991, p. 210). While the small sample makes it difficult to accept any generalisation of findings, the emergence of themes allows the delineation of common themes and also allows for the isolation of issues that may be of concern or importance to the individual student - in essence, the commonalities as well as the points of difference begin to emerge.

Each interview was transcribed and analysed before the next interview took place. While this created a demanding schedule over the two week period, it did ensure that new themes or issues that arose in one interview could be investigated, if necessary, in the subsequent interviews. As new themes
emerged it was necessary to review previous interviews and analyse them in terms of the new emergent themes. In the case of the first interviews, two of the subjects were contacted by telephone for further information.

The data, as a result of this process, were grouped into seven main themes:

- motivational factors;
- assessment tasks;
- feedback and learning;
- monitoring the quality of one’s learning;
- conceptions of learning;
- the role of the teacher; and
- the teaching-learning environment.

These seven themes were further subdivided into three thematic areas, the learning process, the learning context, and assessment and learning as shown in Table 3.3.

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<th>The learning context</th>
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<td>• role of teacher;</td>
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<td>• Assessment tasks; and,</td>
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The results of the data analysis will be presented in the remaining pages of this chapter. As will become apparent to the reader, the relationship between assessment and learning was perceived by these students as being inter-related and interdependent. The process of learning at university, at least at the undergraduate level and as perceived by the ten students interviewed, was
firmly linked to both the assessment process and the teaching process. The results are presented in three sections. These sections represent the themes outlined in Table 3.3: the learning process; the learning context; and assessment and learning.

**Results Section One:**

The learning process

According to many learning and motivation theorists, learning is a social construct and is context specific. Various elements within the learning context impact on students’ motivation, their conceptions of learning and the way they approach their learning and monitor its quality.

**Motivational factors**

As stated in the previous chapter, the study of motivation examines the causes of goal-oriented activity (Beck, 1983; Hull, 1943; Veroff, 1969). In the following section, students’ comments about the various factors that motivated them in their undergraduate study will be presented. The relationships that exist among students’ goals and motivations for learning, their conceptions of learning, the specific conditions of their learning, and the success and failure outcomes will be examined and demonstrated through the data.

The section begins with an extract from the interview carried out with Student 4. This student had almost completed a four year computer science degree and what she says in this extract illustrates the interactions, mentioned in the previous paragraph, among students’ motivation, their conceptions of learning, the specific conditions of learning, and the success and failure outcomes. It highlights the fragile nature of student motivation and self-efficacy in the learning situation. This extract provides insights into the world of the student and is a starting point for the presentation of students’ views on motivation.
The extract begins with the student being asked about how she approached learning material that was difficult to understand.

In your course you may have come across new concepts or new techniques that you found very difficult to grasp, to understand. How did you go about mastering this new and difficult knowledge? Yes, I did do one subject. It was just very, very hard to understand and I ended up failing the subject and I had to do it again. . . and the second time I did it, it was in a part-time class and it was a lot smaller . . . the first time I did it, it was a full-time class, it was huge, it was during the day, it was the middle of summer, it was always hot and sticky and I sat up the back and . . . it just all went over my head. The second time I did it, it was at night, the class was smaller, and the lecturer was more at ease with the class and was more, uh, willing to explain things.

And was this the same lecturer that had taught the course when you first did it?:
Yes, the same lecturer the second time but because, I think, it was a much smaller class she didn’t feel as overwhelmed either . . . There was more, much more opportunity to ask questions and she didn’t mind if she went over time answering people’s questions, so that was really good. . . Whereas, the first time I did the subject, the class was so big and everyone just wanted to get out of it, there was just no discussion at all. So you just left, you did your homework - whether you understood it or not - and you either passed or failed.

And, we had an assignment that was very difficult. And the first time I did it - when I failed the subject - we had to do it individually and the second time we were allowed to do it as a pair. So I had someone with me doing the assignment and we both had the same difficulties and, uh, we went to see the tutor about it and he actually had a lot of difficulties with it too. So the three of us had to sit down and work it out together and it just became easier after that.

By working together? Yes, whereas the first time when we had to do it individually . . . when something you don’t understand begins to overwhelm you, you begin to lose confidence and you never really get back on top if you don’t try hard enough. But having the tutor actually having troubles made me see it wasn’t just me. Yeah, we did the assignment and got a good mark and it seemed a lot easier from there. (Student 4)
The factors discussed here - large number of students versus smaller group, hot sticky day classes versus evening classes, little interaction during lecture versus lecturer welcoming discussion, completing assessment tasks by one's self versus working with another student, attempting to complete work without assistance versus gaining help from a tutor, feeling overwhelmed versus gaining control of the situation - taken either separately or collectively represent striking contrasts in the teaching-learning process with obvious effects on the student's confidence in her ability and in learning outcomes. A number of inferences can be drawn from the case - in the context of motivation, perhaps the most obvious relate to the student's feeling of control in the situation and future engagement in learning tasks, her ability and confidence to take responsibility for her own learning, and changes in this student's conception of learning.

These and other factors will be explored in the next section of this chapter. Firstly, students' perceptions of the importance of motivation for learning will be presented. This will be followed by an examination of the motivational factors students perceive as directing their learning. These include intrinsic and extrinsic motivation, personal factors that affected their motivation, and changes in their motivation as they proceeded through their degree programs.

In the interviews, each student was asked the question, What do you think the key to 'real' learning is?. Students' actual responses are included in Table 3.4 to illustrate the range of responses and to help the reader relate to the ways of thinking of these ten students. While the responses covered a range of factors from understanding to interest to learning environment, one factor that was identified as being vital to learning was motivation. Three of the ten students used the word motivation, however, two others referred to it in different ways - enjoying yourself while you are learning and you have to be eager to learn. This ready identification of motivation as being a key to 'real' learning emphasises the impact of this factor on learning outcomes.
Table 3.4  Responses to: What do you think the key to ‘real’ learning is?

| Student 1 | Being motivated. |
| Student 2 | Understanding. |
| Student 3 | I think it’s understanding things . . . for some things it’s understanding . . . for other things it’s understanding plus finding out all the different layers of knowledge. . . . the key for some types of learning is to actually practice and apply that knowledge and find all the ins and outs of it that way. |
| Student 4 | Enjoying yourself while you are learning. |
| Student 5 | Being motivated . . . in anything that you’re going to learn. |
| Student 6 | Being able to apply what you’ve learnt. Bringing in the theory to the ‘hands-on’ situation. |
| Student 7 | I think the practical. I think . . . getting right out there . . . I think if you’re just sitting there digesting all this information that lecturers are giving out, you’ll memorise it but it’s not till you apply it. |
| Student 8 | Effort . . . You have to be prepared to put in the effort to learn things . . . you have to be eager to learn. |
| Student 9 | Making learning fun, interesting. Having things explained in detail so that you understand. Being in a positive, supportive environment. |
| Student 10 | I think you have to be motivated and interested in what you’re learning. |

Intrinsic and extrinsic motivation

When data from the interviews were analysed in terms of motivation that was intrinsic or extrinsic to the task of learning, the following motivations were uncovered. Intrinsic motivation for learning was classified into seven categories: a) being interested in what was being learnt; b) being challenged to think and so striving for understanding; c) wanting to learn for the sake of learning; d) wanting to do well at something once it has been started; e) being able to choose the subjects you are studying; f), proving to myself that I could do it; and g) the desire to set a foundation for a career.

Students also discussed motivating factors that were extrinsic to the task of learning. Three main categories emerged: a) just doing enough to pass; b) keeping up with peers; and c) getting it over and done with. The first can be seen as a work-avoidance goal where the student wishes to complete his or her studies with the minimum of thought or effort.
Oh, First Year, my social life was pretty important to me... First Year courses are so generalised that, I found..., you didn’t have to do very much work to get by and get decent grade. ... All I did, I would read the textbook over. I would read whatever was (in) bold (print) for definition type things because so many of the first year courses were just, you know, multiple choice, and if you did what was in bold, you would pass the course, no problem. (Student 1)

The other two categories - keeping up with peers and getting it over and done with - came from the interview with Student 5 whose main concern was getting through her course and, as she expressed it, “getting out of there”. When asked about why she felt that way Student 5’s responses point to the importance of goals, of feeling in control, and a subsequent strong sense of self-efficacy. Personal maturity was also seen by this student as an important aspect of success in undergraduate study.

Why didn’t you have that sense of motivation with your course? I think there were a few (subjects) that I was doing that I didn’t want to be doing in the first place. I think I was too young in the first place. I was just too young, I didn’t have any goals, it wasn’t leading me anywhere. (Student 5)

Changes from first year to final year

A number of the students interviewed talked about the changes in their motivation for learning that occurred as they proceeded through their courses. Initially, most said, that in their first year of the course their main goal in learning was to pass whereas in the final year, at least, they were also concerned about what they got out of the course. The following excerpt illustrates this point.

We had to get the mark and that was the main thing that you were worried about, like, “Will this be in the exam, will this be in the exam?” (and) “If it’s not in the exam then I don’t want to know”. Whereas now that’s not as big an issue. If it’s interesting to me and I think it will help me then I still want to learn (it). (Student 2)
And further on in same interview:

*Have you noticed how your approach to learning has changed from First Year to Fourth Year? I just basically wanted to learn more in-depth, (I'm) not just happy with scratching the surface as before. . . . I think so much more now about things. . . expanding (information) to more than just what it's being applied to - thinking, "OK, well this can be used for this, this, this and this", instead of keeping it in its one little box.* (Student 2)

A final year visual arts student, Student 8, discussed the pleasure he derived from being responsible for his own learning. This student spoke about the amount of direction, and the lack of freedom, that accompanied learning at high school and found being self-directed, as he was in his university study, was a motivating experience. He says of this experience:

*What experiences have you had at university that have helped you to learn? I think one of the things is that you're left on your own. Like coming from high school, a lot of things have been presented to you and you don't have to do a large amount of research to find the answer. Whereas at university, you're left on your own to find out things for yourself and I find that stimulating. Learning at uni is a challenge and I like the feeling that it's up to me to go about it anyway I like.*

Of course, many students find this aspect of university - being responsible for one's learning - one of the most daunting aspects of their undergraduate study. This, combined with large introductory classes, being in an alien environment, and not knowing how the system worked are frequently cited problems of the first year undergraduate student. One of the students interviewed made these comments.

*... our classes in First Year had five hundred people in them. It's not personal at all. But as you go on ... I had two classes in Fourth Year with thirteen people in them.*
the teacher knew everything about us. He knew if you were in class, he knew everything. 
Whereas in First Year . . . you’re a number. (Student 6)

The development of group cohesion and finding ways to respond to the system were raised by Student 7 who spoke about the changes in the way she approached her learning in First Year and in her final year. What she said emphasised two things: the isolation of many first year students; and the motivational force attached to belonging to a group and working with its members.

By Third Year we had learned to study in groups and that helped a lot. (In) First Year we were pretty much all on our own despite the fact that we were all doing the same courses. But by Third Year I was getting together with so many different groups to study. . . . we all keep each other on our toes. (Student 7)

As discussed in Chapter 2, students’ motivation and the way the learning tasks were presented influenced their conception of learning and the quality of their learning outcomes.

Students’ conceptions of learning

In the preliminary investigation, students’ conceptions of learning were explored with the intention of gaining knowledge about student learning. As this was only one aspect of the interview and as the researcher relied only on the subjects’ perceptions and beliefs about learning rather than using actual material to further inform any decisions made about each student’s conception of learning, the findings in this area are tentative. It was decided to analyse the students’ conceptions using the set of categories of conceptions of learning put forward by Marton et al. (1993) as listed in Table 2.2 in Chapter 2. These categories show the distinction between whether learning is seen by students as a reproduction of information, or the transformation of that information through understanding. As stated earlier, there is often a discrepancy between accounts
of ways of acting or of the integration of beliefs with what is done in practice. With this in mind, the researcher made the decision to categorise the students' conceptions of learning into the broad categories of learning seen as the reproduction of information and the transformation of that information through understanding.

Of the ten students, two could be identified as viewing learning as the reproduction of information and six saw it as the transformation of information. No clear decision could be made about the remaining two students. The two students who saw learning in terms of reproducing information described learning and their experiences in the following ways.

When recounting what she had learnt about learning since she had been at university, Student 1 said the following:

*Usually whatever the lecturer is speaking about is based on a certain chapter (of the textbook). If I read the chapter before I go to the lecture, and then have a lecture on it and, for myself, my main thing is summarising the chapter. I've learnt that I just don't read a chapter . . . as I'm reading it I highlight it and, I write, I summarise it at the same time, so when it comes the time for exams I don't have to reread the chapters . . . if you read the chapters and summarise, you're going to learn a lot better.*

When discussing how she goes about learning a new concept or a technique that she found very difficult, this same student described how she went about learning a mathematical concept:

* . . . And I sat in the tutorial and I could not understand that . . . and I just found repetition for me, going over and over it, and I had to do it in different ways.*

And later when talking about her techniques for learning something difficult:
Something else that I finds helps me to learn too . . . I talk to myself out loud . . . saying stuff out loud, point form . . . so I find I am better off by myself because I don’t work well bouncing ideas off other people . . .

The other student who demonstrated that she perceived learning to be about reproducing information was Student 7. This student was quite emphatic that being able to apply procedures - on an instinctive level rather than one based on the understanding of theoretical constructs - was the basis of learning. Her response to the question, What is the key to “real” learning?, revealed a less than transformational approach,

I think the practical. I think . . . getting right out there. I think if you’re just sitting there digesting all this information that lecturers are giving out . . . you’ll memorise it but it’s not till you apply it (that you learn it). (Student 7)

Further probing revealed that this practical application was not underpinned by a consideration of theoretical knowledge.

I never learned so much until I had a (holiday) job . . . and it was all practical, “hands on”, no theory.

Didn’t you feel that you brought theory to the job? I guess so . . . (however gestures to show that she is not convinced of this).

This student’s conception of learning, applying facts/procedures, was classified by Marton et al. (1993) as belonging to the reproducing category and by Norton and Crowley (1995) as being a naive rather than sophisticated conception of learning.

In comparison to these two students, the students who viewed learning as the transformation of knowledge were more thoughtful in their discussion of learning and appeared to have a greater appreciation of the complexities of capturing the essence of what learning was for them.
. . . like with rote learning, I've never been good at that. Trying to just sit there and memorise things didn't really work. So now I try, as I said before, I learn the concepts.
. . . I mean, a lot of my friends just go, "How do you remember that stuff from First Year? How do you remember this?" Because I was never into cramming. I put things into long term memory and that only happens when you understand the concepts. I find that's helpful in later years because that stuff that you need is still there. (Student 2)

Student 4 defined learning in the following way:

Learning would be just discovering new things. Yes, discovering new things.

She went on to discuss how as she progressed through her computing science course she was able to link new learning with prior knowledge and to link various elements of subjects so that learning for her became an elaborated and integrated process:

Now when I'm doing subjects, I look at the whole course and when I get an assignment, I see how that relates to the whole subject . . . I see everything in perspective . . . and also because some of the subjects follow on from one another, so when you're doing the second subject, you're looking back at the first one and thinking, "Oh, I understand things much more easily" because that first subject was just a little piece of the whole area that that subject is a part of.

Student 5 defined learning as

. . . using your brains in new and different ways. When you learn you are doing things you haven't done before and you're learning to think differently about things.

Later she extended this idea of learning being related to thinking in different ways when she spoke about learning with others:
I think learning in a group is a very good way to learn - learning with someone rather than doing it by yourself - because everyone thinks differently so if you’re with someone else you can put your own input in and they put their input in and it’s often different so you get a more well-rounded notion of what to do . . . learning to think in different ways.

When asked, What were the experiences at university that you learnt the most from?, Student 5’s response emphasised the importance of active learning as part of her learning process:

Lectures are good for getting the facts. A tutorial is better for getting down to the nitty-gritty and talking with (emphasised) people rather than listening to somebody - (you’re) learning to think in different ways when you talk with people . . .

Student 10 demonstrated a strong transformational conception of learning when defining learning:

How would you define learning? I guess it’s receiving and understanding new information. And absorbing it and I guess having it make sense.

By absorbing it do you mean memorising it? No, absorbing it into what you already know. What I mean is that the new information, once you understand it, you take it in, you think about it, try to relate it to what you already know - and sometimes it takes time for that to happen - but once it does happen then the absorbed material is fully understood and you feel comfortable with it. It makes sense and you can use it. (Student 10)

Monitoring the quality of one’s learning

A student’s motivation to learn and the conception he or she has of learning directly influence the desire and/or the ability this student has to monitor the quality of his or her learning. Students who possess reproducing or naive conceptions of learning are less capable of effectively monitoring the quality of their learning than are students with a transformational or sophisticated conception of learning. Similarly, students who are not highly motivated or
who have low self-efficacy are less likely to spend time and effort monitoring their learning than are students possessed of a high level of motivation or with high self-efficacy.

In ideal situations, where students are encouraged to develop self-monitoring skills through the use of a well designed curriculum and appropriate instructional strategies, the ability to self-monitor the quality of one’s learning is acknowledged as being developmental in nature and part of the initiation into undergraduate study. In this context, students gradually become aware of, and then skilled in using feedback from assessment, cues from their teachers and peers, and the messages from the explicit and implicit curricula in monitoring their learning quality.

In the preliminary investigation, the developmental nature of students’ self-monitoring was evident in their responses to the question, Has your approach to learning changed from when you first started university? If “yes”, in what way? As stated at the beginning of this section, all ten responses to this question involved the students discussing learning and assessment. Therefore, not only were developmental changes apparent in the ways students went about their learning but developmental changes were also obvious in the ways they approached assessment. The following extracts from interviews demonstrate that not only did students begin to monitor their performance on assessment tasks but their approaches and interpretations of their actions varied. For example, Student 3 found that over time, he became more effective in reflecting on and monitoring his learning and that he “really started to learn a lot more” whereas Student 5’s development of self-monitoring skills (in line with her growing disenchantment) was wholly focused on completing assessment tasks - “in your final year you just discard anything that’s not helping you out for that assignment”. The two extracts from these students’ interviews are included below.
When I first started the course, for each subject I would look at what the assessment was. . . . assessment was the be-all and end-all. I really wasn’t too much concerned about ideas or anything else. It was a bit of a panic just proving to myself that I could get through, you know, first semester and second semester. And then I settled down and after that I could sort of step back from what I was doing and put things into place (and) by the time I got into Second and Third Year . . . I really started to learn a lot more then. (Student 3)

and . . .

When you first start out you’re enthusiastic about absolutely everything. I think when you first start out and you’re given an essay to do you learn not only that topic but bits and pieces of everything else because you don’t know how to pick out what’s relevant and what’s not - at least, I didn’t. Whereas when you’re in your final year you just discard anything that’s not helping you out for that assignment. (Student 5)

Students 3 and 4 discussed exactly how they used their self-monitoring ability to facilitate their learning:

I knew I’d get a good mark on my second essay because I had followed through on exactly what they’d . . . pointed out, and I knew that those failings weren’t there the second time around. (Student 3)

and . . .

Now when I’m doing subjects, I look at the whole course and when I get an assignment, I see how that relates to the whole subject and what I do then makes it easier for me to get through that assignment. I see everything in perspective. I can prioritise different tasks more easily and effectively now and I concentrate on the important things and I find it much more easy to learn. (Student 4)

Student 9, however, had not fully developed the ability to self monitor her work and had trouble trying to gauge the effectiveness of her own learning. As she
said, "It's very hard to distinguish just how well I'm learning". She was critical of the limited nature of feedback that many teachers appeared to provide in which the emphasis was on general comments about the work rather than on ways it could be improved, and argued that -

Giving both the negative and the positive gives some support to people about how they went wrong and how they can fix it. (Student 9)

Inherent in these developmental changes in approaches to learning and to assessment are students' ways of responding to the explicit curriculum and the implicit curriculum. It would appear that some students are quick to appreciate the importance of the implicit curriculum and respond accordingly. Indeed, Student 4 rated her awareness of, and need to respond to, the hidden curriculum as one of the main things she learnt at university. She expressed it in the following way:

What were the experiences at university from which you learned the most? I learned that when you were doing an assessment, it wasn't always the work that you did or, I don't know, the questions that you answered, that were going to be marked. The lecturer was also looking at other things such as presentation, the layout of your report or your program. You had to figure out what they wanted, what they considered important, if you were going to get a good mark. (Student 4)

Results Section Two:
The learning context

The interaction of the learning process and student motivation has been examined. This next section examines data related specifically to the learning context or what could be referred to as the conditions of learning. The section has been organised to reflect the factors that emerged from the data. Two key elements have been isolated from the data as being significant in the learning
context: the university teacher and the teaching-learning environment. Each is analysed in turn.

Firstly, the messages that students receive from the learning context, particularly focusing on the students' perceptions of the teacher's role, are examined. Following this, the factors that students identified as being part of a supportive learning environment are presented along those which are indicative of a non-supportive environment. Finally, the role of the tutor and the qualities that constitute good teaching are presented.

The teacher's role

While literature reviewed in Chapter 2 highlighted the impact that the learning context has on student learning (see Tables 2.9 and 2.10 for summaries of positive and negative learning outcomes related to the teaching-learning context), four excerpts from student interviews demonstrate the force of teacher-student interactions and the messages students received from the teaching context, on students' experiences within this context, and with the way they interacted with the environment. In the final case, a strong message is conveyed about power relationships within universities which, in a fee-paying/service providing context if nothing else, would appear to be inappropriate.

Student 6 was about to complete her fourth year at university but admitted in her interview that she had not personally approached any of her teachers in her first year of university and still rarely went to a lecturer for help if she needed it.

I don't know, for some reason I've never really approached too many of my teachers and asked them questions . . . maybe because I've had a couple of bad experiences with feeling really intimidated and feeling . . . really stupid. (Student 6)
While this student realised that this was not always a sensible way to behave she did not see it as having any negative effects on her learning or her subject-related outcomes. Student 5, however, whilst acknowledging that she had not been motivated to do well in her course, did recognise the value of using university teachers as sources of help and was fully aware of the fact that some students were (in Miller & Parlett’s term) cue-seekers. She also realised that it was these students who were often the most successful academically. Her words indicate the power of the implicit or hidden curriculum.

Making yourself known to your lecturer is really important because you need to let them know that you're interested in what they're teaching you. You have to build up a relationship with them. You find out much more about what they expect of you - what they want from you in assessments and that. You'll do better in your assignments if you know exactly what they want and they help point you in the right direction and give you the right readings and all that sort of stuff.

Do many people get to know the lecturers in that way? Oh, yes. Quite a few of them. ... They were usually the students who did better (than everyone else). (Student 5)

Messages that students receive about teachers’ enthusiasm or lack of it, impact strongly on the way many students go about their learning. Student 10 spoke about the way she responded in kind to either perceived lack of effort or quality input from her teachers. This discussion followed questions about changes in her learning since she started her degree course and indicate a level of disenchantment with some aspects of her course and an appreciation for others.

Like if we received assignments (to do) that you knew had just been churned out, hadn’t been rewritten or thought about or changed with a new lecturer - you think “Why put in the effort?”

Do you mean if an assignment was very similar to one you had already done? Yeah ... The lecturers weren’t aware often that we’d had a similar assignment but we
knew. We'd get really annoyed at times that an effort hadn't been made to put together a relevant assignment so we wouldn't put the effort in either and still get good marks (laughs). . . . (in some subjects) we were always given a lot of quality information, it was of a high standard so we always put a lot of effort into that whereas with some really basic subjects - which could have been better researched and presented - you just wouldn't put the effort in. (Student 10)

This student’s comments alert one to the need for university teachers to work together in planning a cohesive program of assessment with tasks that complement, rather than duplicate, each other.

These excerpts, designed to provide insights into the power of the implicit curriculum as well as the explicit curriculum, finish with a student's response to the question, Do you think the lecturers are motivated in different ways too?

I think so. We actually had a lecturer in First Year and he was really arrogant. He didn’t like undergraduates at all and he made that clear to us all and . . . I actually had him for a tutorial and he wasn’t any help at all and, I don’t know, he was just horrible. But I’ve been in other classes with him, where there have been Master’s students in the class, and he’s a completely different person. Completely different lecturer, tutor, everything. He’s much nicer. You know, gives you an answer to a question - whereas before, he would either ask a question back at you or completely ignore you or just make you feel stupid.

These Master’s students, were they sitting in on your classes? Yes, there was a mixture of Master’s and undergraduate students in the one tutorial. (Student 4)

It is impossible to comment on this teacher's behaviour without being critical. While wishing for a more ideal situation, the fact remains that while many positive comments were made about university teachers and the ways they organised their teaching and responded to students, negative comments were also made. The following section presents some of the positive and negative comments and classifies them in terms of the creation of a supportive or a non-
supportive teaching-learning environment. Ways in which these environments influence student learning are considered.

The teaching-learning environment

Five specific ways that teachers support student learning emerged from the interviews. The supportive environment that was created can be seen to be a result of teachers' interpersonal skills, their teaching skills, their teaching strategies and their professionalism and commitment. (The qualities that the ten students interviewed perceived as constituting good teaching are presented in Appendix 4.)

Firstly, students found teachers who were enthusiastic about what they were teaching tended to motivate their students. Students responded positively to teachers who could explain things well as this led to understanding as they felt their learning was supported by their teachers' efforts.

I think good teaching is making your students feel comfortable and, yet, stimulating them to learn. A person who can stimulate their students to learn - perhaps their techniques might challenge them or lead them through different ways, different strategies . . . they can challenge them to think more and more. (Student 3)

The positive learning benefits that arose from being actively involved in the teaching-learning process were discussed by several students.

Can you think of any special experience from which you learnt a lot? One teacher in my first year just showing me a lot of things. Just taking time to explain things to me, his approach. . . . What struck me and a lot of other people as well was his approach - that he treated us on the same level as he was . . . he treated us as equals. . . . He showed us a lot of things. And he bounced ideas off us and we bounced ideas off him. We were trading ideas. (Student 8)

and . . .
Other people have also talked about group discussion being good. What was so good about it? You get more involved and you’re not just sitting there getting it all (thrown) at you. You’re made to think. You’re getting the lecturers opinions back and you’re getting everyone else’s opinion. You’re really talking stuff through and when you talk stuff through I think you remember it better. (Student 2)

and . . . (notice last few words of quotes above and below)

. . . the tutorials were very good. We had a small class and each tutorial was a discussion on what we had done in class that day. . . .

In what way did these discussions help you to learn? We had a lot of people from different backgrounds in our class. There were older people who had come back to uni for the first time in years and there were undergraduates like myself who had only been out of school for a few years so you had lots of different perspectives on the issues and you had to broaden your thinking . . . it was just so interesting that you couldn’t forget it. (Student 4)

Finally, teachers providing out-of-class support were recognised as being part of a supportive learning context. As noted already, however, some aspects of the teaching-learning environment were less than supportive. Students spoke about teachers who bullied students, presented boring classes that stultified learning, treated students as inferiors, and teachers who failed to communicate knowledge effectively.

While wanting a supportive environment for learning, students were definite that they wanted the teacher to be firmly in control of the class and to ensure that everyone has the opportunity to be actively involved. The following comments present two students’ ideas about what constituted a ‘good’ and a ‘bad’ tutorial.
Now you said that in some of your other classes only certain people speak, why is that? Well . . . in my experience there’s usually one or two people who think that they know everything and they usually dominate the whole class unless your tutor refuses to let them do so. (Student 5)

She went on to talk about the role of the tutor.

. . . It depended on the tutor. If the tutor’s going to sit back and let someone take over the tutorial then that’s a bad tute, I think.

And what’s a good tute? One’s like the History and Philosophy one where the (tutor) made everyone feel comfortable. . . . Just pairing people off in threes or fours or in groups and talking or having to come up with ideas - they’re good because individual people can be nervous about getting up and speaking in front of everyone - and it’s good to get a bit of confidence and to want to go back because you’re enjoying the tutorial. (Student 5)

In a like vein, Student 10 referred to the important role of the teacher.

And did you think the tute discussions helped you learn? Yes, because you’re getting other people’s input and opinions as well. But that depends a lot on the tutor actually - on how they generate and control the discussion. (Student 10)

Results Section Three:
Assessment and learning

A continuing theme throughout the data, as can be seen by those presented, is the dominance of the assessment process in the context of student learning. In response to the question, Has your approach to learning changed from when you first started university? If “yes”, in what way?, every one of the ten students interviewed related this question to assessment. They answered it in terms of learning and assessment as if the two, in an undergraduate context, were inseparable.
Various aspects of the assessment process were raised by the students. These included ways in which the assessment either made them think or stultified their thinking, matters of choice involving both topic and mode of assessment, effects of too much assessment, the need for both teachers and students to be aware of assessment criteria, feedback from assessment and, lastly, developmental changes in the ways students approached assessment.

In this final section, data relating to each of these aspects are presented. Firstly, the issues specifically related to assessment tasks are examined. Next, data related to feedback from assessment are analysed. Finally, students’ ability to monitor the quality of their work is considered.

Assessment tasks

The main types of assessment that students identified as helping their learning were related to a) problem-solving, b) ongoing assessment, c) assessment based on real-life situations and d) assessment that involved learning for understanding. The following extracts indicate the types of comments made by students about the benefits to be derived from assignments that involved problem-solving and were part of an ongoing set of assignments.

_Do different types of assessment help you to learn?_ Well, I think ongoing assessment where you have, in some courses, a new assignment, a mini assignment, to hand in every two or three weeks and, perhaps, at the end of the course 70 per cent of them, the best 70 per cent of them, are used for gaining a mark. I think they were really good because you had to go away and think about problems rather than being told the answers so it was very much "hands on", having to do it yourself, work through the problems, you’d find where the difficult areas were and then you’d be able to go and get help or do some extra reading. (Student 3)

Student 10 had this to say about assessment based on real-life situations.
I thought working through scenarios was good as it would stretch your imagination a bit, challenge you - rather than just a straight question where you could do your research from a book. With a scenario, you had to think of a real life situation. And using real life situations was good. It's very important to me that what I am learning is relevant - not too basic - but still relevant. (Student 10)

Finally, assessment tasks that were directed at gaining understanding were appreciated.

Were there any particular types of assessment that helped you to learn? I find presentations are helpful to learning because you actually have to explain things to other people in a way that will help them to understand... so you're also making it clearer to yourself in that sort of assignment. (Student 4)

While only a small sample of students was included in this preliminary investigation, the comments made by the three students above indicate that students have definite opinions about the types of assessment they prefer and these preferences go beyond the simple identification of one particular type. The preferences expressed above are based on the learning outcomes derived from the assessment type. Students appear to be well able to articulate what is important for them in terms of assessment and learning - thinking about problem situations, being presented with challenges - challenges relevant to their learning needs - and explaining their constructed knowledge to others.

From the data, other, less positive issues related to assessment emerged. Two issues of particular relevance to this study were the difficulties some students saw in reference to group assignments and the problem of too much assessment. While it was generally acknowledged by the students interviewed that working in groups can be an effective way to learn, there was also a concern with the difficulties that sometimes arose in group work for assessment purposes. The following two comments are indicative of the concerns felt.
... once you get over two or three people, I think it becomes very difficult sometimes. I just get frustrated because you seem to lose so much time and some of the people, the stuff they talk about, well it's just time wasting and there are just too many people to all stay on the track. I suppose in the long run it's OK but it's pretty painful doing (assessment tasks) that way. (Student 3)

and...

... I found that (group work) actually dragged me down. I'd get behind in my own studies, I'd be drained - and I found (some of the students in the groups) didn't have the same motivation in their studies. So I certainly found that I did better on my own. (Student 10)

Student 5 spoke about the problems that she perceived as being associated with having too many assessment tasks to complete. Whether her way of handling her assessment workload is typical of many undergraduate students cannot be surmised. The approach of this student (whose main aim was to get her degree and "get out of there") may or may not be similar to what many students do in similar circumstances but it clearly shows the impact of assessment on learning for Student 5 as shown below.

And what happened when you had too many assignments to do? Well, you'd have to hand one in late or you'd do a botchy job on two of them and a really good job on one or whatever.

And how did you work out which one to concentrate on? Whichever one was worth more in the assessment.

And did that happen very often? No, not too often, but it did happen. (Student 5)

Examinations were referred to by the majority of students interviewed. Three key issues emerged. These related to the different ways of studying for
different types of examinations, the need for students to have some knowledge of examination format and requirements before sitting the examination, and the provision of more diversity and choice in the ways students are examined. The following three extracts are examples of the comments made.

*And did you go about learning differently for different types of exams?*

Definitely. When you know your exam is going to be an essay you prepare essay questions. ... Then for multiple choice exams you just learn *everything* (emphasised) there is to know or you try to. ... For a multiple choice exam, you go through your coursework and you learn all the facts. When you’re learning for an essay exam it’s not so much the facts as knowing how things work and how things go together. ... you have to have a much broader knowledge, I think. *(Student 5)*

and ... *

*Do you think exams helped you to learn?* Yes, I do think you learn - it tests you under pressure. But one thing about exams that I think is important is that it has to be relevant, it has to test what you’ve learned and not introduce new things at the end to shock or totally confuse people. ... And you need directions beforehand so you’re not going in completely blind ... Just a bit of a guide. *(Student 8)*

Another student spoke about the benefits that might be derived from giving students more choice about how they were assessed.

... perhaps there could be more choice - some people are really good at talking and they could have that choice, whereas other people might take the choice of writing it because they need a little more time to think about things or they express themselves very well in writing but they’re not so good with speaking. There just seems to be so much written stuff at uni that I think perhaps spoken skills could be developed more. People could learn to articulate better or be given the option to be assessed in that manner. *(Student 3)*

Feedback and learning
Another aspect of the assessment process that has been isolated as needing further exploration is that of students' ability (or inability) to monitor their learning. Feedback can enhance students' learning if students have the ability to use that feedback effectively to inform future learning. The development of this ability to self-monitor performance depends, to a great extent, on the students' motivation, on the quality of the feedback provided, and on opportunities being provided to students to develop and use self-monitoring strategies (as in the case of continuous, formative assessment or where the assessment and learning processes are highly interdependent on each other). The excerpt that follows illustrates two different dimensions of feedback - received for formal assessment and for participation in a learning situation.

*Can you tell me about the different subjects you did and why you were more motivated for some than for others?* In the more difficult subjects like the maths or the computing subjects, the main motivation to learn is to get a good mark in your assignment because when you get a good mark you feel really great about it and you just want to keep doing well. . . . For other subjects where research was involved, it wasn’t so technical, there was more reading, then when you were in a discussion situation and you got good feedback on your input, then that was a really good motivating factor and you felt that people felt that your input was worthwhile. *(Student 4)*

This excerpt highlights the strong link that can exist between feedback and motivation. Feedback, however, can also have negative effects on students' self-esteem and future learning. From the data, it became apparent that some students consciously used feedback in their future learning. Limitations to the effectiveness of the feedback provided were also the subject of several students' comments. These related to inconsistency in marking resulting in students receiving mixed messages.

*And the feedback and response from different lecturers was different. So what might be good for one, you’d present to another lecturer and you’d get a totally different response.*
... The assessments were good but just the way they were marked - there was a bit of inconsistency there. ... A lot of the time people were left confused because we didn’t know where we stood. ... Your self-esteem goes down a bit. (Student 8)

Lack of feedback and the limited nature of some feedback were also causes of concern. The following student’s comments are interesting when one considers that many students, particularly First Year students, won’t go to see their lecturers.

What you got written on your on your essay was very brief and if you wanted to follow it up with your lecturer that was fine. There were people who went. The lecturer or tutor was always available for discussion of where you went wrong or where you could be helped. That was only if you sought them out. (Student 3)

Discussion

Data that emerged from the ten interviews in this preliminary investigation highlight the inter-relationships that exist between the teaching process and the learning process. The original components of the learning process dimension of the learning outcomes model as shown in Figure 2.1 at the end of Chapter 2 formed the conceptual framework for this preliminary investigation. The findings of this preliminary investigation were reported in three sections. The first, the learning process, explored motivational factors, students’ conceptions of learning and the way in which students monitored the quality of their learning. The second, the learning context, examined the role of the teacher in the teaching-learning process, and aspects of the teaching-learning environment. Finally, data related to assessment and learning were presented in Section Three. A vital component of the assessment process, feedback, was identified as requiring further investigation.

The findings from the interviews show a re-alignment of these dimensions previously shown in the conceptual framework developed at the end of Chapter
2. This framework as shown below in Figure 2.2 (reproduced below from Chapter 2) presents the learner bringing to the learning context a myriad of personal attributes which influence the way he or she interacts with aspects of the teaching-learning environment. These teaching-learning aspects are presented as the second dimension of this linear model. Here students’ motivation, conceptions of learning and motivation form the learning process dimension and factors related to the teacher and curriculum form the teaching-learning context. The interactions among these various dimensions coalesce and eventually emerge as learning outcomes, the final dimension of the conceptual framework.

![Figure 2.2 The Context Based Learning Outcomes Model](image)

Students’ responses to the teaching process have been shown to depend, to a great extent, on their individual attributes and motivations. Data from the ten interviews revealed that some students were highly motivated and prepared to persist in their efforts while others were less motivated and appeared to lack direction in their studies. While highly motivated, some students demonstrated that they were strongly affected by their perception of the teaching process. For example, Student 10 stated that even though her course was less than challenging at times, "to do well was still challenging". Later in her interview,
however, she referred to the ways her efforts were directly influenced by the teaching process:

*I would say in the final year I put less effort in where less effort was given to us. . . . But where there was obvious thoughtfulness and new material presented - well, it was nearly like I would grade my efforts according to what I was receiving from the lecturer* (Student 10).

Another student, Student 4, spoke in detail about the way in which a subject was taught had affected her learning. Student 4’s account of repeating a subject was illuminating in that she was able to provide a comparison between the way the subject was taught on two different occasions and the impact that that had had on her learning. The clarity of her own analysis of the way this subject was presented and her response to that teaching provides a clear example of her perceptiveness and the development of her insight from her first to her final year of undergraduate study.

The development of this ability to stand back and analyse their course, the teaching of it, and the way they approached and directed their learning was something that all of the students acknowledged although some still felt uncertain about their ability to monitor their own learning. The one student, Student 9, who referred specifically to this inability, however, was able to recognise that the development of her self-monitoring skills was dependent, to a great extent, on the quality of the feedback that she received about her performance on assessment tasks. Two other students spoke about the inconsistency of the feedback they had received and the resulting impact it had on their self-esteem. Some students were seeking understanding and wanting to get as much as they could from their course even though they were unhappy with the way some subjects were taught. Other students were less motivated but responded well - in terms of learning - if they found subjects were interesting and well organised; in other words, well taught. Students had definite ideas about what constituted good teaching and some, if not all, were
able to distinguish the presence of an implicit as well as an explicit curriculum and appreciate the need to respond to both.

No simple formula can be arrived at to explain student learning. The interactions among the conditions of learning, students' motivation, their conceptions of learning and their individual attributes, coalesce in varying ways to produce a range of learning outcomes. What is possibly one of the key factors in determining that outcome is the assessment process.

What emerged from these exploratory interviews was the pivotal position of the assessment process in these students' learning. Assessment was referred to again and again by the students in the interviews to the extent that it became apparent that any discussion of learning at university, or of teaching, that was based on the assessment process would produce material of value for university teachers.

As stated earlier in this chapter, students in this preliminary study perceived assessment and learning as inseparable and virtually all discussion of learning in the interviews was very quickly related to assessment tasks, to seeking clarification about task requirements, to the feedback they had received from assessment tasks and to the ways these factors related to the teaching process. As was the case with teaching, students had definite ideas about the assessment process. Indeed, in reporting the findings one of the concerns was what data to include about assessment as so much of it was valuable in terms of student learning.

On analysis of the data related to students' motivations for learning, the conditions of their learning, and their conceptions of learning, a clear pattern of relationships began to emerge. This pattern involved the relationships among the teaching process, the learning process, and the assessment process. Whilst the assessment process is often viewed as being part of the teaching process, it would appear that students perceived assessment differently from this. The students interviewed did not refer to assessment so much in terms of teaching
as they did in terms of learning. In recognition of the pivotal role that the assessment process has for both teaching and learning and because of the varying effects the assessment process and the teaching process can have on student learning, the assessment process can be seen to have emerged as a separate component of, what could be referred to as the teaching-learning-assessment process. The term assessment process rather than assessment can be seen to be more illustrative of the interaction of assessment, teaching and learning as the former connotes a process that starts on day one of any subject when students are given their subject outlines and begin to receive messages about that subject, including factors associated with assessment, until the day they get their results at the end of each semester and, finally, at the end of their degree program while the latter term, assessment, is perceived by this researcher as being less inclusive and often appears, to the lay person at least, to refer to specific assessment tasks rather than to an extended network of associated factors.

As a result, the conceptual framework has been further revised, in Figure 3.1, to illustrate this separation of the assessment process from the learning context into a separate category, one which is inter-related with both the learning process and the learning context and which has a strong mediating effect on the individual student's approach to learning and on the learning outcomes.
Figure 3.1 The Mediated Learning Outcomes Model

Whilst literature related to student learning and motivation, which included the relationship between teaching, learning, and assessment has been reviewed in Chapter 2, a review of the literature specifically related to the assessment process is now required. Emerging from this Stage 1, and more particularly, from the preliminary interviews, are issues that require further clarification and investigation. Further insights into the purposes of assessment and the way the assessment process has been used in relation to learning are required to expand on those data already reviewed and collected about assessment and its impact on the learning process. This next phase of the study, Stage 2, begins in Chapter 4 with a review of literature specifically related to assessment and undergraduate learning.
CHAPTER FOUR

ASSESSMENT AND LEARNING

Introduction

This chapter focuses on the assessment process itself and marks the beginning of Stage 2 of this study. In this second stage, the conceptual framework developed at the end of Stage 1, as shown in Figure 3.1, is used to guide the theoretical and empirical phases as they evolve. As in the literature review carried out in Stage 1, this review of the literature into assessment and learning in higher education has been carried out to further examine the ways that findings from past and present research relate to each other and to delineate aspects of the literature that will provide insights into the present study. In addition, it is being carried out with the purpose of either confirming the present structure of the conceptual framework or of modifying or adapting it in relation to research carried out in the field of assessment.

To achieve these aims the chapter deals with two broad areas which form the two sections of this chapter. The first section is associated specifically with assessment, its definition and purposes, and a consideration of the role of assessment in three distinct learning paradigms. The second section relates to aspects of the assessment process which may enhance student learning. The issues examined in this second section include feedback, the development of self-monitoring skills and conflicts that can exist between assessment, teaching and learning. The second section concludes with a discussion of assessment strategies or processes that support student learning.
Section One:  
Relating assessment to learning

The way in which students are assessed is seen as having a direct relationship with the approach they take in their learning (see for example, Biggs, 1995; Entwistle & Entwistle, 1991; Ramsden, 1992; van der Vleuten, Van Luyk & Beckers, 1989). The assessment process permeates the curriculum and, as Rowntree (1987, p. 1) stated,

The spirit and style of student assessment defines the *de facto* curriculum.

This phenomenon is seen in the way students concentrate on those components of a course that are the focus of assessment. Indeed, if the assessment tasks are not congruent with the educational goals, the assessment process will direct learning in other directions (Snyder, 1971; Swanson, Case & van der Vleuten, 1991).

Much has been written on assessment - procedures, techniques for producing "better" tests, ways of responding to students' work, effective ways of providing feedback - and, yet, there are urgent demands to re-examine assessment and to create new and effective forms of assessment. There appears to be agreement among writers that the assessment of student performance in higher education institutions needs to be improved (see for example, Boud, 1995; Laurillard, 1993; Ramsden, 1992; Terezini, 1989; Van Berkel, 1990).

In this next section, the emphasis will be on reviewing the assessment process and its relationship to student learning. A *new* paradigm of educational assessment that is emerging will be examined. This examination will focus not so much on the "how to" aspect of assessment as much as on the "what" and "why" aspects. Why are educators wanting new forms of assessment? Why are we no longer satisfied with some previous forms of assessment? What effects will this have on students and their learning?
 Definitions

Any discussion of assessment involves differentiating between the three concepts used in this field - measurement, assessment and evaluation. Keeves (1994), using the semantic distinctions embedded in the writings of Tyler (1950), defined the concepts in the following way. Measurement is concerned with numerical quantification and, as it is rarely undertaken for its own sake, is generally a research procedure that may be used for both assessment and evaluation purposes. Keeves (1994, p. 363) saw the term "assessment" being, "as far as possible in the field of education . . . reserved for application to people". Generally, assessment is focused on individual students although, occasionally, the combined product of a group of learners becomes the item that is assessed. Evaluation is defined as a term that refers to operations generally associated with "nonperson entities" such as methods of instruction, curricula, interventions, programs or organisational factors (Keeves, 1994). Where the assessment of student performance becomes part of a larger evaluation, such as a program evaluation, then these assessments are sometimes referred to as "student evaluation".

Bloom (1970), in defining assessment, described the relationships between task requirements or inputs, criterion behaviour or outputs and the environment or the context of the learning and assessment. This latter environmental feature is what distinguishes assessment from measurement and testing (Payne, 1992).

Assessment relates to the individual learner. Erwin's (1991) definition of assessment places the student at the centre of the assessment process. He saw assessment as:

\[ \ldots (a) \text{ systematic basis for making inferences about the learning and development of students} \ldots \text{ the process of defining, selecting, designing,} \]
collecting, analyzing, interpreting and using information to increase students' learning and development (Erwin, 1991, p. 15).

Further to this discussion of differentiation of terms and concepts, assessment is often described as one distinct part of the teaching-learning process. For example, the parts described might be planning, identification of aims and objectives, the implementation of the teaching phase, and, finally, the assessment of student learning and evaluation of teaching. In this thesis, however, assessment is seen in broader terms as a pervasive component of the teaching-learning process. While the assessment "task" can be separated out from the various phases of the teaching-learning process, the inherent effects of assessment on teaching and on learning cannot. Therefore, the term "the assessment process" has been used in this thesis to denote this dynamic association between assessment and learning. The description given by Payne (1992, p. 6) sums up the open-ended and interactive nature of assessment.

Assessment concerns itself with the totality of the educational setting, and is the more inclusive term, that is, it subsumes measurement and evaluation. It focuses not only on the nature of the learner, but also on what is to be learned and how.

**Purposes of assessment**

The main purposes of assessment have been derived from the writings of Bloom, Hastings and Madaus (1971; 1981), Campione and Brown (1990), Keeves (1994) and Nitko (1989). Assessment, for them, can be used for making diagnostic decisions, formative decisions, summative or attainment decisions, and placement decisions.

While Brown and Knight (1994) acknowledged the diagnostic and placement functions of assessment, they saw these as being subsumed within formative and summative assessment respectively. Summative assessment and formative
assessment, the terms originally distinguished between by Scriven (1967), were defined by Brown and Knight (1994, p. 15) in the following way:

Summative assessment includes end-of-course assessment and essentially means that this is assessment which produces a measure which sums up someone's achievement and which has no other real use except as a description of what has been achieved. Formative assessment is where the purpose is to get an estimate of achievement which is used to help in the learning process. Diagnostic assessment may be regarded as a sub-set of formative assessment.

Sadler (1989) argued that the primary distinction between summative and formative assessment lies with the purpose and the effect, not with the timing. He defined summative assessment as a summary of students' achievements, as a reporting mechanism that is essentially passive in nature with little immediate impact on student learning. In contrast, formative assessment is actively concerned with

... how judgments about the quality of students' responses (performances, pieces, or works) can be used to shape and improve the student's competence by short-circuiting the randomness and inefficiency of trial-and-error learning (Sadler, 1989, p. 120).

While also arguing for assessment that is "(a) a means of helping students to learn, (and) (b) a way of reporting on student progress", Ramsden (1992, p. 212) defined the diagnostic dimension of assessment as being "(c) a way of making decisions about teaching." This view of assessment has the formative and summative aspects linked, as are the teaching and learning aspects and the responsibilities of teacher and student. Educational assessment is concerned with all the inter-related aspects of education - the interactions between student and teacher, between students and their peers, with their instructional material - the overall learning context or what Stake (1967) referred to as the "transactions" of the classroom.
Broadfoot (1987) analysed assessment in terms of its key elements and the people concerned with the process. The three key elements she identifies are: assessment for curriculum - in which assessment carries out diagnostic and motivational functions; assessment for communication - in which certification and selection functions are performed; and, assessment for accountability - educational institutions use assessment to demonstrate that goals are being met and standards maintained. Assessment in these terms is concerned with the learners, the teachers, and the actual or potential "consumers" of the educational system (Broadfoot, 1987).

Eisner (1993, p. 225) also acknowledged these pluralistic and integrated functions of assessment by citing three broad areas - program evaluation, teacher evaluation and student evaluation - as being the focus points of educational assessment. He saw assessment as having five key functions or purposes (Eisner, 1993, pp. 224-225). The first is as "a kind of educational temperature-taking" with assessment results providing information about the "educational health" of the country. Secondly, assessment has a gate-keeping function enabling decisions to be made about admission to programs - here Eisner cited the functions served by bar examinations and medical board examinations or decisions about who passes and who does not. The third purpose relates to determining whether course objectives have been met and the final two functions or purposes relate to teaching quality, especially in terms of developing reflective practices so that teaching quality and program quality can be improved.

The overarching dimension of assessment within the totality of the teaching-learning process that is referred to by all the above educators and researchers emphasises the multi-faceted nature of assessment and hints at the impact that it can exert on the various elements of the curriculum. This multi-faceted nature of assessment is further compounded by the various ways in which
assessment can be referenced. Judgements about assessment may be norm-referenced, criterion-referenced or self-referenced.

In the first of these, norm-referenced assessment, the learner’s performance is judged in comparison with performances of the other students in the cohort. In the university context, the cohort would generally be all the other students enrolled in a particular subject in one university. While predetermined criteria may have been used to assess students’ work, the final range of grades is at least partially set by comparing how well each student has done in relation to his or her peers. For example, in the university context, the 10 per cent of the students being assessed who performed best would be granted a Distinction or higher, the next 30 per cent might receive a Credit, and so on. An obvious criticism of this form of assessing students is that it does not take into account the fact that groups differ from year to year and class to class. A group of committed, enthusiastic students who gain a high degree of competency in their study in one year will be graded in much the same way as a group the following year who may be much less committed and successful in gaining understanding and competence. On paper, 10 per cent of each group may receive the top grades, the next 30 per cent credit grades and so on; in reality, however, the groups might differ markedly. ‘Grading to the curve’, in this way, according to Rowntree (1987), means that as only a few students can achieve the highest grades, then this expectation can become a self-fulfilling prophecy and be used as a rationale for explaining why many students lose motivation and commitment.

Criterion-referenced assessment differs from normative assessment in that the learner’s work is assessed against a set of criteria. To be successful, the student’s work must reach the standards imposed by the criteria. Many of the professionally based registration examinations are based on criterion-referenced assessment: graduates or practitioners need to be successful in achieving the standards set by the predetermined criteria in order to gain professional registration. Mastery or programmed learning is based on this form of
assessment. To gain mastery, students must reach the required standard set by the criteria within a well-defined domain of knowledge and skills. Standards-based assessment is the other form of criterion-referenced assessment. In this form of assessment, the learner is given a grade that corresponds to his or her level of achievement against a predetermined set of criteria or standards arranged in a hierarchy of achievement growth.

The third form of assessment, self-referenced or ipsative assessment, occurs when students' personal achievements are used as their point of reference (Baumgart, 1985). This form of assessment is individual and is set against one's own ability or past experience. Athletes, for example, refer to their 'PB' (personal best) to judge their own performance. At undergraduate level, past personal grades or feedback about assignments might be used as points of reference. Self-referenced assessment is not to be confused with self-assessment. The latter is concerned with who carries out the assessment rather than the way in which the assessment is referenced. Indeed, self-assessment may be normative, criterion or self-referenced.

Present and future trends

Recognition that "assessment does not stand outside teaching and learning but stands in dynamic interaction with it" (Gipps, 1994, pp. 15-16) demonstrates the need to move beyond simplistic arguments concerning assessment - such as the benefits and/or limitations of different types of assessment - and to ask questions about assessment that concern the relationship of assessment, teaching and learning. Questions that could be asked include:

- How can assessment be used to motivate students to engage in deep levels of learning and to discourage surface approaches?
- What assessment practices enable students to demonstrate the quality of their learning?
- How can the assessment process be designed to provide information
about both the product and the process of learning?
- How can assessment be used to provide feedback to students about their strengths and weaknesses as well as about their overall performance?
- How can feedback be made meaningful to the student?
- How can the assessment process be used to fully inform teachers about their students and their learning needs?
- What messages do students receive about learning at university, about the expectations of their teachers, about individual subjects, and about the discipline or the profession, from the assessment process?

What is now being advocated is an analytical approach to assessment which includes consideration of the impact and effects of assessment on teaching and on learning. The student and his or her learning is the focus of this new approach and the aim is to capitalise on the potential of the learner through the teaching-learning process. Allied to this is the realisation that learning is not always best achieved through a linear or "building block" approach to learning, in which tasks requiring higher order thinking skills are often delayed, but can be better achieved through the development of learning contexts in which the students are actively engaged in learning, where they see their role being to develop a thorough conceptual understanding, and one in which quality learning outcomes will be rewarded. This does not mean that faculty must spend more time teaching; what is needed is an approach which gets students themselves actively involved in meaningful learning by engaging them in educationally purposeful activities (Astin, 1984; Kuh, 1981, 1995; Pace, 1990).

What is obvious, however, is that while higher education seeks to promote higher order thinking, independent interpretation and judgement and broad views of learning, the way courses are presented to the student and the nature of the assessment process "may still give the students the strong impressions that it is detailed knowledge, and the use of correct procedures, which will bring the greatest rewards" (Entwistle & Entwistle, 1991, p. 225).
Learning theory and assessment paradigms

The theory and practice of assessment is undergoing a paradigm shift from a psychometric tradition of assessment to a broader, educational model (Biggs, 1995, 1996; Broadfoot, 1996; Gipps, 1994; Hinett & Knight, 1996). A paradigm is the framework of related concepts from which one views particular problems, issues or practices. A particular paradigm is no longer adequate if it is unable to deal effectively with these problems, issues or practices and a paradigm shift occurs (Kuhn, 1970).

The present paradigm shift, according to Biggs (1995, p. 1), is the result of a "critical realization . . . that education considerations should drive testing, not psychometric or political ones". He argued that three dimensions interact to produce different modes of assessment: the measurement versus standards model of testing; decisions about whether the learning and testing are situated or decontextualised; and, quantitative or qualitative assumptions about the nature of learning (Biggs, 1995).

Gipps (1994, pp. 3-4) argued that any exploration of assessment should begin with the question: "What is the assessment for?" and, once this has been considered, a further question should be asked: "What kind of learning do we wish to achieve?" She provided her own answers to these questions. To the first: "I take the view that the prime purpose of assessment is professional: that is assessment to support learning" (Gipps, 1994, p. 3). To the second: "If we wish to foster higher order skills including application of knowledge, investigation, analyzing, reasoning and interpretation . . . then we need our assessment system to reflect that" (Gipps, 1994, p. 4).

The emergence of a new assessment paradigm is occurring in tandem with the growing move toward constructivist principles in the planning and implementation of teaching and learning in higher education. As mentioned in the opening chapter of this thesis, not only is the study of constructivism
dominating the field of educational psychology, so too is the growing interest in the ways students approach their learning. Three broad approaches to learning could be argued to represent the main areas of research in educational psychology in the Twentieth Century. These approaches - behaviourism, constructivism or cognitive approaches to learning, and humanistic approaches - have influenced learning outcomes and the ways students arrive at them. In this next section, a brief overview will be provided for each of the approaches with particular attention being given to (1) the ways these approaches to learning differ from one another and so affect learning outcomes and (2) the ways these different approaches affect how students arrive at these learning outcomes.

Assessment and learning within the behaviourist tradition

Within the behaviourist tradition, learning is reduced to the mastery of small, manageable units in which lower-order learning is a pre-requisite for higher-level learning. For the learner the curriculum is clearly composed of aims, behavioural objectives, declarative knowledge - that is, where the information about a particular topic is typified by a collection of facts (Shuell, 1986) - and procedural knowledge - knowledge about how to perform skills or tasks (Cervero, 1988). The role of the teacher in this tradition is to transmit a body of knowledge and a repertoire of skills from the teacher to the learners. Learning is seen as a direct result of instruction and is conceptualised as "something that occurs from the outside-in" (Shuell & Moran, 1994, p. 3340).

As the learner, in this tradition, is viewed as a passive absorber of knowledge transmitted by the teacher, assessment practices are seen as a separate entity to the teaching-learning process, and are a means of gauging the individual student's grasp of the required knowledge in relation to other students. Just as the knowledge transmitted can be reduced to small, and discrete units, so the assessment material is usually reduced to items which have either a correct or an incorrect answer. Assessment, then, is gauged at measuring the quantity
rather than the *quality* of the student's learning. This approach could be construed as one which might lead students to receive the message that,

There is no need to separate main ideas from details; all are worth one point. And there is no need to assemble these ideas into a coherent summary or to integrate them with anything else because that is not required (Lohman, 1993, p. 19).

Behaviourism has strongly influenced both educational psychology and educational practice (Kratochwill & Bijou, 1987) and this influence can be seen as a double edged sword. Bruning (1994, p. 7) described the outcomes resulting from the behaviourist perspective on learning in the following way:

These practices arguably can result in a number of salutary outcomes in our college classrooms: a sense of goal-directedness for instruction; clearer communication with students about expectations; and assessment practices that are fair, objective, and map well onto our aims for our classes. In opposition, however, serious objections can be raised about the nonuse of students' existing knowledge, lack of student self-expression and the negative motivational aspects of learning until "basic" content has been mastered.

As a result of the behaviourist influence on educational practice, many educators still assume that all learning needs to move from the mastery of simple tasks to more complex learning. This sequence can mean that the skills required for more complex learning, such as problem solving and critical thinking, are delayed while simple tasks are mastered. Similarly, assessment can be seen in terms of evaluating the student's knowledge of facts/content that has been added to their existing knowledge. According to the behaviourist tradition, assessment was not part of the learning process but a test of what had been learned.
The constructivist-cognitive revolution

Whereas the behaviourists viewed learning as a change of behaviour occurring as a result of associations mainly between stimuli and responses (Grippin & Peters, 1984), the underlying theory of learning in the cognitive or constructivist tradition presents learning as a process of knowledge construction in which learning occurs, not through the absorption of information, but through interpretation of new knowledge (Resnick, 1989). Within this tradition the process of conceptual change, of learning, is recognised as being influenced "by personal, motivational, social and historical processes" (Pintrich et al., 1993, p. 170). Constructivism is in actuality a network of theories all of which assert that learning is constructed through an active interpretation and incorporation of new knowledge, rather than a passive storage of facts.

While behaviourism has exerted a great influence on educational thought and practice this century, so too have the constructivist-cognitive theories of learning and development. Hyerle (1996) described how educators are structuring learning contexts which are reflecting the increasingly diverse world of home and work. Speaking specifically of the school context, he saw this paradigmatic shift from "rote behaviorism, closed definitions of intelligence, and hardened perceptions of a singular, static, 'given' structure of knowledge" (Hyerle, 1996, p. 13) to a constructivist approach as being the result of the movement into the Information Age, the move from Newtonian to quantum physics and from a "hearing" culture to a "highly networked interactive" culture (Hyerle, 1996, p. 13). The evidence of this transition in the area of education is seen in:

* the constructivist-cognitive revolution,
* the impact of technology and visual design, and
* the evolution toward student centred 'interactivity' (Hyerle, 1996, p. 13).
Perhaps the most obvious precursor to this paradigm shift was the curriculum reform movement of the 1960s. This movement, the educational outcome of the space race of the 1950s and 1960s which saw the Soviet Union launch Sputnik ahead of the United States, resulted in a review of educational goals. The development of thinking skills, training in the use of problem solving strategies, the new emphasis put on understanding rather than the learning of given facts and methods, became important (Bruner, 1961). With the curriculum reform movement came the necessity to evaluate students in different ways as well as the need to evaluate the new educational programs:

Scriven's (1967) terms formative and summative evaluation, as much as any, became the new banners of the day. Evaluation, not merely testing, came into its own.

. . . In short, the curriculum reform movement gave rise to a richer, more complex conception of evaluation than the one tacit in the practices of educational measurement. . . . The shift was from regarding evaluation as a predominantly knowledge-seeking activity to a decision-making one (Eisner, 1993, p. 221) (Eisner's italics).

Eisner (1993), in his review of events leading to changes in assessment practices, isolated another development that occurred at the same time as the curriculum reform movement was underway in the United States (and in Australia and in other parts of the industrialised world). This was the development of empirical, qualitative studies into what goes on in classrooms. These studies - such as Philip Jackson's *Life in Classrooms* (1968) and Smith and Geoffrey's *The Complexities of an Urban Classroom* (1968) - were carried out at the same time as Becker *et al.* (1968), Perry (1970), Snyder (1971) and Miller and Parlett (1974) instituted their interpretive studies of students' experiences in higher education as reported in Section 1 of Chapter 2. The school studies revealed, in the same way as did those in higher education, that life in schools and classrooms is more complex and unpredictable than the scientific managers and policy makers imagined. These influences, along with the growing dominance of the
The constructivist-cognitive school of psychology exerted pressures for change in the way learning was defined and in the ways educational practices were developed in relation to this changing construction of the world of learning.

To attribute the development of constructivism as emerging from any one source would be to deny the complexity and range of theories and philosophies that underpin this area of educational psychology (Phillips, 1995). Phillips presented six key agents for the development of constructivism including Thomas Kuhn who stressed the role of scientific communities in the process of knowledge construction, John Dewey who wrote about the internal integration of knowledge and action, and Jean Piaget who is acknowledged as a "foundation figure by many constructivists" (1995, p. 6). Piaget believed that learners construct their own knowledge by interpreting new information (assimilation) and integrating it with existing knowledge (accommodation). He redefined knowledge as thinking in action with the individual actively interacting with the environment (Piaget, 1980). He viewed knowledge not as a product, as had all psychological theorists before him, but as an ever-changing process (Piaget, in Bringuiers, 1980, p. 3).

Elements of Piaget's theory of cognitive development have been questioned by many researchers and constructivism is now guided by research into cognitive science (Gardner, 1985). Research by the cognitive scientists investigates the way people perceive, interpret and explain concepts and covers such diverse areas as learning styles, cultural differences, ways of communicating, cognitive styles and theories of intelligence.

Assessment within the constructivist framework

Assessment within the constructivist framework seeks to determine the nature and depth of students' understanding, not just the recall of factual knowledge. The notion of separating learning into small units of knowledge that can be assessed without reference to material already held in the learner's long-term
memory is not valid. Within the constructivist tradition, instruction, assessment and learning are seen as integrated entities with the first two, instruction and assessment, emphasising and providing opportunities for active knowledge construction. This active knowledge construction, learning, is something that uses previously learned knowledge as scaffolding for the integration and interpretation of new concepts or skills and, in turn, this new learning becomes scaffolding for future learning (Slavin, 1994). Instruction or teaching is viewed not as the transfer of a body of knowledge from the teacher to the student but as the facilitation of the knowledge construction process (Resnick, 1989). Learning is not about the acquisition of isolated facts, which are quickly lost as they are not readily accommodated in the learner’s existing cognitive structure, but is about meaningful learning. Meaningful learning, as initially defined by Ausubel (1968), requires a learning task that is relevant to the learner’s cognitive structure and is the type of learning identified by Shuell and Moran (1994) as that kind of learning that would generally be accepted as the main goal of education.

While this main goal of education is not defined, it has been represented by Brookfield (1990, p. 17) as being concerned with "the development of a critically aware frame of mind, not with the uncritical assimilation of previously defined skills or bodies of knowledge". This type of learning could be described as deep level learning involving reflection on, and a full understanding of, what is being learned; in other words, higher order cognitive skills. Mezirow and other adult learning theorists would see transformational learning as fitting with this view of learning.

Researchers have described programs that teach these higher order thinking skills as having the following characteristics:

- learners are actively engaged in learning with the emphasis being on mental rather than physical activity;
• the end point of the learner's experiences, interests, perceptions and motivations, is the individual construction of the learner's own knowledge;
• shared, collaborative work is organised around the joint accomplishment so that the different elements of a skill are seen in a holistic context;
• meaningful learning is cumulative in that it builds on prior knowledge;
• learning is self-regulated as learners are required to make decisions about the direction of their learning and to monitor the processes of their learning;
• procedures, such as modelling, are used to illuminate otherwise hidden processes;
• learning is focused on particular knowledge rather than general content or skills;
• learning is goal-oriented with these goals generally being related to a problem solving process (Candy, 1991; Resnick, 1989; Shuell & Moran, 1994; Slade, 1995).

The way to assess this meaningful learning, or higher order learning, is perhaps the greatest challenge of this new assessment paradigm. Two forms of assessment - authentic assessment and integrated assessment - are being used more and more in all areas of education to make learning and assessment more overtly relevant to students' present and future needs, to support learning, and to make assessment of students' work more valid. Authentic assessment has been defined by Archbald and Newmann (1988, p.1) as being part of an assessment system which presents tasks that are "worthwhile, significant, and meaningful - in short, authentic". Authentic assessment tasks are modelled, as closely as possible, on real life tasks or situations. Integrated assessment tasks are used to assess students' achievement in a range of inter-related, and often interdependent, skills areas of knowledge, beliefs and attitudes. Case studies, role plays, research projects, and learning tasks which simulate those performed in the work place are examples of these two forms of assessment.
Because these two types of assessment attempt to make judgements across a range of variables, it becomes difficult to develop consistent understandings of exactly what it is that is being assessed and exactly in what manner it is being assessed among assessors or even consistently across time with the same assessor. In essence, these assessment approaches provide a major challenge to educators to find ways to overcome what is essentially a threat to the reliability of these approaches and, therefore, a threat to their wide acceptance within universities and the community at large.

A number of educators have argued that the concept of authentic assessment appears to devalue other forms of learning and assessment. Anderson, Reder and Simon (1996) argued that being authentic, that is, having a strong connection to real-life problems, is not an end in itself in terms of achieving meaningful learning. They argued that “the real goal” should be to motivate and engage students in cognitive processes that will transfer as the cognitive processes a situation evoke are important not “what real-world trappings it might have” (Anderson, Reder & Simon, 1996, p. 9). They further argued that cognitive processes combined with concrete examples can be a powerful teaching-learning technique but caution that many ‘real-world problems’ involve a great deal of busy work and offer little opportunity to learn the target competencies (Anderson, Reder & Simon, 1996).

It has also been argued that the use of the word ‘authentic’ suggests that this form of assessment is superior or more desirable (Terwilliger, 1997) or more valid (Messick, 1994) than other types of assessment. Terwilliger (1997) argued that the concept of authentic assessment denies the role of knowledge in the assessment of educational outcomes and to do this “ignores a substantial body of theory and ample empirical evidence that supports the central role of knowledge in many domains of performance” (p. 27).
The humanistic approach to learning: focusing on the individual

The humanistic approach to learning encapsulates many different theories all of which focus on the individual (Stanes, 1985). While behaviourism and constructivism, in the most simple terms, focus on the behaviour of the learner and the way the learner constructs knowledge respectively, humanistic approaches are concerned primarily with the emotional, personal and affective development of learners. Kirchenbaum (1975) presented three ways in which humanistic approaches influence educational practice. Firstly, the curriculum is concerned with areas of personal development as well as with the more traditional academic subjects with an emphasis on experiential learning. Secondly, there is an emphasis on the development of interpersonal skills with the learner taking an active role in the learning process. Finally, the learning environment is structured to maximise the learning of humanistic processes. Within this tradition, learners play an active role in planning and designing learning experiences and are provided with opportunities to develop as independent learners. Motivation of the individual is viewed as being a strong determining factor in the learning process with Maslow’s five-stage self-actualisation model best illustrating the relationship of motivation to learning. The three basic needs of humans - physiological, safety and acceptance or belongingness needs - form the first three stages of Maslow’s (1954) self-actualisation model and have to be satisfied before the individual can progress to the final two stages of esteem needs and self-actualisation. The fourth stage incorporates the need for achievement and competency so that the individual can face the world independently and with confidence in his or her ability. Only when these first four needs have been satisfied can the individual hope to achieve self-actualisation and so act in society as a fully functioning person. Critics of this model have argued that it is too simplistic and does not take into account the fact that many people reach self-actualisation in one aspect of their lives but are functioning at a lower level in other areas.
Another leading figure in the humanistic movement, Carl Rogers (1969), argued that education should be learner-centred with an emphasis on students directing their own learning under the guidance, but not the direction, of teachers. It was argued that active engagement in tasks that the learner considered to be of value enhanced motivation and led to meaningful learning. Some of the key propositions of the humanistic movement were that students should be allowed to discuss issues and problems fully, have opportunities to express their feelings about these issues and problems with support from the teacher who then assists the learning in formulating ways to solve the problem and to gain insights into the problem and the solution/s put forward (Joyce & Weil, 1996). In this model, assessment is viewed as a joint venture with decisions about tasks, assessment criteria, and marking being shared where possible by teachers and students. Writing in the 1960s, Rogers summarised his perception of teaching, learning and assessment at the undergraduate level in the following way.

While (the course) maintains many of the external trappings of the customary course, these have been transformed by turning them over to the students to use in those ways which have meaning and significance for them. Thus the student’s curiosity, his desire to learn, his ability to select and follow his own path of learning, are the basis of the course. Yet this revolutionary basis is softened and made relatively non-threatening to fellow educators, by virtue of its use of such commonplace elements as occasional lectures, scholarly term papers, examinations, and grades, all of which exist in a context built of student purposes (Rogers, 1969, p. 54) (Roger’s emphasis).

**Section One summary**

Before proceeding, it is appropriate to draw together the key points that have emerged within Section 1 of this chapter. A different pattern of assessment is evident within each of three learning paradigms discussed. These different patterns reflect differing perceptions of the role and purpose of assessment in
the teaching-learning process from a psychological perspective. While each paradigm has its own integrity and range of assessment patterns, reflective practitioners increasingly draw assessment techniques and approaches from across the paradigms to construct their own pattern of assessment that is consistent with their own perceptions of the nature of the teaching-learning process and the associated role of assessment. This is evident within practices in higher education.

Section Two:
Using assessment to enhance learning

A large body of literature exists on assessment and learning in higher education. Because of the breadth of the literature related to this second section of the literature review into assessment, the parameters of the literature examined have been carefully delineated. This section begins by situating assessment in a university environment and by examining the implications this has for student learning. Conflicts related to differing belief systems about education, outcomes of systems based learning, and ways in which universities can achieve their goals in relation to student learning are considered. Assessment led curriculum reform and conflicts between assessment, teaching, and learning are explored in terms of achieving learning outcomes that develop students' knowledge and skill and so minimise any inconsistencies between the actual outcomes of student learning and the ideal outcomes. An examination of the role of feedback in learning forms the next part of this section with special consideration being given to the use of feedback in the development of self-monitoring skills. Cooperative approaches to assessment and learning are reviewed and the issue of cheating is discussed. The chapter concludes with the development of an interactive model of assessment and a further refinement of the conceptual framework.
Assessment in an institutional context

Psychological research into learning has focused primarily on aspects of the individual within his or her immediate environment. Research on learning in higher education has, however, sought to place the learner in a more global environment and has recognised the influences of the institutional environment on the learner. In a paper dealing comprehensively with the issues of assessing the quality of student learning at institutional and classroom levels, Biggs (1996) argued that a higher education institution and its educational practices comprise a “system in equilibrium” - if the educational aims of the institution are to be realised then the whole system needs to be geared towards achieving those aims. Biggs’ paper covered many issues ranging from the importance of assessment, the effects of bureaucracy on teaching and assessment, the impact of the recent drive for accountability and performance indicators through to an analysis of quantitative and qualitative traditions in educational thinking leading to a discussion of systems and non-systems ways of thinking about education.

Not only is assessment of learning of crucial importance to the students involved, with implications for themselves, for their teachers, the institution, and prospective employers, assessment also reflects belief systems about what learning is and what aspects of the educational process are important. Any suggestion of change to the assessment process can be met with responses which could range from cautious interest through to open hostility. Biggs reminded us that the change process itself can be difficult and is often met with fierce resistance. Part of the resistance to change can be traced to the well documented tendencies of human beings to resist change. A further point can be traced to people’s different belief systems about education. Insights into these differences are found in Coles’ (1990) dichotomy between learning conceived in terms of a quantitative tradition and learning being conceived in terms of qualitative traditions. The quantitative and qualitative traditions are linked with the behaviourist, constructivist and humanistic approaches
discussed in Section One of this chapter. Each of these two traditions provides insights into assessment that encompass, yet go beyond, those discussed in Section One.

In the *quantitative tradition*, learning is conceived as "the aggregation of content: to be a good learner is to know more" (Biggs, 1996, p. 6). Biggs argued that the competence movement and the current call for performance indicators stem from this tradition in which curriculum content can be viewed as discrete units comprised of behavioural objectives, facts, skills and competences. In contrast, learning in the *qualitative tradition* is viewed in terms of understandings rather than of discrete units of content. Content is cumulative in nature with interconnections with other topics and subjects being made horizontally and vertically. Teaching in this tradition is aimed at assisting students to construct understandings that are "progressively more mature and congruent with accepted thinking" (Biggs, 1996, p. 7).

Assessment in the qualitative tradition is either - to use Biggs' terms - *developmental* or *ecological* in nature. *Developmental assessment* seeks to discover the level of students' development of understanding or competence in the concept or skill under examination (Biggs 1996). *Ecological assessment* refers to the application of knowledge to situations that closely reflect those that are likely to occur in 'real-life' (Biggs, 1996; Tang & Biggs, 1996).

Within the quantitative tradition, the main criterion for learning is whether the student is able to reproduce the learned content. Biggs argued that within this tradition the contents of knowledge are seen as either correct or incorrect. While multiple-choice tests are an obvious example of this way of viewing learning, much assessment is carried out with this *quantitative mind set*. For example, in many institutions, teachers are required to grade students within narrowly defined grades and are often urged to provide students with an almost 'blow by blow' set of criteria for marking. In these situations, many teachers will mark quantitatively with marks being allotted, even in lengthy
pieces of work, for style, effective use of reference material, use of appropriate examples, number of relevant points made, presentation of assignment, clarity of language, and so on. While these are all important, what can occur is that the development of the argument becomes lost or becomes secondary to these other more overt dimensions. Instead of being the crux of the assessment, it can easily become just another component of the marking schedule. Biggs saw this approach, where students are given marks for each piece of information, as sending out messages to students to use what Bereiter and Scardamalia (1987) referred to as knowledge-telling. Knowledge-telling students present “as long a list of points as possible, as densely packed as the word limit required, pre-empting a structured, reflective argument” (Biggs, 1996, p. 12).

The institutional systems of learning and assessment that are in place and the bureaucratic procedures required to ensure that these systems are adhered to do much to shape the learning and assessment practices at the classroom, subject and program level. In many instances these institutional systems are “a virtual prescription for surface learning” (Biggs, 1996, p. 13) and provide little scope for students to develop skills necessary for independent learning or lifelong learning. In many instances, while institutions are decrying the fact that many graduates do not possess the knowledge, skills and attitudes generally expected, factors within the system mitigate against teachers and students engaging in the type of teaching, learning and assessment processes that encourage and support the development of the expected range of professional and personal skills.

One example of the effects of institutional systems impacting on student learning was apparent from the findings of a survey that the Federated Australian University Staff Association (FAUSA) and the Union of Australian College Academics (UACA) conducted in 1991. This survey was related to overcrowding. Fifteen hundred returns from members of these two groups were collected, relating to 3,300 subject offerings. The results of the survey indicated "overwhelmingly that overcrowding and underfunding has had
deleterious effects on the quality of higher education” (FAUSA & UACA, 1992, p. 43). Specific findings from the survey showed that 84 per cent of respondents believed that libraries were overcrowded, nearly 80 per cent said that changes to mode of delivery were necessitated because of increases in student numbers and a failure to provide adequate resources, 54 per cent found it necessary to set fewer assessment tasks, 34 per cent had found it necessary to change assessment methods because of problems for students in accessing library facilities, and, 65 per cent had reduced or abandoned small group teaching (FAUSA & UACA, 1992, p. 45).

While these two bodies have a high commitment to teaching, the growing diversity of student populations and the constraints imposed on the higher education system as a result of funding issues have resulted in a reduction of:

- assessment components which then means a reduction in overall feedback to students;
- variety of assessment methods;
- the overall feedback that students receive about their learning (with a resultant impact on their development of self-monitoring skills at the early stages of their programs);
- opportunities for students to access their teachers in a one to one situation to discuss assessment tasks or gain personal feedback;
- availability of, and therefore access to, human and physical resources necessary to gain maximum benefits from assessment tasks; and
- capacity to cater for the individual differences inherent in any student population.

Ultimately, increased competition for students and funding generally can result in universities focusing on the summative purposes of assessment for accreditation rather than on a balance between assessment for accreditation and assessment as a means of improving students’ learning. These traditional forms of assessment are akin to that assessment described by Biggs (1996) as being
carried out with a *quantitative mind set* in which learning is seen in terms of content - the more one knows, the better one is. However, it is becoming increasingly apparent that these forms of assessment are no longer viable in terms of what graduates need. One of the most daunting problems with this approach is that not only are many university teachers now intent on covering a vast range of content in their programs but they also have the overwhelming task of keeping up with rapid growth in new knowledge. Referring to the rapid rate of knowledge obsolescence, Candy (1995, p. 19) alluded to the various publications constantly reminding us that “the half-life of knowledge in many academic disciplines is a mere three to five years”. What is apparent is that while new theories and concepts are being added to the curriculum, there is little evidence of any content being discarded. Research findings from Candy, Crebert and O’Leary (1994, p.97) showed that many academics in Australian universities had

> a seemingly obsessive focus . . . on loading the curriculum with more and more content at the expense of learning-to-learn, information literacy and other generic competencies.

While curriculum designers have the task of keeping abreast of new knowledge and technologies, they need to consider ways of teaching students to access and use knowledge effectively - *knowledge navigation* (Bates, 1996) or information literacy - rather than trying to cover everything in a necessarily parsimonious, superficial way. Decisions about the amount of content to be covered in a course have implications for assessment, teaching and learning. As discussed in Section One of Chapter 2, where students feel overwhelmed with content, they are pushed into adopting surface approaches to learning. Where emphasis is placed on quality learning outcomes, content will be chosen with the purpose of engaging students in deep learning rather than attempting to cover as many things as possible.
Assessment led curriculum reform

In the opening chapter of this report, concerns about gaps or deficiencies in the knowledge and skills of graduates were discussed. Bodies in Australia, the UK and the US were cited as expressing concerns about many graduates lacking the ability to think critically, to be flexible and creative in their thinking, to construct and argue a case, to work in teams or to communicate effectively. These skills, however, are included in the list of attributes that students graduating from Australian universities should possess. In the Higher Education Council (HEC) (1992) Discussion Papers: The Quality of Higher Education, the Higher Education Council stated that the attributes of graduates take three forms: generic skills; a body of knowledge; and professional/technical or other jobrelated skills (pp. 8-9). The generic skills are those that every graduate should acquire regardless of discipline or field of study. They include

\[\ldots\text{knowing how to learn, to solve problems, to be able to think logically as well as laterally and independently, to be intellectually rigorous, to integrate information and to communicate effectively. (HEC, 1992, p. 9)}\]

They also include

\[\ldots\text{socially-relevant qualities expected of graduates which relate to leadership, cooperation and team-work, ethical practice, and critical/evaluative skills; and personal skills such as intellectual liveliness and the willingness and capacity to learn and to re-learn. (HEC, 1992, p. 9).}\]

A body of knowledge refers to knowledge that graduates acquire for two main purposes.

It should provide the graduate with a knowledge of a discipline and its theoretical base at a depth and detail appropriate for the level of the award. It should also act as a vehicle to inculcate the generic skills. (HEC, 1992, p. 9)
The third form of attributes, *professional/technical or other jobrelated skills*, refers to the skills which graduates can apply to their employment. Some of these skills will be occupation specific while others will be

... more general such as an ability to work with minimum supervision in the specific field, to apply learning to the workplace and so on. (HEC, 1992, p. 9)

As a result of research into assessment in universities across Australia, Nightingale *et al.* (1996, p. 3) developed eight “clusters of abilities” which they believed were “the areas in which most academics would like to see their students make significant progress throughout their university education and which ought, therefore, to form the basis of assessment”. The eight clusters of abilities that they identified from the literature and from asking lecturers were as follows:

* thinking critically and making judgement;
* solving problems and developing plans;
* performing procedures and demonstrating techniques;
* managing and developing oneself;
* accessing and managing information;
* demonstrating knowledge and understanding;
* designing, creating, performing;
* communicating (Nightingale *et al.*, 1996, p. 3).

Similar lists of attributes are to be found in literature from other Western countries. In Canada, for example, the Conference Board of Canada, an association of employers, listed as the attributes sought in the workforce:

- communication skills;
- ability to learn independently;
- social skills;
- ethical behaviour;
- positive attitudes;
- teamwork;
- responsibility;
- adaptability;
- thinking skills (problem solving; logical thinking);
- numerical skills; and
- knowledge navigation (as cited in Bates, 1996).

These Canadian employers were seeking these attributes on top of professional skills related to their specific professional area. The last attribute, knowledge navigation, has developed in recognition of the ever-changing nature of knowledge and refers to the ability to access current knowledge and use that knowledge in decision making.

In the UK, Jones (1996) listed the following attributes as those that have been identified as of particular importance for success in the fields of business and accounting:

1. acquisition of technical information about the subject;
2. development of problem-solving skills;
3. development of writing skills;
4. development of presentation skills;
5. development of group-working skills;
6. development of leadership ability;
7. development of information technology skills;
8. development of ability to work alone; and
9. development of flexibility and open-mindedness (Jones, 1996).

Jones (1996) had surveyed students in their second year of a first degree studying either accounting or business studies at Sheffield University
Management School. Both groups of students felt that all the attributes (listed above) represented valid learning outcomes. In reflecting back on these attributes and on the actual messages students receive from assessment processes about what is and is not important, Jones wrote

What was clear . . . was that students are driven by measures of product. This is not surprising since the measures we use are the most important indicators of success. As with accounting, the measures becomes more real that reality itself. . . . Our problems so far as educational performance measurement are more to do with recognizing what we are measuring than having no real measures (Jones, 1996, pp. 268-269).

Jones (1996) found (as had Boud, 1990; Elton & Laurillard, 1979; and others) that assessment tasks defined the curriculum: what was being assessed was what was important to learn whether for the intrinsic value of that knowledge or, more often than not, because that was what gained you the marks and marks were what was important. Jones (1996, p. 266) went on to say

A major irony in this situation is the recognition by the accountancy profession in the USA that individuals entering the profession (virtually all of whom will have a degree in accounting) are ill equipped for the long-term development of the profession.

Other recent research findings in the UK have shown that students typically interpret the pass mark for an assessment task as an indication of the amount of work required (see Hinett & Knight; 1996; Kneale, 1996). In Australia, Slade (1995) made the point that teaching and assessment in Australian universities have been concentrated on anything but fostering higher order thinking skills. Universities have based the evaluation of learning very much on examination results and these results are seen as testimony or otherwise to the teachers' skills.
As stated in Chapters 1 and 2, research has demonstrated that the assessment process has a considerable impact on student learning. New assessment practices recognize that as assessment tasks become the actual curriculum or what Nightingale et al. (1996, p. 7) called the “curriculum in action”, then what we want students to learn needs to become the focal point of the assessment process. An assessment process that is designed in concert with the establishing of goals and objectives and the selection of content not only enables students to demonstrate what they know but is more likely to result in the goals and objectives being met. When curriculum goals and objectives, instructional design, and the assessment process are conceived of in an holistic fashion, then any inconsistencies between the actual outcomes of student learning and the ideal are likely to be minimised. Obviously, however, in the minds of some university teachers and planners, there is a recognition that the higher order thinking and many of the other attributes that universities and employment authorities expect of graduates, are not always amenable to traditional forms of assessment.

Educational practices related to traditional information transmission approaches to teaching and learning and quantitative views of learning, are among the practices that inhibit the development of skills required by graduates - skills such as self-direction and autonomy in learning, the capacity for analytical thinking, effective communication skills and the capacity to be flexible, creative and proactive. In an Australian report on how undergraduate education prepares students for lifelong learning, the authors, Candy et al. (1994), found that many educational practices in Australian universities work against students developing lifelong learning attributes. They argued that for these attributes to be developed and encouraged, programs need to:

- provide a systematic introduction to the student’s field of study;
- provide a context for viewing that field of study;
- develop and broaden students’ generic skills;
- provide some freedom of choice and flexibility; and
• provide opportunities for the development of self-directed learning skills (Candy et al., 1994).

In addition, findings from their study pointed to the significance of teaching methods and an assessment process which encouraged students to be independent and flexible in their approach, reflective and critically aware, and able to access and use the information and resources available to them (Candy et al., 1994).

All of the findings listed above relate to an assessment and learning process that is student centred and focused on quality outcomes not only in terms of learning in the short term but in gaining attributes that will result in continued professional and personal growth long after graduation. One way of achieving these results would be to involve students in decisions about, and responsibility for, their own learning. This would involve a move away from the present situation in many university courses where faculty make all the decisions about content and assessment of subjects to one in which students were involved in areas of decision making and where they had the responsibility for being proactive in their learning. Allied to this could be a move towards more realistic or authentic assessment methods which coincide with demands from employers as well as educators for graduates to be able to access knowledge and use it successfully in problem solving, to be analytical, creative and flexible in their thinking, to be able to work co-operatively in teams, and to be able to communicate their knowledge, skills and learning to others.

In a recent article, Hinett and Knight (1996) described initiatives in two universities in the US aimed at improving the quality of the learning outcomes of their students. The first institution, James Madison University (JMU), acknowledged an integrated, highly developed system of assessment could be used to drive continuous quality improvement (Hinett & Knight, 1996). The University appointed a Director of Student Assessment with the brief to:
• make measures of learning more rigorous;
• provide formative feedback to students;
• provide higher quality summative information for students;
• enhance learning processes;
• facilitate evaluation of courses;
• provide hard data to support requests for additional resources; and
• recognise development of public accountability and, as a result of JMU initiated measures, forestall State moves to impose assessment procedures on the University.

While providing individual departments within the University with a high level of autonomy, institution-wide assessment reform at JMU has resulted in a wide range of assessment practices being used with outcomes which are designed to be specific, easily understandable by all stakeholders and, where possible, measurable.

In the second case, assessment reform carried out at Alverno College, Milwaukee, centred on two key principles: (1) assessment can be used to change the curriculum - thinking about assessment means thinking about teaching, learning and course content; and (2) assessment should further the institution’s mission statement through the promotion of specific learning outcomes (Hinett & Knight, 1996). At this College, assessment and learning are seen as complementary with assessment providing feedback to students and teachers which supports later learning. As a result of the systems put into place, the quality of learning at Alverno College “has been transformed, not by externally-led quality inspections but by assessment reform” (Hinett & Knight, 1996, p. 9). These systems have resulted in the horizontal integration of learning, assessment, teaching and the explicit curriculum as well as a vertical integration in which the processes implemented in one year are further developed in the following year.
These two key principles clearly emphasise a qualitative view of learning. This is a view of the nature of assessment, learning and teaching that leads to a compatible inter-relationship in practice. However, in many institutions, assessment, learning and teaching, rather than being compatible, can be seen to be in competition with each other.

Conflict between assessment, teaching and learning

As borne out in the findings from interviews conducted in Stage 1 of this study, in a learning environment in which learning is assessed, and one in which the teacher is generally the assessor, it is difficult for many students to approach any learning task without having assessment in mind. In the earliest studies that investigated continuous assessment, the use of assessment as a tool for teaching and learning and, at the same time, as a means of rating a student’s performance was questioned (see for example, Miller & Parlett, 1974). If assessment was to be used not only to evaluate and compare student learning but also to develop understandings and self-monitoring skills that could be used in subsequent assessment and learning, how could these original assessment efforts be included, in good faith, in the overall assessment program? Was it fair to use assessment tasks as opportunities for students to try out their knowledge and skills, make mistakes and learn from them as well as being assessed on them in the process? Surely there existed and still exists a conflict between tasks being used as learning opportunities as well as for assessment purposes. Would not the student be more free in his or her learning efforts if these learning tasks were not assessed but became the basis for summative assessment that occurred later in the learning process? In the case of undergraduate programs, this would mean non-assessable learning tasks being scheduled during the course of the semester with assessment that was summative in nature occurring at the end of semester. However, this approach, which had been common at the time of Miller and Parlett’s study and is still used in many undergraduate subjects, has been shown to push students towards surface approaches to their learning and to emphasise course content
rather than a broad range of learning outcomes. Sadler (1983) and Miller (1976), among others, have argued for a separation of these summative purposes and feedback purposes of assessment. They argued that students tend to pay less attention to the feedback they receive when the assessment is seen as being part of the overall grading program.

Even in situations where learning tasks are part of the tutorial program, as distinct from the assessment program, students complete those tasks with their teacher's expectations firmly in mind rather than concentrating on the innate learning opportunities inherent in the tutorial task. For example, in a study in which twelve microelectronics students were set a problem solving exercise, Laurillard (1984, p. 130) recounted that the students “were united in their perception of the task as being about providing the teacher with what he required of them, rather than as being about designing a program”. The students were described as model students working conscientiously to complete a “tough course”. The teacher was “enthusiastic”. Nevertheless, the students saw the problem solving exercise in terms of the demands of the teacher as opposed to the demands of the task. For example, Laurillard (1984, p. 131) reported one student as commenting:

I thought of a diagram drawn in a lecture and immediately referred back to it. Then I decided which components were wanted and which were not and started to draw it out, more or less copying without really thinking.

I decided since X was setting the questions block diagrams were needed.

Reflecting back on this situation, Laurillard (1993, p. 67) pointed out that

The teacher saw the exercise as a challenging logical problem . . . The students saw it as a problem in matching the demands of the teacher, defined in the exercise as set, to the information available, encoded in the linguistic and pictorial forms of representations he used in the lecture, via the medium of
symbols and diagrams. At every point the task, the goal and the operations are seen differently by teacher and students.

She concluded by arguing that the students were not focused solely on solving the problem but that their concentration was on "the 'problem-in-context', rather than the problem itself."

Students, however, do not appear to be concerned by the fact that a task may be used both as a learning experience and for assessment. Kniveton (1996) investigated this issue in a study involving 292 undergraduate students. His sample included equal numbers of male and female students who were further divided into equal numbers of mature age and young students (mean age of 34.0 and 20.74 years respectively). The study, which examined the perceptions of students regarding the qualities of continuous assessment and examinations, found that students' reactions varied according to age and gender. Overall, the findings indicated that students regarded continuous assessment as a fairer process, as a better judge of students' abilities, and as allowing students more opportunities to organise their own work schedule (Kniveton, 1996, p. 234). Taking into consideration that there tends to be an emphasis on final paper examinations in universities in the UK (Brown & Knight, 1994), when students in the study were asked to specify the percentage of the final grade for a subject which could be allocated to continuous assessment, 52 per cent was the mean percentage. The study showed that young female and mature male students preferred continuous assessment over examinations with the latter group having a mean percentage of 70 in favour of continuous assessment. The fact, however, that students felt that 52 per cent of the overall assessment should be continuous in nature and the remaining 48 per cent should be examinations "certainly does not indicate a total rejection of the idea of examinations nor overwhelming endorsement of continuous assessment" (Kniveton, 1996, p. 234).

While arguments about conflicts between tasks being used simultaneously for learning and assessment purposes are important, in many instances the reality
is that debate over curriculum reform is focused on the teaching-learning process in isolation from the assessment process. The integration of the assessment process into the teaching-learning process is either not recognised or denied. Reporting results of a recent study in which 22 lecturers and 131 students, in an Education Faculty, were interviewed, Brooker and Smith (1996, p. 172) stated that,

One of the significant findings from the study was the extent to which theoretical concepts underpinning assessment were generally not well understood by lecturers. Lecturers had a reasonable grasp of the notion of criteria but their articulation of those criteria in unit outlines was not always done. . . . In many instances, students received no indication from their lecturers concerning the standards of work that were expected for particular grades, and where standards were set, they were often vague and imprecise.

When one considers these findings in concert with those from a study carried out by Clarke and Dart (1995), it is not surprising that some university teachers, at least, view the purpose of assessment as being a measure of achievement and disregard or are in ignorance of the wider functions and purposes of the assessment process. Clarke and Dart's (1995) study showed that a number of university teachers possessed naive transmission conceptions of learning and teaching from which they drew the conclusion that it would be unlikely that they would devise assessment items which would emphasise the integrational and transformational aspects of learning. Key to these latter aspects is the role of feedback provided about a student's performance on assessment and other evaluative activities. The move to a new assessment paradigm that recognises the interactive nature of teaching, learning, and assessment processes in a context which, in many instances, isolates teaching and learning from the assessment process is further compounded when one considers that part of the pressure for changes in student assessment is in response to pressure to use feedback to support future learning.
The role of feedback in learning

Feedback is generally defined in terms of input about how successfully something has been, or is being, done. In *The International Encyclopedia of Education*, for instance, feedback is defined as "information provided to a learner concerning the correctness, appropriateness, or accuracy of the learner’s action" (Mayer, 1994, p. 2279). Feedback represents a crucial component of the learning process and the interplay between action and feedback - the feedback loop - continues as most learners require practice before learning is ensured (Laurillard, 1993; Sadler, 1989). Rowntree (1987, p. 24) described feedback as "the life-blood of learning" and Laurillard (1993, p. 61) viewed action without feedback as "completely unproductive for the learner".

While these views of feedback reflect the importance of feedback for learning, they do not reflect the various interpretations of the role of feedback in different learning paradigms. Behaviourists see feedback as reinforcement that automatically strengthens or weakens the learner's tendency to respond in a certain way (Mayer, 1994). This view is evident in Thorndike's (1913) Law of Effect that asserts that learners will acquire and retain specific responses that lead to satisfying after-effects - a response that leads to a reward (eg, satisfaction) will more than likely recur in a similar situation and a response that leads to punishment (eg, discomfort) is less likely to recur in a similar situation. The use of rewards as reinforcement of desired behaviour is recognised as a more effective means of changing behaviour than the use of punishment for unwanted behaviour (Mayer, 1994).

Cognitive psychologists view feedback as information that learners interpret and use to change their knowledge (Mayer, 1994). Even though feedback is once again considered as being central to learning, the cognitive interpretation of feedback differs from that in behaviourist theory in that knowledge, not behaviour, is the focus for change, and this change is not automatic (as in behaviourist theory) but is active and considered. This view of the use of
feedback in learning is typified in Mezirow's (1991) transformational theory in which learners endeavour to control their learning experiences through active reflective discourse.

While it is possible to isolate feedback as being "information provided to a learner concerning the correctness, appropriateness, or accuracy of the learner's actions", most researchers recognise the integrative nature of feedback within the overall teaching-learning process (Mayer, 1994, p. 2279). Feedback about performance is central to the learning process. If feedback is constructive and sufficiently detailed it can provide motivation for students, it can enhance learning if reflected on and considered in subsequent learning, and, as a result, provides opportunities for students to become self-monitoring and self-directed. For feedback to be effective, it needs to be sensitive to the needs of the student and be directed specifically towards the assessment task. Conversely, negative or destructive feedback can impact adversely on students' perceptions of themselves and their ability and on future learning.

In terms of learning, Laurillard (1993, p. 50) wrote about "the inseparability of knowledge and action, and of process and outcome". Sadler (1989), however, made the point that in much of the literature on learning research, feedback is usually related to knowledge of results. Researchers, in the main, have tried to identify the types of stimuli that promote learning and research has concentrated on the aims of summative rather than formative assessment. Most studies have been based on testing the learning of discrete units of work in which the answers are generally either correct or incorrect. Indeed, in many books on assessment, feedback and formative assessment have received only "cursory attention" or "are not mentioned at all in either the body of the text or the index" (Sadler, 1989, p. 122).

Where research has concentrated on the use of feedback in formative assessment, feedback has been shown to occupy an integral place in the learning process. For example, in a 1984 report on teaching and learning in
higher education in the United States, *Involvement in Education* (Study Group on the Conditions of Excellence in American Higher Education, 1984), three factors were identified as being prime ways to improve learning in higher education:

- active, self-aware engagement in learning (which relates to the metacognitive skills, the motivation and the assessment challenges required in order to adopt a deep approach to learning);
- high, realistic expectations of self (the report pointed out that this applied to both teachers and students); and,
- regular, timely, useful feedback.

**Using feedback to become self-monitoring**

The ability to monitor the quality of their work in relation to the criteria set for an assessment is of paramount importance if students are to be able to use feedback effectively as a self-correcting and supportive mechanism for learning (Sadler, 1989). Students need to be guided to self-assessment by being trained in recognising the strengths and weaknesses of their work in response to a set of criteria. This self-assessment has great potential for both engaging students more deeply in the material they are learning and using feedback to enhance their learning and empower the students in the learning process (Boud, 1995). The provision of a well structured program of continuous formative assessment gives students the opportunity to develop self-monitoring skills as well as assisting in the achievement of the goals of both teachers and students.

In his discussion of feedback, Sadler (1989) cited Ramaprasad’s definition of feedback as being useful in gaining an understanding of the role of feedback in educational settings and the relationship between feedback and self-monitoring. For Ramaprasad (1983, p.4), feedback related to its effect rather than the information conveyed: “Feedback is information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way”. If the learner lacks “either the power or knowledge to
change the outcome . . . the control gap cannot be closed and ‘dangling data’ substitute for effective feedback” (Sadler, 1989, p. 121).

In order to reduce the gap between the actual level and the reference level, students require not only adequate feedback but also the ability to self-monitor the quality of their work. Sadler (1989, p. 121) gave three conditions that need to be satisfied if learners are to make the transition from receiving feedback to using that feedback in a self-monitoring way: the learner needs to “possess a concept of the standard . . . being aimed for”; the learner has to “compare the actual (or current) level of performance with the standard”; and he or she has to engage in “appropriate action” which will lead to some closure of the gap (Sadler’s emphases). Thus the differentiation between feedback and self-monitoring lies with the individual student’s evaluative ability. This ability is reliant to a great extent on the teaching and learning context - it is here that students either have the opportunities to develop self-monitoring skills or are limited as a result of the instructional systems that are in place. Development of generic skills such as autonomous learning can only be expected to develop if students have “many years of actually performing the necessary metacognitive and regulatory skills in the context of meaningful learning activities” (Ertmer & Newby, 1996, p. 21). Ramsden (1992) examined feedback, teaching and learning in the university context and saw “no sharp dividing line between assessment and teaching in the area of giving feedback on learning” (p. 193). He viewed this way of looking at teaching as conceptualising “the relationship between student and teacher as an interaction or dialogue rather than a one-way communication” (Ramsden, 1992, p. 195).

In most higher education institutions, teachers exercise powerful control over the curriculum and over assessment (Lander, Walta, McCorriston & Birchall, 1995). Students can make decisions about whether to attend classes or not and the amount of energy they put into their learning but it is their teachers and the institution who make the decisions about the content and the instructional design of the subject and/or program. It is becoming evident, however, that for
students to become independent and autonomous in their learning, there needs to be a more balanced interaction between teacher and student that caters for students’ different ways of going about their learning. Students need to be given the responsibility of making decisions about the direction of their learning and encouraged to become more reflective on, and aware of, the processes of their learning (Brookfield, 1990; Cornwall, 1988; Mezirow, 1991).

If there is a commitment to effective teaching - that is, to teaching that leads to positive learning outcomes for students - there needs to be a recognition of the integral nature of feedback and learning and a commitment to enhancing the use of feedback in the teaching-learning process. For the integration of feedback into the teaching-learning process to occur, feedback needs to become, where appropriate, part of the instructional system. Feedback in this situation not only informs students’ learning but also informs the teacher’s current and future teaching content and strategies. Crooks (1988, pp. 468-469) gave three ways in which the effectiveness of feedback could be enhanced.

1. Feedback should be focused on personal progress (rather than comparison) as this enhances self-efficacy and encourages effort attributions.
2. It should be provided while it is still relevant. That is, it should be given soon after the task has been completed and the students should then be given opportunities to demonstrate learning from the feedback.
3. Feedback should be specific and related to the student’s needs.

Because of the integrative nature of assessment, teaching and learning, and the vital role that feedback plays in student learning and progress, to withhold feedback can be viewed as a breach of professional responsibility and a failure to acknowledge feedback as a significant learning strategy. Withholding feedback denies students the opportunity to develop self-monitoring skills so that the gap between “the action level and the reference level of a system parameter”, referred to by Ramaprasad (1983), can be closed. Indeed, inadequate feedback or feedback that is withheld indicates that the assessment
process is operating in the interest of people other than the students (Rowntree, 1987). The ethics of this type of assessment program would appear to be questionable in institutions where programs are based on the premise of students being active in the learning process and where teachers see their programs as meeting the needs of the students involved.

Another imbalance in the teaching-learning process occurs when teachers assume that it is the method of assessment that is formative, or its timing, rather than the purpose of the assessment. If the method is considered formative because of the nature of the piece of assessment - for example, reports on classwork carried out at regular intervals throughout the semester - it can be wrongly assumed that the method itself fulfils the goals of providing feedback on learning. For the piece of assessment to be truly formative, detailed feedback needs to be provided to students and the feedback needs to inform the instructional design of the remainder of the program. In their discussion of the purposes of assessment, Brown and Knight (1994, p. 17) pointed to the error of believing that any type of feedback to students thereby renders the piece of assessment formative.

Nor are we convinced that the rather skimpy written comments which adorn many pieces of coursework count as feedback worthy of the name. The moral is quite simply that if formative assessment is to be taken seriously, then adequate feedback and review procedures need to be designed in, working in the spirit of total quality management.

Where the goal is to provide the type of teaching-learning context that encourages students to be responsible for their own learning and to engage in learning that extends beyond responding to instruction, students need training and support. The nature of this training and support will depend on their past experiences and their present needs and will be designed to develop students’ skill and confidence to engage in and benefit from autonomous learning. Boud (1988) suggested that in this type of approach - where students assume some of
the control over their learning - students could be responsible for making decisions about tasks ranging from selecting learning projects and setting goals, to determining the criteria to apply to their work, engaging in self-assessment and reflecting on their learning processes. If students are to become independent and in control of their learning they require feedback about their learning that informs them on strategies needed for their future efforts and allows them to develop metacognitive skills similar to those described by Coles' (1990) elaborated approach where students were able to link, and then reflect on, the linkages between their clinical experiences (or those they had read about) and the knowledge they were expected to learn.

The ability to monitor the quality of one’s work is derived, in varying degrees, from the use students make of the constructive feedback they have received from their teachers. The benefits of feedback from peers is now recognised as a valuable aid to learning. Research has suggested that learning is enhanced when students discuss their work with a peer rather than with a trained member of staff or in written assessment tasks (Smith & Hatton, 1993).

While peer tutoring and feedback is invaluable, the experiences of Boud (1995) and Falchikov (1995) suggested that peer assessment which results in peer determined grades is, in the main, to be avoided as it impacts negatively on co-operation between students and can lead to jealousy and resentment. Boud (1995, p. 201) contended that the most positive reactions to peer feedback occur when students “have given specific feedback of a descriptive nature for the benefit of their peers and no grading has taken place”. In these circumstances, peer assessment is used primarily to inform self-assessment. As the emphasis is on self-monitoring rather than on comparison and/or competition with other students’ performances, self-efficacy and motivation have the potential to be enhanced. Indeed, class-based assessment and student self-assessment have implications for motivation as each includes cognitive and affective indicators of student development (Obler, Slark & Umbdenstock, 1993). If a student is guided to self-assessment by being trained and encouraged to recognise the
strengths and weaknesses of his or her work in response to a given task, the individual student’s locus of control is strengthened with resultant positive gains in self-esteem and expectancy of success in future assessment and learning. A number of studies have found that students generally supported participating in peer assessment in their undergraduate program (see for example, Burnett & Cavaye, 1980; Cheng & Warren, 1997; Williams, 1992). In a study involving 99 First Year undergraduate students, most of these students reported positively about their experiences of peer and self-assessment (Williams, 1992). Burnett and Cavaye (1980) found, however, that while 80 per cent of the students in their study felt that they had assessed their peers fairly, only 55 per cent felt comfortable doing so. Sullivan and Hall (1997), reporting a study involving third year education students experiencing self-assessment for the first time, found that while some students were disappointed with their eventual grades, especially those among the 38 per cent who overestimated their mark in comparison to the lecturer’s mark, many students valued the self-assessment as an instrument for reflection on learning.

Beginning students and less able students have been found to be less accurate in their self-assessments than their more able and/or more experienced counterparts (Boud & Falchikov, 1989; Falchikov & Boud, 1989). Research has shown that a tendency for learners to overestimate or underestimate is related more to the learners’ lack of understanding or facility with the assessment criteria or marking procedure than from any personal factors (Boud & Falchikov, 1989; Falchikov & Boud, 1989). However, the positive motivational and learning outcomes associated with peer assessment and self-assessment demonstrate that these forms of assessment need to be considered part of any co-operative approach to assessment and learning. While peer and self assessment have been criticised on account of discrepancies which may occur between teacher and student ratings, it is well to remember that less than reliable marking can occur among teachers. Many studies have highlighted the significant differences that can occur among different university teachers marking
the same piece of work (see for example, Hartog & Rhodes, 1935; Newstead & Dennis, 1994).

Using co-operative approaches to assessment and learning

In the conceptual framework developed so far in this report, the learning context is seen as having a significant impact on students' intentions when they approach learning at undergraduate level. As can be seen from material presented to this point, the assessment process is a vital, if not deciding factor, in the way students go about their learning. While teachers have control over the content and instructional design of a course, students still have control over the effort they exert. If this effort is to be maximised, in terms of students being engaged in meaningful learning, they need to be motivated beyond the demands of gaining a qualification. Hence, as argued in Section Three of Chapter 2 in which links between motivation, assessment and learning were examined, students need to be encouraged to adopt achievement or learning goals rather than performance or ego goals. From the literature to date, clear ways of heightening students' motivation include the provision of meaningful assessment tasks which challenge the student to think deeply, the provision of a wide range of different assessment tasks throughout the undergraduate program including written and practical tasks, formative and summative forms of assessment, and, especially in the case of students undertaking professionally oriented degrees, opportunities for assessment that reflects the types of tasks that members of the student's chosen profession perform in the field. As illustrated in Chapter 2 (see overviews presented in Tables 2.10 and 2.11), learning is a social process which involves learner, teachers, content and processes within a specific learning context. It was also shown that what teachers want their students to learn and what they actually do learn may be very different (eg, Marton & Saljo, 1976). While it has been claimed that being free to choose what one learns and how to go about that learning - the exercise of autonomous, self-directed learning - is necessary for the development of deep approaches to learning (Entwistle, 1990; Ramsden, 1992) and for the
development of lifelong learning (Candy, 1991; Candy et al., 1994), this often
does not occur in undergraduate programs (Cornwall, 1988). This conflict
between teachers exercising control over the learning situation and the goals of
allowing learners to develop independence and self-direction is disturbing in
that research findings demonstrate that learning is enhanced if the content of
learning is meaningful and relevant to students, if students have a degree of freedom
and autonomy in that learning, if there are opportunities for active learning as well
as for the sharing of learning amongst peers.

Certainly a more interactive teaching-learning approach provides students with
opportunities to make choices about the direction of their learning, encourages
them to be more fully engaged in active learning, and gives them skills in self-
assessment that, ideally, will provide them with the skills to be able to
effectively monitor the quality of their work. Broadfoot (1992, p. 17) said this
about giving students more control over their learning:

To the extent that we can give students themselves a sense of control over what
happens to them in school, college and university, we are creating a learning
environment in which we recognise the overwhelming importance of student
confidence and student motivation in improving learning.

This point has added meaning when one considers that both learning and
motivation theorists have found self-efficacy and motivation to have direct
relationships with levels of learning. Broadfoot (1979) suggested that one
reason for some students at the school level, those who are ‘less able’, lacking
motivation is that they have been alienated by an assessment process that is
basically one-sided. The interactive nature of learning has been denied.

In the discussion of factors related to student motivation in Chapter 2, it was
found that researchers generally agreed that choice contributes to intrinsic
motivation (Pintrich 1994; Pintrich, Marx & Boyle, 1993). In turn, this freedom
to make a choice in what to learn and how to learn, and the heightened
motivation it can engender, is important in the development of deep approaches to learning. Nevertheless, in most undergraduate programs, it is the university teacher who decides on the assessment tasks, the aims and objectives, the criteria for evaluation and so on - the learner generally has neither input into the planning or the assessing of the task nor any freedom of choice regarding the task itself. In writing of the anomalies of this situation where on the one hand universities aim to produce graduates who are capable of autonomous, self-directed learning and, on the other hand, give virtually no freedom or choice to students in that learning, Heron had this to say

\[\ldots\] the traditional educational process does not prepare the students to acquire any of these self-determining competencies. In each respect, the staff do it for or to the students. An educational process that is so determined by others cannot seriously intend to have as its outcome a person who is truly self-determining (Heron, 1988, p. 58).

Broadfoot (1979), in a discussion of assessment and learning at the school level, suggested that when students are involved in the assessment process, negative aspects associated with a one-sided approach can be counteracted. The involvement of the student in his or her assessment and the acknowledgement of his or her responsibility in the learning process have the potential to enhance students’ motivation and involvement in meaningful learning and to encourage a positive self-concept, especially in an assessment process that supports an ipsative rather than a competitive approach to assessment and learning (Broadfoot, 1979). This involvement in the assessment process assists students in developing the ability to make judgements about their learning and in gaining insights into their work (Brown, Rust & Gibbs, 1994). Student involvement in any aspect of the assessment process, however, needs to be sensitive to the learning needs of the student rather than being used in “a heavy-handed manner to impose a regime as rigid as the one it is purporting to replace” (Boud, 1995, p. 23).
It has now been widely accepted that for learning to be effective, students need to be actively engaged in their learning (Biggs, 1991a; Boud, 1988; Ramsden, 1992). To facilitate this engagement, university teachers need to focus on working with students in a “critical assessment of knowledge bases to establish their truthfulness and applicability” (Van Enckevort & Leibbrandt, 1988, p. 54). This learning differs from the traditional view of learning being transmitted and received in that learning emerges from actual experience and from critical reflection on that experience. This experience and reflection can occur through assessment and learning situations which involve small group discussions, discovery learning, problem-solving situations, carrying out research projects, and so on. The basic assumption of this type of learning is that

. . . people can learn and create knowledge on the basis of their concrete experience, through observing and reflecting on that experience, forming abstract concepts and generalisations, and testing the implications of these concepts in new situations, which will lead to new concrete experience and, hence, the beginning of a new cycle (Zuber-Skerritt, 1993, p. 46).

Co-operative or collaborative learning is one form of learning that requires students to be actively involved. Co-operative or collaborative learning involves a positive interdependence of group members and a positive correlation of each individual’s achievement with the group achievement (Johnson, Johnson & Skon, 1979). It refers to a structured learning situation, rather than an informal grouping of learners, which is based on group performance and group reward in the absence of intergroup competition (Johnson, Maruyama, Johnson & Nelson, 1981). The absence of intergroup competition places a responsibility on each member of the learning group in achieving his or her learning goal, facilitates peer teaching and acknowledges the social construction of learning. Tang (1996, p. 185) contended that as knowledge is socially constructed and interpreted through social processes then it would appear that
... the construction of knowledge in collaborative learning through social study strategies is parallel to this knowledge construction and is situated in the social interactions within the group.

Co-operative learning, in comparison to competitive or individualistic learning, has been found to be more effective in promoting achievement (Brufee, 1993; Nichols & Miller, 1994; Slavin, 1987; Webb, 1985). Bruning (1994, p.14) argued that "social communities are perhaps the only effective way in which 'dispositions for thinking' can be shaped ... the most successful programs for developing critical thought have been those involving social interaction". No clear reasons are known to explain this relationship but Resnick and Klopfer (1989) have provided three possibilities:

- in any group, the more highly skilled thinkers model sophisticated ways of constructing arguments, understanding information and problem solving to less skilled members;
- students, by working collaboratively, may reach levels of critical thought that they could not have reached alone; and
- the group provides a setting that allows for immediate feedback on the quality of thinking - the testing of ideas, the need for clarity of expression, and suggestions for solving problems.

This group discussion facilitates understanding and provides a support mechanism which encourages group members to study. Kourilsky and Wittrock (1992) call these group interactions 'generative teaching' as the group discussion, especially when it prompts higher order thinking, generates new ideas and often a reorganising of perspectives. These situations provide students with opportunities for active reflection as they explore different, and often conflicting, ways of thinking and of practice. Students are faced with problems, dilemmas and areas of uncertainty which confront their own beliefs and previous experiences. Through active reflection - a feature of collaborative learning - the exploration of new experiences through their prior knowledge
can lead to new learning (Boud, Keogh & Walker, 1985; Mezirow, 1990a; Usher, 1993).

Cheating - A cause for concern

No discussion of assessment can be thought complete without a consideration of cheating. Cheating is becoming a matter of increasing concern for teachers in higher education (Croucher, 1995a, 1995b; Franklyn-Stokes & Newstead, 1995; Paldy, 1996; Williams, 1993). Students' experience of the teaching process needs to be considered in any discussion about cheating. Ashworth, Bannister and Thorne (1997, p. 202) argued that a move from "an intensively taught style of education" to one in which classes are larger and where the emphasis is on independent learning could result in students feeling neglected. Findings from interviews they conducted with students suggested that assessment tasks which were boring and required students to reproduce well established ideas and concepts rather than requiring original thought could result in a lack of commitment on the part of some students and, as a result, presented "no moral constraint on cheating and plagiarism" (Ashworth et al., 1997, p. 202). A growing number of studies focusing on cheating express concern at what a Carnegie Report (1979) referred to as an increasing "ethical deterioration" among college students. For example, a study by McCabe and Trevino (1993) in the US found that up to 95 per cent of college students admitted to some type of cheating. In a survey of 1,000 students in the UK, Newstead (1994) found that cheating in examinations had reached disturbing levels: 12 per cent of students surveyed admitted copying in an examination; eight per cent admitted taking unauthorised material into examinations; and five per cent communicated in some way (eg, passed notes) with their fellow students during examinations. Another dimension of cheating, lying for special consideration, is recognised as an increasing problem. Croucher (1995a, p. 77) estimated that students who fail to attend an examination or submit an assignment on time and then request 'special consideration' because of 'misadventure' may make up between five per cent and 30 per cent of students in a course depending upon the relative
difficulty of the subject. While Croucher (1995b, p13) stated that the vast majority of these special consideration requests were for examinations, no clear reasons were advanced as to the reasons for this increase. Data relating to requests for special consideration for an examination at one Australian university between 1979 and 1993 indicated that an applicant was more than likely to be aged under 30, studying full-time, enrolled in a quantitative course, have an overseas visa, and be female (Croucher, 1995b).

The majority of studies which examined cheating as a function of gender found that females report less cheating than males (Baird, 1980; Calabrese & Cochran, 1990; Davis, Grover, Becker & McGregor, 1992). Newstead, Franklyn-Stokes and Armstead (1996) suggested that differences as a result of gender may be due to men being more motivated by performance goals and women by learning goals. This is supported, in part, by the fact that the difference between the genders in the occurrence of cheating was less among the more able students suggesting that high achieving male and female students have similar motivations (Newstead et al., 1996). Relatively little research, however, has been conducted into the effect of age on cheating in higher education. Franklyn-Stokes and Newstead (1995) reported findings from two studies. In the first, students aged 25 years or more were perceived by lecturers and other students to cheat less often than those under 25 years. In the second study, those students surveyed who were 25 years and older and those in the 18 to 20 age group reported cheating less than the 21 to 24 year old respondents.

Other studies have found that students in the early years of their undergraduate degrees are more likely to cheat than those in the later years (Bowers, 1964; Baird, 1980) and that students who were motivated to learn rather than to obtain good grades were less likely to cheat (Weiss, Gilbert, Giordano & Davis, 1993). Findings from studies which correlated grade point average with observed and reported incidence of cheating suggest that the more successful students are less likely to cheat (Hetherington & Feldman, 1964; Bowers, 1964; Haines, Diekhoff, LaBeff & Clark, 1986).
Relatively few studies have systematically compared the frequency of cheating in different disciplines. While studies into cheating have involved many differing disciplines, to compare these results is not a viable proposition because of different survey instruments used and differing definitions of cheating itself. The largest and most important study into interdisciplinary differences related to cheating was a nation-wide study in the US by Bowers (1964) involving over 5,000 undergraduate students in 11 different majors. Bowers (1964) found that business and engineering students were associated with the highest rates of cheating, the arts and humanities had the lowest rates, and education, science and the social sciences were in the middle range. In a recent study involving 943 undergraduate students at an English university, Newstead et al. (1996) investigated differences in cheating as a function of gender, age, academic achievement, and discipline studied. They found that male students reported engaging in more cheating than female students, that students aged 25 years or more were less likely to engage in cheating than students who were under 25 years, and that cheating systematically decreased as achievement levels increased (Newstead et al., 1996). Findings related to cheating as a function of discipline studied differed from those of Bowers (1964). Newstead et al.'s (1996) study found that education and health-related courses had the lowest levels of cheating, science had the highest levels, and technology-based disciplines were in the middle range. They concluded that cheating of all kinds was most commonly reported in the areas of science and technology and least often in professional areas such as social work and health and in the humanities (Newstead et al., 1996).

In the UK, Franklyn-Stokes and Newstead (1995) concluded from their research that the main reasons students cheat were time pressure (among other things, they felt this could be due to students needing to take paid work to supplement their income) and the desire to increase their marks. In terms of assessment tasks, Franklyn-Stokes and Newstead (1995) argued that while 'coursework' (as opposed to examinations) is assuming increasing importance as a way of
assessing students, the results of their study suggested that increases in the amount and importance of ‘coursework’ are encouraging students to cheat. In the US, Haines et al. (1986) and Davis et al. (1992) found stress and pressure for good grades to be the most cited reasons for cheating in their studies. Davis (1993) argued that a model that resists cheating and emphasises understanding is required for competence, and, in turn, competence is required for success, needs to be taught “with fervour” by educators to their students.

Ashworth et al. (1997) and Newstead et al. (1996) argued that students’ motivation is the key to cheating. Students need to believe that their assessment tasks are significant in terms of their learning and ‘weighty’ in the eyes of their teachers (Ashworth et al., 1997). Newstead et al. (1996) asserted that all of the individual differences they studied (gender, age, academic achievement, and discipline studied) point to the importance of students’ motivation - especially in the distinction between performance goals and learning goals. Ashworth et al.’s (1997, p. 202) concluding comments point to ways that the interactive processes - assessment, teaching and learning - can be designed so that learning is maximised and the likelihood of cheating minimised:

Assessment tasks which did not engage the student . . . symbolised the gap between students and staff. . . . Without a basic commitment on the part of the students there is no moral constraint on cheating or plagiarism.

Cross-cultural research into cheating, while limited, highlights the relationship between motivation and cheating. Evans, Craig and Mietzel (1993), in a study involving secondary school students in West Germany, the USA, and Costa Rica, found differences in cheating perceptions, attributes of cheating, causal factors, and beliefs about ways to control cheating, differed as a result of the competitive and cooperative reward structures in place in the three different education systems. Findings from another cross-cultural study involving 1,068 students in six countries, found cultural differences existed about anti-cheating perceptions (Australian students in the study had the strongest anti-cheating
perception than those from the other five countries). However, the researchers related these outcomes to belief systems rather than motivational forces.

Towards an interactive model of assessment

Where assessment and teaching are focused on content, on a standard and/or overloaded curriculum and on placing teachers at the centre of that process, then resultant learning can be narrow and limited to reproduction of facts or, at its worst, cheating. While a didactic or expository approach is appropriate in many instances, it would appear that an approach that combines features of a didactic approach with features of a student-centred approach would do much to motivate students and shape and enhance student learning. In Table 4.1, defining features of assessment and learning in each of these two approaches are presented. The features were derived by this researcher from the literature and from findings from the empirical research in Stage 1. Defining features of the didactic approach and the learner centred approach are presented as are the emphases of the approaches and the characteristics of the assessment process in each of the approaches. While necessarily broad in scope, the contents of Table 4.1 do illustrate the wide ranging benefits that can be derived from the use of a learner centred assessment process.
<table>
<thead>
<tr>
<th>Type of approach</th>
<th>Emphasis of approach</th>
<th>Characteristics of assessment process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didactic Approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Information transmission</td>
<td>Provision of foundation knowledge and skills</td>
<td>Assessment related to knowledge of discipline/theoretical base</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teacher-determined assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Feedback from teacher only</td>
</tr>
<tr>
<td>• Teacher controlled</td>
<td>Expert input</td>
<td></td>
</tr>
<tr>
<td>• Lecture type approach</td>
<td>Emphasis on teaching (as opposed to teaching and learning)</td>
<td>May be directed towards reproduction of facts/processes</td>
</tr>
<tr>
<td>• Subject-centred</td>
<td>Narrowly defined body of knowledge</td>
<td>Limited opportunities for developing skills in accessing new knowledge</td>
</tr>
<tr>
<td>Learner centred approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Reflection on prior experience</td>
<td>Builds on students' prior knowledge and experience</td>
<td>Performance-based/authentic type assessment</td>
</tr>
<tr>
<td></td>
<td>Values collaborative learning strategies and peer teaching</td>
<td>Designed to lead to deep, transformational learning</td>
</tr>
<tr>
<td></td>
<td>Teacher as “learning manager” who facilitates meaningful learning by offering guidance, support and motivation</td>
<td>Opportunities for development of broad range of transferable skills (eg, problem solving, leadership, social skills)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer, self and group assessment and feedback as well as teacher-determined assessment</td>
</tr>
<tr>
<td>• Teacher as facilitator</td>
<td></td>
<td>Flexibility built into assessment process</td>
</tr>
<tr>
<td>• Gradual move toward learner control</td>
<td>Development of expertise in learning</td>
<td>Provides opportunities for development of metacognitive and self-monitoring skills</td>
</tr>
<tr>
<td>• Gradual move toward individualised curriculum</td>
<td>Develops autonomy and self-direction in learning</td>
<td>Development of students' skills in accessing new knowledge and using that knowledge in their decision-making</td>
</tr>
<tr>
<td>• Learning is ongoing, lifelong</td>
<td>Recognition of everchanging and expanding nature of knowledge</td>
<td></td>
</tr>
</tbody>
</table>

The learner centred approach shown in Table 4.1 relies heavily on students receiving training in appropriate learning skills in their undergraduate degree.
It is especially reliant on metacognitive skills being learned through opportunities provided by learning and assessment tasks and feedback on these (Derry & Murphy, 1986). To maximise the learner’s potential and to maximise the likelihood of undergraduate students developing the attributes which are viewed as the aims of higher education, a balanced interaction between the assessment process, the learning process and the teaching process is necessary. If this balance is achieved, there is every likelihood that students’ motivation will be enhanced, their learning will be focused on attaining understanding, links between process and product, and theory and practice will be recognised as informing each other and the eventual learning outcomes and subsequent learning, will be maximised.

The model of assessment that emerged from this review of literature is one in which three components - assessment, teaching and learning - interact with each other and, in doing so, impact on the individual student to shape his or her learning. This interactive model of assessment, as shown below in Figure 4.1, shows the dynamics of one process impacting on and influencing the dynamics between it and the other two processes. These processes continually impact on students influencing their conceptions of learning, their motivations or intentions for learning, their approaches to learning and their short and long term learning outcomes.

![Figure 4.1 Interactive Model of Assessment](image-url)
This interactive model acknowledges the way assessment can be used to drive the curriculum and is in contrast to the depiction of assessment in a traditional linear model, as in Figure 4.2, in which assessment is used as a measure of the amount of learning that has occurred.

![Diagram of Teaching Process, Learning Process, Assessment Process]

Figure 4.2  The Linear Assessment Model

Section Two summary

In this section, further aspects of the assessment process have been examined. The role of feedback, the use of self-assessment, and the guiding, supporting role of teachers have been found to be crucial in the development of self-monitoring skills. The impact that institutional factors have on the assessment and learning processes as well as ways that assessment can be used to reform curriculum have been examined. As part of the examination of assessment led curriculum reform, the attributes that graduates should possess have been detailed. Of particular significance is the fact that the possession of a body of knowledge is only one of the learning outcomes expected of students. Graduates need also to possess a range of generic and jobrelated or professional skills regardless of their discipline or field of study.

The complex relationships that exist among assessment, learning, motivation, teaching, and learning outcomes have been examined in the literature reviewed in Chapter 2. Literature related specifically to the assessment process has formed the basis of this chapter and the literature reviewed has further confirmed the complexity of these relationships. The conceptual framework, initially developed in the Initial Learning Outcomes Model in Figure 2.1 (Chapter
2) and revised again at the end of Chapter 3 as the Context-based Learning Outcomes Model (see Figure 3.1), has been further refined. As shown in Figure 4.3, the conceptual framework has been refined to incorporate Figure 4.1, the Interactive Model of Assessment. This new conceptual framework reflects the interactive nature of the assessment process, the way in which the teaching, learning, and assessment processes can shape students' motivational goals or intentions and, ultimately, their learning outcomes.

![Figure 4.3 The Interactive Learning Outcomes Model](image)

**Conclusion**

This chapter began with a discussion of the definitions and purposes of the assessment process and reviewed the paradigm shift in which assessment is moving from a psychometric model to a broader, educational model concerned more with educational considerations than with psychometric issues. In Section Two, *Using assessment to enhance learning*, the review, while still broad ranging, shifted to an examination of assessment and learning within specific contexts. The influences of institutional systems were examined as were the interactions between teachers and students in terms of control over assessment and learning processes. The advantages of learner centred assessment and learning, especially in relation to students successfully developing the attributes
perceived as appropriate for graduating students, were discussed. The ways the assessment process can be used to develop students’ self-directed learning skills, necessary for their developing lifelong learning attributes, formed part of this discussion. Assessment programs which actively engaged students in meaningful and relevant learning, provided students with increasing levels of freedom and autonomy in their learning and involved co-operative as well as individualistic opportunities for learning were identified as being the most successful means of achieving these skills and attributes. Discussion of a balanced interaction between students and teachers included an examination of self and peer assessment, self-monitoring skills as well as the interactive nature of teaching, learning and assessment. The chapter concluded with the development of an interactive model of assessment in which assessment, teaching and learning are not seen as separate processes but as interdependent, interactive processes and, finally, with the further refinement of the conceptual framework. The complex dynamics within the interactive model of assessment impact on individual learners affecting their conception of learning, their motivational goals, the ways they approach learning and their short and long term learning outcomes.

The Interactive Learning Outcomes Model serves as the conceptual framework for the balance of this present investigation. In the next phase of the study, this model is the basis of further empirical investigation of the impact of assessment strategies on learning outcomes from a student perspective through in-depth interviews. Chapter 5 provides the rationale for these interviews and the design and development of this phase.
CHAPTER FIVE

DESIGN AND DEVELOPMENT OF THE IN-DEPTH INTERVIEWS

Introduction

The literature reviewed in Chapters 2 and 4 and the preliminary interviews reported in Chapter 3 revealed the complex and dynamic nature of learning and of assessment and the inter-relationships that exist among teaching, learning and assessment. The contextual nature of learning and the implications of this for student motivation and subsequent learning were explored. The mediating effect that the assessment process has on the teaching-learning process was revealed by the results of many studies carried out over the last three decades and was further explored in the ten interviews carried out in the preliminary interview phase of the present study.

A profile has been developing, throughout these chapters, of learning as a process that is shaped, not by one or two factors, but by a range of personal and contextual factors and processes. Contextual constructs, such as the formal and the hidden curriculum, the instructional design of individual subjects and of overall courses, the assessment process, and teachers’ personalities and teaching styles, all impact on individual learners and influence the way they go about their learning. The deciding factors, however, lie within each student. Students’ intentions, their goals, and their ability to regulate, monitor and direct their learning ultimately determine how they go about their learning.

This profile emerges from the key areas of research covered in Chapters 2 and 4 - the phenomenographic research into student learning, adult learning theory, motivational theories, theories of learning embedded in educational psychology research, and research into assessment. While these are separate
fields of research, they have areas of significant overlap and, as a result, findings from these overlapping areas are further validated and enriched. This interactive nature of the elements that make up the assessment process, the learning process and the teaching process are captured in the conceptual framework developed through Chapters 2, 3 and 4 and eventually refined in Figure 4.3, the Interactive Learning Outcomes Model.

In their 1974 study carried out in the UK, Miller and Parlett stressed the need to consider the contexts or milieus in which learning and assessment occur and discussed the problems attendant on this. They concluded that while university departments differ markedly, as do the subjects taught and the assessment procedures used,

\[
\ldots \text{it is also the case that there are numerous points of similarity and continuity, certain significant parallels and shared problems, that can be usefully discerned and discussed.} \ldots \text{There is a multitude of "specifics"; perhaps somewhat fewer "universals" (Miller & Parlett, 1974, p. 13).}
\]

The need to research specific contexts where learning occurs has been raised by many contemporary educators. In a submission to the committee carrying out the Strategic Review of Research in Education in Australia, Walker (1991, p. 12) argued for the need for educational research to be focussed on "context specific characteristics of learning environments (and) learners". He pointed out that while much traditional research had sought to develop theories which imply "standardised solutions to educational problems", these theories failed to take into account the diverse nature of the student population with differences in gender, class, ability/disability, race and geography (Walker, 1991, p. 12).

It is timely, now that the literature reviews have been completed, to consider ways of further researching the impact of assessment on student learning that is student-centred and contextual in nature. The conceptual framework developed so far in this thesis identifies the interaction of students' personal
attributes and the teaching, learning, and assessment processes which occur within the specific context of student learning, to produce subsequent learning outcomes. This interactive process is ongoing as academic outcomes from a single subject or a number of subjects within a program impact on and influence the individual students' future learning. The conceptual framework, derived from the literature and further refined through the preliminary interview study, needs now to be yet further refined by considering what undergraduate students have to say about their learning experiences, their perceptions of learning and of the assessment process, the factors they view as either facilitating or limiting learning at university, the ways the assessment process impacts on their learning and what they consider to be the factors that determine whether they do well or do poorly in assessment tasks. At this stage, this examination needs to be firmly grounded in the students' experiences within the particular context in which they are studying.

As discussed in Chapters 1 and 2, one of the best ways of exploring students' experiences and perceptions, their beliefs and their responses to contexts and processes is through the use of in-depth interviews. Through students telling their stories about learning and assessment, sets of data develop which, when analyzed, allow themes and issues grounded in those data to emerge (see Glaser & Strauss, 1967; Strauss & Corbin, 1990). Through engaging some of the subjects in cross checking the analysis of their "stories" - ie, the transcriptions and analyses of their interviews - the themes and the issues that emerged can be further validated. Similarly, by cross checking, in later interviews, themes and issues that begin to emerge in earlier interviews, the interpretation of the data is considered to be both valid and consistent.

This interview phase, then, explores the ways both personal and contextual factors interact with each other. It has two key objectives in mind:

1. to identify and examine the main factors that students perceive as impacting on learning; and
2. to identify and examine students’ perceptions of the impact that assessment has on shaping learning.

The purpose of the remainder of this chapter is to describe the methodology used in the in-depth interviews to investigate the impact of the assessment process on students’ approaches to learning. The main elements of the research design are presented and discussed to provide information about the research process and a rationale for its particular design. The broad areas outlined are: selection of subjects; development of the interview instrument; data collection strategies; and finally, analysis of the data. To provide as clear a description as possible of the sample and the context from which it is drawn, a brief profile of the university from which the sample was drawn, UWS (Nepean), follows. This description highlights the diversity of the student population and the newness of the university and comments, briefly, on the nature of the teaching practice that is part of the university structure.

**Context of the interviews**

UWS (Nepean) is one of the three federated members of the University of Western Sydney. This university was established in January, 1989 as a Federation of Nepean College of Advanced Education and Hawkesbury Agricultural College. The third member of the Federation, the former Macarthur Institute of Higher Education, joined in November, 1989. The three members are known as: the University of Western Sydney, Nepean (UWS Nepean); the University of Western Sydney, Hawkesbury (UWS Hawkesbury); and the University of Western Sydney, Macarthur (UWS Macarthur).

Prior to 1989, Sydney had four universities all of which were based within eighteen kilometres of the Sydney Central Business District (Sydney CBD). Greater Sydney, however, spreads more than 60 kilometres to the west, 40 kilometres to the north and 60 kilometres to the south west with its built-up area being "twice the size of Beijing and six times as big as Rome" (Huie, 1995,
The University of Western Sydney was established to cater for the educational needs of the people living in Greater Western Sydney. Its mission is "to provide excellence in higher education, research and associated community service within Greater Western Sydney" (University of Western Sydney, Nepean, 1995, p.412).

Greater Western Sydney, an area which includes over 25 per cent of the population of the State of New South Wales, was acknowledged to be a region suffering from continuing educational disadvantage. The region has a large non-English speaking migrant population, a high proportion of its young people are unable to find full time employment and, in general terms, is a largely working class area within Greater Sydney.

A profile of the student population at one of the members of the university, UWS (Nepean), can be developed from data obtained from the Student Intake Survey administered during the enrolment sessions at the beginning of 1995. There were 11,907 responses to the survey in 1995. The data collected revealed that:

- 24 per cent of the sample lived between 10 - 24 kilometres from UWS Nepean (UWS Nepean, 1995, p.12);
- 38.6 per cent of these students were born outside Australia (UWS Nepean, 1995, p. 22);
- 37.5 per cent speak English as a second language (UWS Nepean, 1995, p.23);
- there was a three per cent increase on the previous year in the proportion of students in the previous two categories (UWS Nepean, 1995, p.22-23);
- there were in excess of 88 countries nominated by students as their country of birth; and
- 71.9 per cent of respondents were first generation university students (UWS Nepean, 1995, p.33).
In the present study, 42 students participated in the in-depth interviews. The majority of students interviewed entered university straight from school - 29 in number (69 per cent). A smaller proportion were either Mature Age Admissions (11 or 26 per cent) or entered university through UniStart (2 or 5 per cent). Any students who are 21 or over at 1 March of the year in which they commenced their study are classified by the university as Mature Age students. A special entry program, UniStart, operates at UWS Nepean and is an alternative means of university entrance for educationally disadvantaged students. Students who are admitted to their undergraduate program via UniStart will have completed a 19-week course with the aim of bridging the gaps that exist in the skills and knowledge required if they are to successfully participate in undergraduate study (University of Western Sydney, 1997).

At the time data were collected for this study, UWS (Nepean) had eight faculties (Commerce, Education, Engineering, Nursing and Health Studies, Humanities and Applied Social Sciences, Visual and Performing Arts, and Law). UWS (Nepean) has since been restructured. The university has a history of traditional teaching although initiatives are in place for UWS (Nepean) to adopt a more flexible approach to delivery of courses and a more “student friendly” approach. In a report released by the then Chief Executive Officer, Jillian Maling, in April 1995 entitled, The Next Steps on Moving to a Flexible Learning Environment, the teaching and course structure in place was described as being

...centred on on-campus delivery for classes at fixed times, typically in large group lecture format complemented by the use of laboratories, practicals and smaller group tutorials. Class sizes are viewed as fixed. Typically, lectures are delivered once only. Students, for example do not have access to a tape of a lecture which they can use if they are unable to be present on that particular occasion or for the purpose of reviewing the concepts and materials introduced in it. Some Faculties
have traditions of a particular kind of grouping of students which serve to further rigidify the processes for teaching and learning (p. 3).

The three faculties from which the sample of student interviewees were drawn were the Faculty of Education, the Faculty of Engineering and the Faculty of Nursing and Health Studies. These faculties were deliberately chosen. They were chosen from the eight faculties because each:

- provided initial professional preparation at undergraduate level;
- was represented in the majority of universities in Australia;
- represented a profession with large numbers in the workforce;
- was readily accessible to the researcher; and
- prepared professionals for roles and contexts distinctly different from the other two chosen and thus together the preparation of these groups was likely to encompass a wide range of assessment strategies.

The Faculties of Education and Engineering run their programs on one campus (the Penrith Campus) while the Faculty of Nursing and Health Studies operates its programs from the two campuses of UWS (Nepean), Penrith and Parramatta.

The Faculty of Education had been in operation since the inception of this new university and offered eight different undergraduate programs. These programs were all professionally oriented and designed to prepare graduates for teaching careers in five different fields: Early Childhood; General Primary; Secondary; Special Education; and Adult Education.

The Faculty of Engineering was established in 1993. Through the provision of courses that were project oriented and the inclusion of "extensive practical exposure", this Faculty aimed to "develop students' ability to think and become independent problem-solvers" (University of Western Sydney, Nepean, 1997, p. 141). Three undergraduate degree programs were offered:
• Bachelor of Engineering with majors in Civil, Computer, Electrical, and Mechanical Automation Engineering;
• Bachelor of Technology with majors in Electrical and Mechanical Automation; and
• Bachelor of Laws/Bachelor of Engineering.

The Faculty of Nursing and Health Studies was a foundation faculty of the university. Five undergraduate programs and a combined Health Science/Law degree were offered. The program which the majority of students from this faculty undertook was the Bachelor of Nursing which prepared its graduates for careers in the areas of nursing and health promotion.

Selection of subjects

It was judged that 50 in-depth interviews would be sufficient to uncover the range of students’ perceptions and experiences. Three ordered lists of students were generated from class lists by random selection, one list for each of the three faculties involved. Students from each list were then invited to participate in the study. A copy of the letter of invitation is at Appendix 5. Acceptance of the invitation was via the return of a signed letter of informed consent included with the invitation (see Appendix 6). Where no acceptance was received after seven days, a follow up letter was sent (see Appendix 7). When it became clear that an invitation was not accepted - either through failure to respond or a non-acceptance - an invitation was then sent to the next person on the relevant list. As interviews were scheduled to be conducted just prior to the examination period, a number of non-acceptances were anticipated. The final sample consisted of 42 students.

The sampling strategy employed in this phase is consistent with that used in most qualitative research where sampling is generally guided by the need to uncover the full range of contrasting beliefs and experiences of the participants.
so as to achieve the *saturation of emergent themes* (Glaser & Strauss, 1976). The use of this approach to sampling in this phase of the study was decided upon not so much to obtain a representative sample but to "identify purposive cases that represent specific types of a given phenomenon" (Minichiello *et al.*, 1995, p. 14). Through this type of sampling, the researcher is able to investigate the range of types of phenomena rather than concentrating on their distribution or frequency (Trost, 1986). Minichiello *et al.* (1995, p. 163) referred to this as *theoretical sampling* and cited Rose (1982) in arguing that theoretical sampling is an essential feature underlying qualitative studies as this type of sampling allows "the full range of possibilities which have proved to be theoretically relevant to the evolving data" to be identified.

Of the 42 students interviewed, 24 were from the Faculty of Education (57 per cent of the total sample), five subjects (12 per cent) were from the Faculty of Engineering and 13 subjects (31 per cent) came the Faculty of Nursing and Health Studies. Students from the Faculty of Education came from three of the five fields of teacher education specialties offered: Early Childhood; General Primary; and Secondary. The participants from the Faculty of Engineering were drawn from the specialty area of Electrical Engineering. The participants from the Faculty of Nursing and Health Studies were drawn from their most popular program - the Bachelor of Nursing. Thirty two (76 per cent) of the subjects were female; 10 (24 per cent) were male.

The main points of difference among the students were that some entered university straight from school, some were mature age students and two were UniStart students. Points of commonality among these three groups are that:

- the sample was limited to undergraduate students;
- the subjects had completed at least two and a half years of their undergraduate program;
- all the students interviewed were undertaking professionally oriented programs;
• none of the students interviewed had completed an undergraduate program prior to enrolling in their present degree program (although some had completed one year of another program before transferring to their present course).

As the form of sampling used in this stage of the study is in no way a representative sample, one needs to consider to what degree the findings from the in-depth interviews can be generalised to other populations or contexts. Shulman (1988) presented two main forms of generalisation: (1) generalisation from a particular sample of individuals in a given study to a larger population of which they are said to be representative; and (2) generalisation from particular tasks or settings to that population of tasks or settings that the research project is said to represent. When samples are drawn randomly from a population, the argument has been that generalisations can be made for the entire population. However, Shulman (1988) cited the classic paper of Cornfield and Tukey (1956) in qualifying this argument. Cornfield and Tukey (1956) argued that a truly random sample - that is one in which each person in the population has an equal chance of being selected - is not possible, therefore, in making generalisations an "inferential bridge" must be built between the people included in a particular sample and the rest of the population. In discussing case studies and other non-quantitative forms of research, Shulman (1988, p. 11) argued that,

In much the same way that the reader of a quantitative study must build his Cornfield-Tukey bridge to evaluate whether the results of that study are relevant to certain other situations, so the critical reader of a case study must examine whether an inferential bridge can be built between this case and other cases of interest to the reader.

LeCompte and Goetz (1986, p. 34) substituted the terms translatability and comparability for the concept of generalisability usually used in quantitative methodology and argued that if "research methods, analytic categories, and
characteristics of phenomena and groups" are clearly established, "translatability allows comparisons to be made across groups".

Validity of the research design

Babbie (1995, p. 127) defined validity as "the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Babbie's emphasis). In this present study into the impact of assessment on undergraduate student learning, decisions about the selection of appropriate research methods, the sampling and recruitment of subjects, the analysis of data and the way the data are presented have all been considered as important elements in establishing validity. Baxter et al. (1992) assert that what is learned from the research process depends on the quality of the interaction between researchers and informants, the researcher's ability to interpret what he or she has been told and what is observed, and the researcher's own value system. Indeed, enhancing validity is one of the main justifications for the development of a strong rapport and a good relationship with informants in the one-on-one interactions that are part of in-depth interviewing (Minichiello et al., 1995). In in-depth interviewing the researcher attempts to ensure a close fit between the world of the informant and one's interpretation and understanding of the experiences, beliefs, perceptions and behaviours of the informant (Taylor & Bogdan, 1984). Probing of issues and challenging informants to fully explain what they say or do and then re-checking data by inviting informants to critically examine transcripts and analyses are forms of validity checking. These validity checking techniques become an integrated part of the research process in which the interviewer is continually engaged in checking perceptions and understandings derived from the data and in drawing tentative conclusions from this process (Kirk & Miller, 1986).
Development of the interview guide

At the completion of the analysis of the findings from the preliminary investigation, a number of issues that required further exploration were suggested. These were all significant in the investigation of the impact of assessment on student learning and formed the basis of this large-scale interview study. Just as all the components of the Interactive Learning Outcomes Model (Figure 4.3) overlapped and were inter-related, so each of the issues in this interview study related to the others - none was separate and distinct, decisions which students made about one area impacted on each of the other areas. The issues explored were based on each of the components of the conceptual framework with the interview guide being based on the three intervening components that impact on the individual student and the resultant learning outcomes. These intervening components are the learning process, the teaching process, and the assessment process. The assessment process has a mediating function which intercepts both the teaching and the learning processes. If each is in tune with the others, then deep learning would be expected. In this case the teaching process would be oriented towards the facilitation of deep learning, of encouraging students to be self-directed and self-regulating in their efforts, and would provide the support and encouragement needed by individual students. In this same case, the learner would enter the learning situation motivated to learn and be capable of regulating their learning and monitoring the quality of that learning so that deep conceptual understanding is achieved. To facilitate the teaching and learning mentioned thus far, the design of the assessment process would reflect the aims of the curriculum and direct the learners’ efforts towards learning for understanding and transformation. This same assessment process would need to capture students’ interests and be designed to enable them to maximise their learning potential. If, however, one or more of the components was “out of tune” with the others, then this would mediate the learning outcomes. Instances where the components may not complement each other could include the following: the teaching process does not support the use of learning
strategies that would result in deep learning; the teaching process may alienate students; the content which students are expected to learn could be overwhelming and force students into using surface learning approaches; individual students may not be motivated to achieve deep levels of learning; the individual student may have low expectations of him or herself and so only aim to reproduce lecture notes and tutorial exercises; and the assessment tasks may not require the students to do more than reproduce given facts and knowledge.

Each of these components explores specific issues or areas as follows:

**The Learning Process**
- Motivation
- The ability to regulate learning
- Monitoring the quality of learning

**The Teaching Process**
- The teacher
- The teaching environment
- The explicit and implicit curricula

**The Assessment Process**
- Types of assessment
- Feedback and learning

Through exploration of these specific issues, findings from the literature can be confirmed, findings that differ from those in the literature can be isolated and any gaps that occur in the literature can be identified. The complete Interview Guide used for the second round of interviews is included in Appendix 8. Three questions in the second round remained the same as those used in the first round:

- **What is learning?**
- **What is the key to "real" learning?**
- **Has your approach to learning and to assessment changed from when you first started university? If "yes", in what way?**
One question - *In your course you may have come across new concepts or techniques that you found very difficult to learn. Can you take me through in detail, step by step, how you went about mastering this knowledge?* - was not used in the second round of interviews.

The remaining seven questions formulated for the second round of interviews were developed from questions used in the preliminary interviews. These questions were designed to explore in more detail concepts examined in Stage 1. Table 5.1 shows the concepts explored in the interview phase of Stage 2 of this study.
Table 5.1 Analysis of Items in Interview Guide 2

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>The Learning Process:</strong>  Think of one subject from your undergraduate degree where you found yourself learning something valuable and learning it well. What were the features of this subject that contributed to this learning?</td>
</tr>
<tr>
<td>2.</td>
<td>Now think of a subject where you thought you were not engaged in real learning. A subject from which you learnt little. What were the features of this subject?</td>
</tr>
<tr>
<td>3.</td>
<td>What is learning?</td>
</tr>
<tr>
<td>4.</td>
<td>What is the key to &quot;real&quot; learning?</td>
</tr>
<tr>
<td>5.</td>
<td>Do you think learning things &quot;off by heart&quot;, or rote learning, helps you to understand what you are learning?</td>
</tr>
<tr>
<td>10.</td>
<td>Looking back over your time at uni, what might you change of modify so that you were able to learn things more deeply? [Used in later interviews.]</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>The Teaching Process:</strong>  As above</td>
</tr>
<tr>
<td>2.</td>
<td>As above</td>
</tr>
<tr>
<td>6.</td>
<td>Think of any one subject you have completed, or are completing, this year. What were the assessment tasks for this subject? - How did you prepare for these assessment tasks? - How did the assessment tasks affect the way you approached the subject?</td>
</tr>
<tr>
<td>7.</td>
<td>Now think of another subject - one which had a different pattern of assessment. What were the assessment tasks for this subject? - How did you prepare for these assessment tasks? - How did the assessment tasks affect the way you approached the subject?</td>
</tr>
<tr>
<td>8.</td>
<td>Has your approach to learning and to assessment changed from when you first started university? If &quot;yes&quot;, in what way?</td>
</tr>
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<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>The Assessment Process:</strong>  As above</td>
</tr>
<tr>
<td>2.</td>
<td>As above</td>
</tr>
<tr>
<td>6.</td>
<td>As above</td>
</tr>
<tr>
<td>7.</td>
<td>As above</td>
</tr>
<tr>
<td>8.</td>
<td>As above</td>
</tr>
<tr>
<td>9.</td>
<td>When people sit for an exam or hand in an assessment, they usually have some idea of the mark they will get. In your experience, what sorts of things do you have to do at university to earn a good mark? Why do people get poor marks?</td>
</tr>
</tbody>
</table>

Data collection

Data collection strategies were the same as those employed in the preliminary interview investigation reported in Chapter 3. Semi-structured in-depth interviews were used to probe students' perceptions of learning and of their learning experiences at the undergraduate level. The interviews were relatively informal so that students would feel at ease and be encouraged to be
frank and open in their responses. Where necessary, students were challenged to explain further or to consider more deeply issues that arose in the course of the interviews. Each interview was tape-recorded and transcribed so that detailed analysis was possible.

The interviews occurred during the second half of the second semester of the academic year. The timing of the interviews coincided with the period in which students' would have been completing final assignments, receiving grades for, and feedback from, assessment tasks completed in the first half of the semester. The majority of students would have been preparing for examinations or, in the case of some of the later interviews, have been sitting for examinations or have just finished their examinations. It was considered that, as students were fully immersed in the assessment process at this time of the year, they would be more likely to be able to capture the way they felt about teaching, learning, and assessment and more readily articulate their feelings, perceptions and beliefs.

Analysis of the data

As discussed in Chapters 2 and 4, through students telling their stories about learning and assessment, sets of data develop which, when analyzed, allow themes and issues grounded in those data to emerge (see Glaser & Strauss, 1967; Strauss & Corbin, 1990).

All interviews were transcribed and then analysed as soon as possible after each interview. To achieve the aims of this phase of the study, a two-stage data analysis procedure was used. The first stage of analysis was inductive. The inductive stage was long and detailed as it involved drawing out what students said about the various facets of learning, assessment and undergraduate life in general. After each interview was transcribed, the material was analysed according to a range of themes that emerged. For each new theme, a new file was created. Relevant extracts were placed into these 'theme files' so that an
accurate picture of the interviewees' perceptions and beliefs began to evolve. As more themes or issues of relevance emerged so new files were created and earlier interview transcripts had to be re-analysed in light of these emerging files. The files covered areas such as conceptions of learning, features of a subject that enhanced student learning, failing assignments or subjects, groupwork and so on.

Over the period in which the interviews were conducted, seven subjects were invited to cross check the analysis of their "stories", that is, the transcriptions and analyses of their interviews. This cross checking of themes and issues that emerged from the data provided further validation of the findings. Similarly, by cross checking, in later interviews, themes and issues that begin to emerge in earlier interviews, the interpretation of the data is considered to be both valid and consistent.

The second stage of data analysis was deductive and involved the identification of patterns in the data that "had empirical and conceptual integrity" (Kuh, 1993, p. 284). For example, in this phase the files that had emerged from the inductive stage - rote learning, defining learning, the key to 'real' learning as well as material from the two files that dealt with features of a subject that had either enhanced or limited learning - were synthesised into a new file, Conceptions of learning. By examining each of these files a picture was able to be developed of each individual student's conception of learning. Both the inductive and deductive stages of analysis were completed by the researcher thus maximising internal consistency.

Conclusion

This chapter has presented the methodology for the second interview phase involving 42 undergraduate students. A brief review of the conceptual framework was followed by a description of the context of the study and the selection of subjects. Other aspects of methodology discussed in this chapter
included the validity of the research design, the development of the interview instrument, data collection strategies and finally, analysis of data. In the following chapter, the results of this interview phase will be reported.
CHAPTER SIX

FINDINGS FROM STAGE TWO

Introduction

The purpose of this study was to examine the relationships that exist between assessment and learning. The findings from the review of the literature and the Preliminary Interviews reported in Chapters 2, 3 and 4 have provided insights into ways students go about their learning in response to their own needs or goals and in response to varying learning contexts. As stated in Chapter 1, the links between learning, assessment and the curriculum have been researched and the evidence of the impact of assessment is seemingly clear. Findings from the Preliminary Interviews have confirmed the findings from previous studies that the demands of assessment tasks dominate learning, that the hidden curriculum impacts on both individual students and their learning and on the teaching-learning process in general, and that the academic environment in which students carry out their studies has an impact on students’ approaches to learning and the subsequent learning outcomes. These factors impact not only on the more tangible learning outcomes expressed in terms of knowledge and profession-specific skills but also on the less tangible, but no less important, learning outcomes expressed in terms of attitudes, beliefs, and personal development.

The conceptual framework, which has developed through this study, presents the individual student starting undergraduate study with a definite orientation to learning. This orientation is derived from the individual learner’s previous experiences, from personal attributes, from motivational goals, and from his or her conception of learning. This orientation has been expressed in the conceptual framework as the individual student’s intention at the commencement of undergraduate study. Many students are able to clearly
articulate these intentions whereas others have less clear perceptions of their intentions. Whatever the case it is evident, nevertheless, that the learning process impacts on students and mediates their intentions. The assessment process, in particular, has been shown to affect learning outcomes and the ways students approach their learning. The various components of the conceptual framework, as shown here, were explored in this interview phase.

Figure 4.2 The Interactive Learning Outcomes Model

In this chapter, findings are presented which address each of the components of the Interactive Learning Outcomes Model. Learners' motivations are explored, as well as the way that specific assessment strategies influence learning outcomes, and the way feedback is used in the teaching-learning process to inform learning and to develop each student's ability to direct his or her learning. The following questions, which encapsulate various dimensions of these interactive processes and learning outcomes, were addressed:

1. In what ways did assessment strategies either enhance undergraduate students' learning or inhibit their learning?
2. In what ways was feedback used to develop undergraduate students' ability to monitor and direct their learning?
3. How did the assessment and teaching processes impact on undergraduate students' motivations towards learning?

4. Were varying approaches evident in the ways undergraduate students spoke about assessment and learning at university?

Findings related to these questions are presented in four sections. Extracts from interviews are used in each of the sections to capture the essence of the broad scope of responses. It was not the intention to include quotes from every interview; rather extracts were selected on the basis of providing material that best illustrated the point being made.

**Section One:**

**Assessment strategies and learning outcomes**

Section One presents findings related to assessment strategies perceived as enhancing learning and those perceived as inhibiting learning. As stated in the previous chapter, the data analysis involved a two-stage procedure based on inductive and deductive analyses. The deductive analysis resulted in clear patterns emerging from the data. The ways in which the assessment process could be used to enhance learning became evident from these emergent patterns. Key ways that students perceived that learning was promoted coalesced into the following processes:

- the development of self-directed learning using assessment strategies which entailed a high degree of a student's responsibility for, and autonomy in, his or her learning;
- establishing relevance of the content of a subject and the assessment process to students' goals and needs;
- the integration of activities which involve active purposeful learning into the assessment and learning process; and
• the integration of the assessment process into the overall instructional design of a subject.

In this section, students’ perceptions about the ways assessment strategies enhanced their learning are discussed. This discussion is followed by an exploration of factors which students perceived had inhibited their learning. The outcomes of this discussion are synthesised in a brief summary at the end of the section.

One of the goals of higher education is to produce graduates who have the attributes necessary for lifelong learning. Programs which provide freedom of choice and involve students in accepting responsibility for their learning lead to the enhancement of these attributes (Candy et al., 1994). The development of self-directed learning using assessment strategies which entailed a high degree of student responsibility for, and autonomy in, his or her learning was the first of the four key ways that emerged from the interviews as being related to enhancement of learning. The following extract, in which Student 6 related her experiences of a subject in which students could research any topic of their choice that had relevance to the subject they were completing, is representative of responses made by a number of students. Responsibility, ownership of learning, collaborative learning, the linking of theory with practical components, and a high level of intrinsic motivation were all evident. The three components of the expectancy-value model of motivation which include beliefs about one’s ability to perform a task, about the importance and value of a task, and the individual’s emotional reaction to the task (Pintrich, 1994) were satisfied by her assignments. Once again this is a final year subject. Her final comment is particularly telling.

The assessment task for that was an essay. The essay was on harm minimisation, how you apply that into a school setting, and how you teach that. The second (assignment) was researching resources available to assist you in teaching drug and alcohol education to your students. . . . And the last assessment task was just presenting; a presentation.
. . . What did you think about those assessments? What were your general feelings about them? I thought they were good because they involved you in researching in the wider community.

. . . It was more interesting, therefore I learnt more from it because it was not just a matter of getting books and writing the essay from them. It involved me actually getting up and going out, interviewing - that sort of research. Therefore, I was not only asking questions and finding out information in relation to that assignment - I was also asking things that were of interest to me that probably had nothing to do with the assignment. So as I got into the three assessments, I found I was finding out more important facts along the way.

. . . I was learning more than what I was supposed to be doing. (Student 6)

This student’s motivation to go beyond the limits of the assessment task is not surprising when one considers that positive motivational goals are positively related to greater cognitive engagement (Pintrich & Schrauben, 1992). Many students, however, found the process of having to make a choice - in other words, taking responsibility for their learning - to be a difficult task.

So how did you feel about having a choice for this one? (Laughing) I didn’t actually like it. I’d rather have been told (what to do).

Why was that? Well, this whole semester - like in my maths subjects, we’ve had to choose what we want to do . Like we had to do a research thing, and we had to choose it (what to do), and it was really - I’d rather be told what to do, it was really difficult to try to think of something. (Student 23)

Nevertheless, it was generally agreed that even though having to make decisions about the direction of one’s learning could be difficult, these decisions did lead to a greater commitment to the assessment task and usually resulted in higher levels of motivation and better learning outcomes in terms of
individual students' needs. Student 23 went on to talk about the benefits of being able to choose a topic to research as opposed to completing an assignment decided on by the teacher.

I did a research thing on the use of calculators in schools and I was really interested in that because I think they use them too much. And so I really got into that because that was something that I wanted to do. Whereas other ones that you have to do you just do the minimum requirement sort of thing. (Student 23)

Student 19 experienced feeling similar to those of Student 23. Initially, she did not like having to decide on a topic and how she would carry out her research but, once she became involved in her research project, she appreciated the opportunities for self-directed learning that it provided her.

At the beginning when we had to actually choose something I was thinking, "Why couldn’t they actually give us something?". Because it’s a lot easier to go out and find something if there’s an idea . . . I’m glad they didn’t now because a lot of people had different ideas of what they wanted to do - and I don’t think (the teachers) would have included what I wanted to do . . . And I think when you’ve got a personal interest you . . . write better and you learn more. (Student 19)

Some students, however, found that even though their final year assessment required them to take more responsibility for their learning, there was little support given for the development of self-monitoring skills in the initial stages of their course.

. . . you know, in First Year there just seems to be such a big drop-out rate - so maybe the lecturers are so pushed, so busy, that they waited to Second Year and “These are the people who are really interested” and “These are the people who want to make this a career” - so now we’ll put in the extra work, we’ll give them the feedback . . . . And even more so in Third Year - even more feedback, people spending more time with you, the assessment tasks seemed to be - well, they were harder but they were more interesting. At the end of the assessment, because you seemed to have to go more in-depth in your
learning, you seemed to get more out of them . . . You could choose (in some subjects) what you wanted to do, you could choose your areas so it was something that you thought was important or you wanted to find out about something in particular, so you came out knowing that area well. (Student 31)

Students appreciated the value of in-depth assessment and were quick to point out the limitations of assessment that they viewed as being less than challenging.

. . . some of the exam material, some of it only, like give a definition, I mean when you get out in the workforce, you’ll have a bookshelf of books . . . you don’t really need to use all your brains to memorise a definition. . . . You need to develop your thinking, even in an exam you have to think. (Student 16)

Motivation research suggests that when students believe a task to be interesting and relevant to their needs, they will use more cognitive strategies in their learning, be more reflective and are more likely to persist at the task (Fincham & Cain, 1986; Pintrich & De Groot, 1990) (see Section 3 in Chapter 2). Establishing the relevance of the content of a subject and the assessment process to students’ goals and needs was the second process that emerged from the data as a key way of enhancing learning. Reported below is what Student 8 and Student 32, students from different faculties, had to say in relation to appreciating relevance in their learning. Student 8 cited the professionally oriented subjects within his undergraduate program as instances in which he had experienced valuable learning.

The reason that it’s been good is that we’ve looked at the syllabus and then ways to teach it, so you can see that it’s applied to what you’re physically going to be doing in the classroom. (Student 8)

One of the clearest outcomes from analysis of data related to establishing the relevance of curriculum to students’ needs was that the act of establishing
relevance, in many instances, focused on achieving quality learning outcomes. Student 32 spoke of a subject in which she could relate theory to actual situations that she might encounter in the workplace. The dynamic interactions among components of the learning process, the learning context and the assessment process are evident.

We did a management subject in Third Year and it was very well run. I learnt a lot from it and I know that a lot of my friends did too. We had to solve problems that were based on what might happen in real situations. It was a subject that made me think but it also gave me answers - as a group we were able to discuss situations and suggest solutions.

... What appealed to you about this way of learning? The theories that we learnt, we could see how they could be used to solve problems. The link was made between the knowledge that we gained from lectures and how they could be used in management situations. The tutorials were where this link was made - we were expected to be involved - there was a lot of discussion in the tutes and the tutor tended to leave it with us. He stepped in where necessary. (Student 32)

Reference was also made to the relevance of different assessment tasks in achieving a range of learning outcomes. While the content of a subject is more often than not the focus of assessment, the following student highlighted the learning that can occur through the processes of collaborative learning where jobrelated skills and generic communication skills are learned.

I think the main aim of groups is to teach you team management and tolerance of other people. (Student 40)

Several other students spoke about the need to have skills that ranged beyond those that were content specific if they were to be successful in their chosen profession. Student 29 reflected on the value of presenting findings from projects to a group of people that included peers, academics and people with little or no knowledge of the topic. He saw the relevance of completing a
project and presenting it to a ‘mixed’ audience in terms of product and process. What he had learned through his research he found valuable in terms of specific technical knowledge. What he had learned through the process of giving a presentation about his project he perceived to be relevant and useful in terms of developing communication skills necessary for his career.

Though relevant, situated assessment was valued by students, it was acknowledged that situating assessment in near real-life settings can impose a great amount of pressure on students. One well documented area where an authentic form of assessment has been recognised as causing stress to students and teachers is the use of Objective Structured Clinical Examinations (OSCEs). This type of assessment is used extensively in nursing and medical education. OSCEs involve a circuit of assessment tasks which are generally authentic in nature. For example, an OSCE might include carrying out a patient interview, the “patient” is an actor trained in his or her responses, identification of nursing intervention (eg, dressing needs to be changed/a drip needs to be set up), applying the dressing and demonstrating the correct procedure for inserting a drip, and a short answer examination. While, in theory, this type of assessment appears to meet all the criteria necessary for it to be seen as encouraging learning, in practice the process is fraught with tension and anxiety for most students. Borbasi (1991), while finding many arguments supporting the use of OSCEs under certain conditions, also cited research findings which pointed to negative aspects including the stressful nature of this form of assessment for both assessors and students and the fact that assessors are hesitant about giving negative feedback. While several of the nursing students referred to the OSCEs, in both positive and negative terms, the stressful nature of this form of authentic assessment is captured in the comments of Student 18 who found these circuits “very stressful”. When asked what made it so stressful, she replied,

Well, the first thing that they did when we went in was put a timer on - so there was this thing going "Tick, tick . . . ". Very loud, it was. And there was one person just
standing there looking at everything you did, just standing there watching, and my hands began to shake. (Student 18)

In response to Question 1,

Think of one subject from your undergraduate degree where you found yourself learning something valuable and learning it well. What were the features of this subject that contributed to this learning?

twelve students cited the involvement in meaningful learning activities in tutorials or other small class settings as important in enhancing learning (see summary of responses to Question 1 in Appendix 9). The value of integration of activities which involve active purposeful learning into the assessment and learning process, the third of the four processes students perceived as enhancing learning, was further corroborated by responses to questions at other stages of the interviews. Students found that involvement in class discussion and practical activities where they worked collaboratively with other students and their teachers had enriched their learning. Many students found that theory needed to be linked to practical activities if it was to have full meaning. For example, Student 16 contended

If there's no practical session involved, (then) the theory that's brought out (in the lectures) just vanishes into thin air.

In an integrated approach, not only are students able to see the practical dimensions of theory but the implementation of this type of approach directly affects the way students go about their learning.

I thought the way we had the tutes (helped me to learn) - we had a hypothetical situation that we had to deal with and we were asked how we would deal with it...
So each week you had a different situation to discuss? Yeah. And we were asked individually which I thought helped because we were put on the spot - we had to answer - you couldn’t just sit back and let everyone else do it . . . I sort of found that really helped me because I would have to think about what I would do in each situation. (Student 18)

In between tutorial sessions this student would do background reading on the topic because she realised that,

I might be asked about this so I’d better read up on it. (Student 18)

Many students recognised that integrating assessment tasks into the overall instructional design of a subject had many advantages. These included linking theoretical and practical elements of a subject, creating a balance between process and product dimensions of skills and knowledge, and involving students in continuous learning throughout the duration of a subject rather than confining learning to end of semester cramming for examinations or completion of assignments. This integration of assessment into the overall instructional design facilitates the development of a scholarly environment through a holistic approach to learning in which the teaching process, the learning process and the assessment process blend together to maximise learning outcomes. For example, Student 37 spoke of her experience of learning in one subject.

One subject that comes to mind is one that I did in First Year, in the very first semester. I really hadn’t wanted to do nursing - I came to nursing because I couldn’t get into anything else - and in that first semester there was a subject run by one of the lecturers who I thought was just fantastic.

. . . And she just ran the subject in such a way that it challenged us . . . she’d have mini debates and she’d have us in groups and we’d go through prepared questions and then we’d put the pros and cons, and there was always something different happening . . . we seemed to be learning all the time but it was very much supported . . . After doing that
subject I thought, “Yes, I do want to be a nurse. I’m enjoying this course.” And I think she was the person who made the difference.

The environment that this teacher created was one in which students were supported through a well integrated curriculum design and through a supportive and yet challenging environment - one in which fear of failure had been taken away.

She just seemed to focus on making it comfortable for us to be there but also pushing us to learn. And the assessment and everything was directed towards that. It wasn’t very separate - like, here are your tutes, and here are your lectures, and here’s your assessment - everything was interwoven . . . Everything just seemed to flow. (Student 37)

Student 30 discussed how links between theory and practice, assessment and learning, were made in one subject.

. . . in the lectures they covered the topic and then when we had labs - they let us practise, they went over it again. And then when we went to clinical we could put it into practice. . . . Sometimes in labs you think that what you are learning is not worth being there but then when you go to the hospitals (for clinical) you see how important (it is) in your career that you should have that basic knowledge. (Student 30)

The approaches described in this section, especially those described by Students 30 and 37, comply with Ramsden’s (1992, p. 210) first rule for improving assessment in higher education.

Link assessment to learning: focus first on learning, second on encouraging effort, and third on grading; assess during the experience of learning as well as at the end of it; set tasks that mimic realistic problems whenever possible; reward integration and application.
A common element in each of these four ways of enhancing learning that emerged from the interviews was that students were the focus of the curriculum design and the instructional design. It would appear that one of the key requirements in any attempt to promote and enhance student learning would be to move from having content as the focus of course and subject design to a focus on student learning outcomes. When learning outcomes have been identified then curriculum and instruction will inevitably need to be integrated into a learning plan which, if the goals of higher education are to be met, would involve the development of personal and professional knowledge and skills in a framework which would move students from a supported teacher-directed approach to learning to a supported self-directed approach.

Four factors were perceived by students to result in less than effective learning or to inhibit learning. These factors were associated with poorly designed assessment: an overloaded curriculum; assessment tasks which indicated that a superficial approach was all that was required; lack of freedom in the assessment process (eg, lack of choice); and concentration on one subject, because of a heavy assessment load, to the detriment of other subjects. As assessment tasks are used by students to define the curriculum (Boud, 1990; Elton & Laurillard, 1979; Jones, 1996), deficiencies in assessment design can impact significantly on learning outcomes and students' motivation.

Overloaded curricula were perceived by many students interviewed as a major factor inhibiting learning. Content overload was evident in two forms: firstly, it occurred in individual subjects where students were expected to master a vast range of content; and secondly, it occurred across subjects where students found themselves completing numerous pieces of assessment.

Student 11 found that as a result of the excessive workload (assessment load) in the course he was undertaking he could not complete the assignments to the best of his ability or as he would ideally have liked. In the following extract, Student 11 recounted his initial reactions to assessment and learning at
university and goes on to discuss the impact that a course heavy on content has on his learning.

*My biggest problem is time. Not enough time to do the work I would like to do.*

*Why don't you have enough time? . . . our course is very, very heavy. The work load is intense and if you're not prepared to do the work, you won't survive. There's no chance that you will survive. You have to be dedicated and committed to what you're doing and, if you're not, you won't make it.* *(Student 11)*

Several of the interviewees who were completing the same undergraduate program as Student 11 spoke about the heavy workload. Student 12 who was interviewed in Week 13 of her sixth semester of undergraduate study said this.

*This semester I am beginning to feel the same stress that I felt in Year 12. We have so many assignments to do. Every week for the last few weeks we've had three or more assignments to hand in and I'm finding it hard to keep up with the work load.*

Student 9 also referred to this subject.

*There is one subject that I'm doing now that has two lecturers . . . They are taking half the course each so it is like two subjects in one, with two lots of assessment, but at the end we get only one grade for the subject. There is just a lot of content, a lot of material to cover and, as a result, we have quite a lot of assessment. We have to do a group presentation. . . . and we have two essays - they're both two to three thousand words (each) - and three exams . . . just little class exams.* *(Student 9)*

The fact that this large amount of assessment had led to a surface approach by students and, at least in the case of the class tests that Student 9 went on to discuss, an expectation on the part of the teachers of a superficial learning of facts is confirmed in the following statement. The student has just been asked if she felt that the subject had a lot of assessment.
I do feel it's overloading but if you really think about it, the exams - you only have to study for them the night before - they're only worth five per cent each. ... Every three weeks we do one ...

They are tests (based) on the lecture material? Yes. I think that's just so we turn up at lectures. (Student 9)

Assessment used to coerce students into learning may be successful in instigating learning but research has shown that this form of learning may occur at the expense of intrinsic motivation (Covington, 1984; Nisan, 1981; Smith, 1988).

While other limitations of the assessment process were cited as inhibiting learning, the comments of Student 13 condense into concise terms what many students had to say about various assessment procedures - a single well designed, challenging assessment may be more effective in promoting deep learning than a number of tasks which fail to challenge the student and result in superficial, poorly considered responses.

If you're in uni for the right reasons, to learn what you've come to learn, I think maybe one big assignment (is better) ... than all these little ones. (Student 13)

Lack of freedom in the assessment process was mentioned specifically by three students as being perceived to have inhibited their learning. One of these students had this to say.

Do you think you learn a lot from being involved in giving a presentation? No. Because you're not doing it because you want to do it. You don't have any choice, you have to do it. You're not allowed free choice in the area you pick, you've only got say four choices and there might be four groups. And then any one of them might not be your choice and I don't find it a real learning feat. (Student 13)
In comparison, four students spoke specifically about the benefits they derived from having a degree of choice and freedom in their subjects. In relation to one subject in her final year where students had to make decisions about a topic for an in-depth study, Student 24 found that making the decision was "very difficult" but that it had meant that students were thinking about this subject and their area of research well in advance

*Like some people were even thinking about it last year because we knew it was coming up. (Student 24)*

Speaking about the same subject, Student 31 commented on the fact that it was only in the third year of the program that students were given the freedom to make decisions about the direction of their learning.

*Concentration on one subject, because of a heavy assessment load, to the detriment of other subjects* emerged from the data as one way that a poorly integrated assessment program could impact on students' overall learning. Student 6 spoke about a subject which occupied most of her time during one semester of her course. The subject was a mastery learning subject in which students had to achieve 17 out of 20 in each unit before they could progress to the next unit. Three students spoke about this subject and while they conceded they had learnt a lot from it they also stated that the subject was demanding, there was little teaching support, and no consideration for students' varying experience levels. When questioned about what she had gained from the subject, Student 6 responded,

*I gained a great deal from it. It made me learn, that 17 (marks) out of 20 pass. It made me put all the more effort in. If it was just 10 out of 20, you know, you just do enough to pass.*
When questioned about the amount of work required to gain mastery Student 6 alluded to the imbalance in her efforts for this subject in comparison to study for the other subjects she was completing.

... the majority of my time was spent on that subject. But, well that's the way it goes.

(Student 6)

Section One summary

Findings reported in this section indicated that students, generally, favoured assessment strategies that were relevant to their needs and that involved opportunities for autonomous, in-depth learning. Students needed support in gaining skills so that they could direct their own learning with confidence and competence. It appeared from the data that a range of support mechanisms were in place. Some had been well designed and were often integrated into the overall curriculum. Other less than satisfactory support mechanisms suggest that students might be expected to gain the skills required for autonomous learning through the act of having completed two years of undergraduate study rather than through a carefully planned system of strategies. While most students valued the outcomes of being given choices in their learning and opportunities to engage in independent research, teachers need to be aware that these positive responses were often not spontaneous. Many students said that they initially did not appreciate having to make decisions about their work and, in some cases, regarded this as an imposition. Only after having become engaged in their self-directed learning did they begin to perceive its positive features. As one discovers, when a question has to be formulated or an approach created, this act of creation more often than not requires more thought and energy than the answering of the question. For students, the energy expended on formulating the question and negotiating the process may ensure commitment to achieving a quality product rather than one that has been hastily thrown together "to get a decent mark".
Finally, one factor that was identified repeatedly as inhibiting deep learning and intrinsic motivation was overloaded curriculum. Overloaded curriculum pushed students into approaches to learning and assessment that were often clearly instrumental in nature and which resulted, in many students' minds, in poor quality learning and gaps in their understanding.

Section Two: Feedback and learning outcomes

Feedback, an integral part of the assessment process, emerged from the data as a key aspect of student learning. In the current climate of cutbacks to higher education (with the resultant increase in class sizes and cutbacks to both human and physical resources), the provision of appropriate feedback can be problematic. At the same time, constructive, timely feedback is necessary if students' learning is to be supported and enhanced. This type of feedback not only provides students with the skills and opportunities to become self-directed but impacts forcefully on their motivation and their locus of control.

Not all students interviewed had strong feelings about feedback. Many had little to say about this aspect of learning while others saw the interviews as an opportunity to have their say about an issue close to their hearts, one that they had obviously thought about and, perhaps, discussed with other students. The data fall into two categories: the provision of ongoing feedback; and the provision of personally oriented feedback.

Ongoing feedback is defined in this study as feedback provided to students throughout the semester. This type of feedback is often related to progress on long-term projects, is made available following a series of assessment tasks that build on each other or is integrated into the overall curriculum. One of the more obvious uses of this type of feedback is to provide students with feedback about progress on long-term projects.
You could choose your own (topic) and do an abstract . . . And you got marked for that abstract . . . We did a proposal and handed that in to get marked. And then we did a draft of what we had researched, which was around fifty articles. (Student 21)

Other students spoke about ongoing feedback following assessment tasks that build on each other.

Like, for the subjects that have weekly tutorial things that you have to hand in, as difficult as that is, it's actually quite good because you're keeping up with it, you're forced to keep up with it and you seem to get a lot more out of those subjects. . . . You seemed to have it (the subject) in mind on a regular basis as opposed to those subjects where you have to hand something in at the end - where you're cramming for a week or two days before even. (Student 25)

This next student commented on an assessment program which consisted of two tests, each worth 15 per cent of the final mark, that were held in Weeks 7 and 12 of semester. The final exam that is referred to was held in Week 16.

They were good because it forced you to learn as you went along and sometimes I find it hard to do this. I tend to leave my study till just before the exam. They were also good because it gave us an indication of the type of questions that would be in the final exam and the way the lecturer liked to word his questions. It allowed us to see what he expected and sometimes it can be hard to know exactly what is expected of you. (Student 26)

While ongoing feedback can be of great benefit to the learner, Student 26's comments sound a warning bell. Professional discretion needs to be exercised in giving feedback. The nature of the feedback, its frequency and its purpose need to be considered. For example, when is feedback assisting students to make their own judgements about their learning rather than encouraging them to become reliant on their teachers' judgements and guidance? The following extract points to such dangers and the fine line that often exists between catering for dependence and supporting independence.
You had to do a reading each week and write a summary of this? Yes. To talk about in our tutorials. The reading backs up the lecture and then our tutorials follow that . . . That reinforces and goes back over some of the material presented in the lecture. . . Each week we have to hand in a sheet with summarised points and a few questions that we want to discuss in the tutorial and what we want to clarify - things we don't understand.

. . . (It) just (gives) us a chance to talk about it . . . to check that you're thinking along the right lines. (Student 8)

Feedback that is ongoing or integrated can be beneficial to many students. However for others, as in the case of Student 8, it provides a "template" for success. Student 8 stated that he had gone to all lectures and tutorials in this subject as he needed the support and direction they provided - in his words, they allowed him to check that he was "thinking along the right lines" - an approach very much in keeping with the surface, reproducing approach described by Marton and Saljo (1976).

While all feedback has a personal dimension (even a mark with no comments is the result of a judgement made by one person on another person's work), personally oriented feedback refers to feedback which had a strong element of personal intervention. This category highlights the fact that feedback is often gained from other students as well as the teacher. Indeed, the two-way dimension of feedback is a feature of this category - teacher to student, student to teacher, student to student, and so on. Seven categories of personally oriented feedback were delineated from the data: detailed written comments on marked assignments; individual meetings with university teachers; comparison of performance with peers; combined teacher/peer feedback; a two-way sharing of feedback from teacher to student and vice versa; discussions in tutorials/ laboratory sessions; and using the University Learning Assistance Centre.
It became evident from the data, however, that adequate feedback was not always provided to students. Students spoke of receiving no feedback or very limited feedback. Not getting feedback in time to inform later learning was a problem cited by students as was the perception that feedback was, at times, less than adequate because of a lack of detail. Others were concerned about not receiving feedback about examinations or receiving conflicting feedback because of different expectations among teachers. This lack of adequate feedback impacts forcefully on student learning. It hinders development of the ability to monitor the quality of one’s work, can lead to feelings of frustration at not being able to learn from one’s mistakes and to feelings of inadequacy, and, where ongoing, can impact on students’ expectations of future success. Lack of adequate and/or appropriate feedback has been shown to discourage effort attributions and diminishes students’ ability to control their learning. These capacities for self-regulation and self-reflection were shown by Bandura (1986) to be critical factors in the learning process.

As discussed in Chapter 5, a student’s ability to effectively use feedback in monitoring future learning and becoming self-directed is vital if quality learning outcomes are to be achieved. As learning outcomes are so closely linked to the assessment process in higher education, the ability to monitor the quality of one’s work can be seen as playing a significant role in the development of self-directed learning skills and lifelong learning attributes.

The role of feedback was recognised by many students as a key element in the development of their self-monitoring ability. Students interviewed cited friends, peers, teachers and staff from learning assistance centres within the university as sources of feedback and were, in the main, aware of the developmental and contextual nature of self-monitoring. Learning to manage their time effectively and becoming aware of the power of the hidden curriculum were other steps that students spoke about in becoming better able
to monitor their learning. The main source of data relating to students' development of self-monitoring skills was responses to the questions:

8. Has your approach to learning and to assessment changed from when you first started university? If "yes", in what way?

and

9. When people sit for an exam or hand in an assessment, they usually have some idea of the mark they will get. In your experience, what sorts of things do you have to do at university to earn a good mark? Why do people get poor marks?

Findings related to the development of self-monitoring skills included responding to teachers' high expectations, learning from friends (not necessarily peers in the same program), learning to manage time, working with peers from the same program, using university learning assistance units, and learning to recognise, and respond to, the hidden curriculum. While many students discussed the importance of recognising and responding to aspects of the hidden or implicit curriculum, Student 8 perceived it to be the most important factor in doing well at university.

What sort of things do you have to do to do well at university? Sometimes, answer the question according to the way your lecturer perceives it, I mean by that, their personal view. I don't think that's right but I think it happens. (Teachers) have their own agendas and sometimes you have to structure your answers to suit their views. You pick it up from a few (lecturers) and you think, "Well to get a decent mark I need to pursue that a little bit". (Student 8)

Other students spoke about using the hidden curriculum to minimise their efforts.
Sometimes you can get there without doing a whole lot of work. In some subjects it's finding out exactly what the lecturers are interested in - sometimes (lecturers) put that through really strongly in their lectures. So if you go to lectures and feel that coming through then you think, "Aha, that's what I've got to concentrate on in these assignments to get good marks". And I've found that to be right for me. *(Student 31)*

It was evident from the data that well designed assessment tasks encouraged students to develop self-monitoring skills. Ways assessment tasks were used to encourage students to develop self-monitoring skills included provision of peer, self and teacher evaluations for assessment tasks, feedback about peer's performances and ways of carrying out assessment tasks, the use of diaries in conjunction with assessment tasks, personal contracts and interviews with teachers, and self-assessment built into teaching program. Student 24 spoke enthusiastically about how one teacher encouraged students to use self-assessment as a form of learning.

... *the lecturer was very good. He did a lot of explaining.* ... *He made it easy to learn because he gave you good examples and at the beginning of each lecture he would give you some multiple choice questions so that you could go back over what you learnt last week to answer.*

*He gave you those in the lecture? Yes. He wouldn't mark them, you had to do that. It was up to you. It was really self-examining. And it was very good - I got a lot out of that.* *(Student 24).*

The development of self-monitoring skills is dependent upon a complex of factors some of which are within the control of the student (eg, learning from friends and working with peers) while others are dependent on feedback received from teachers. A key component of this skill is the way in which students are able to identify and respond to the hidden curriculum or, in Miller and Parlett’s *(1974, p. 52)* words, to be cue-seekers who "deliberately interacted with the system" so as to identify cues sent out by the university staff. Perhaps because the students interviewed had almost completed either three or four
years of university study, there appeared to be less evidence of cue-deaf students. What was evident, however, was that some students were using cues not only to direct their learning, but also to minimise their efforts. As already demonstrated, this and other aspects of the assessment process can mitigate against students developing the ability to monitor the quality of their learning. Factors derived from the data that mitigated against students developing self-monitoring skills included:

- content overload
- limited or inadequate feedback about work-in-progress
- students not understanding work and so not able to self-monitor
- lack of information about assessment requirements and marking criteria
- lack of clarity of information provided about assessment requirements
- reluctance to approach teachers
- non-return of examination papers.

Because of the reliance on well designed curricula and on feedback to enable students to change the gap between their actual learning outcome and the reference level required and so become self-monitoring, a number of factors identified in the discussion of poorly designed assessment procedures and provision of inadequate feedback overlap with factors identified as mitigating against students developing self-monitoring skills.

In courses/subjects where objectives are centred on content rather than learning outcomes, the assessment may, according to Willis (1993), reinforce students’ atomistic view of knowledge rather than promoting an integration of knowledge so as to achieve understanding.

*I think that the subjects were an essential part of the course but I didn’t feel that I learnt much from them.*
Why not? Because there was just too much work crammed in to one semester. And there really wasn't time to properly comprehend each part of the subject. . . . my concern was just to get through it; not actually understand it thoroughly and see for myself how I can relate it to practical things.

. . . The ultimate aim really is just to pass the exam. Yes, that's how I felt. (Student 26).

Student 3 found that, in subjects where content was overwhelming, "absorption time for material . . . was grossly inadequate".

Another cause for concern for students was when they received limited or inadequate feedback about work in progress. Student 31 spoke about a subject where this had occurred.

. . . What we had to do was a workbook that was worth 30 per cent and an exam, multiple choice and short answers too, and that was worth 70 per cent. But the exam was based on what we had done in our book - the whole thing was based on the information from the lectures and the workbook in our tutes. . . . It was quite an involved subject but what really disturbed us was that we were given our workbooks (and) we were told "You'll be working through these twenty questions in your tute". And when we got to our tute, you know it was, "OK, start working" - but we hadn't had any input, no-one had told us anything, so we - we hadn't had our lecture.

. . . Well, I just didn't do very well at all for the first couple of weeks. . . . And then a friend managed to get a workbook from a girl that she knew from the previous year so we copied a lot out of that book. And I know that that was cheating but we felt that this is 30 per cent and we can't do it otherwise - there were too many people, everyone was on the lecturer's back and the tutor's back, it was just a disaster.

. . . I mean the lecturer expressed, you know, that she was concerned and things weren't going terribly well and so on but nothing was ever done and, from what I could make out, that subject had run that way for at least three years (Student 31).
Another student who did this subject corroborated what Student 31 had to say:

_We had this Prac book (that) we had to fill in. ... And we didn’t have a clue. I mean we had a textbook but we only had an hour tute and there were twenty odd questions and they were very detailed (Student 18)._

In this subject the tutor’s role was to assist the students in working through the workbook each week. However, the tutor’s ability to effectively do this was mitigated by the time limits and the demands of the students.

... _And did (the tutor) answer questions if you asked him? Yeah, he was supposed to be available, but everyone seemed to need him. Like you put your hand up if you had trouble and like everybody spent most of the hour with their hand up waiting for him to finish with one person and then come to the next._

... _And how did you learn for the exam?) ... it was more memory than actual understanding ... I thought, “This isn’t good, I don’t understand what I’m doing but it’s the right answer and that’s all that matters”. And I didn’t feel good about that at all - I like to know what I’m doing and why I’m doing it. (Student 18)._

Students had no doubts that not understanding the content of a subject made it almost impossible to be able to judge the quality of their work.

_I found those subjects hard, and a lot of the time it was, “Well, hope I just get through it and pass it”. I mean you didn’t have an idea of how you’d go because ... you haven’t fully understood the work well. (Student 8)_

Non-return of examination papers was an issue of concern for a number of students who wished to have input about their actual performance. It appeared to be particularly pertinent where the material examined would be used again or become the basis for a subject later in a course. In the following case, Student 20 highlights the fact that not only are examinations not returned
but, in many universities, a grade only (rather than a mark and a grade) is the only feedback a student receives.

... I've actually gone into a test and thought well I've gone really well in my workbook and thinking that I should go well and at least get a Credit and I got a Pass Conceded ... I couldn't believe it. You never get your marks back - you do the test at the end and then you get your results in the mail - but never a mark. (Student 20)

It can be argued, however, that feedback is not necessary from a final examination if good formative assessment tasks are used throughout the semester and form the basis for the final exam. Feletti (1997) argued that this approach is appropriate in times of cutback to higher education staffing. One form of feedback from end of semester examinations that circumvents return of exam papers is the provision of model answers to the questions posed in the exam (Feletti, 1997).

Section Two summary

In his keynote address to the Hong Kong Educational Research Association, Shavelson (1996, p. 5) stated that:

When there is a mismatch between curriculum and instruction on the one hand, and assessment on the other, good feedback to students and teachers is absent ... For education reform to succeed, curriculum and assessment must be aligned, and by aligning them all can be improved.

Regular, timely, useful feedback has been identified as one of three prime ways to improve learning in higher education (Study Group on the Conditions of Excellence in American Higher Education, 1984). In subjects where feedback has been inadequate to the needs of the students, it can be assumed that teachers either regard assessment in terms of summative purposes only or have chosen not to fulfil their professional duty by providing feedback on work
completed by students. However, while feedback is necessary for learning, caution needs to be taken that students are encouraged to show initiative in using feedback to make judgements about their learning rather than using it in a non-reflective, almost "reproducing", way. In essence, ongoing feedback and feedback that has a strong personal orientation have the capacity to create and sustain a climate in which learning is nurtured and in which students are encouraged to extend their learning efforts. These types of feedback also have the potential, however, to be used as a crutch by students to support their learning to the extent that skills of self-direction are never fully developed (Entwistle & Entwistle, 1991; Sadler, 1989).

The design of the assessment program is vital to the development of self-monitoring skills. Five of the seven factors discussed in this section (content overload, limited or inadequate feedback about work-in-progress, lack of information about assessment requirements and marking criteria, lack of clarity in information provided about assessment requirements, and non-return of examination papers) relate to aspects of the assessment process which, if managed more effectively could result in more positive outcomes. Both Ramsden (1992) and Crooks (1988) argued that assessment should be planned in conjunction with subject objectives. In this way teachers are better able to explain the requirements of the subject to their students. The provision of clear objectives encourages more effort attributions and, according to Nicholls (1984), supports a motivational orientation that is focused on task goals rather than rewards extrinsic to the task.

Section Three:
Shaping students' motivation to learning

Strong motivational goals would appear to be crucial to effective learning. Four general motivational constructs - goals, values, self-efficacy and control beliefs - are viewed as potential mediators in the process of conceptual change related to student learning (Pintrich, Marx & Boyle, 1993). In light of research
findings, creating conditions, through a challenging integrated curriculum, that encourage intrinsic goal orientation would be synonymous with providing opportunities for students to engage in learning that would lead to understanding and transformation of knowledge and to the development of a conception of learning that recognised that knowledge is constructed by the individual and transformed through understanding.

Discussion in this section centres around three factors related to student motivation: the intention to learn; the teaching-learning context; and the first year of undergraduate study. Each of these factors will be discussed in turn. A summary at the end of this third section of the chapter will isolate the key findings and address the implications of these findings.

Many of the students interviewed acknowledged the desirable outcomes of being highly motivated. In response to the question, What is the key to ‘real’ learning?, 13 students cited being interested and wanting to learn as the key to “real” learning (see Table 6.1 below).

Table 6.1 Factors Cited as being the Key to ‘Real’ Learning

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<td>Interest/motivation ...</td>
<td>13</td>
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<tr>
<td>Understanding ...</td>
<td>11</td>
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<tr>
<td>Balance of theory and practice ...</td>
<td>9</td>
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<tr>
<td>Practical experiences ...</td>
<td>7</td>
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<tr>
<td>Lecturer is enthusiastic and makes the subject interesting...</td>
<td>4</td>
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<td>Relevance ...</td>
<td>4</td>
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<td>Interacting with others ...</td>
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<tr>
<td>Liking what you are doing ...</td>
<td>3</td>
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<tr>
<td>Being able to reflect on what you are doing ...</td>
<td>2</td>
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<td>Being in a supportive environment ...</td>
<td>1</td>
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<td>The feedback you receive ...</td>
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<td>Absorbing material until it becomes a part of you ...</td>
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<tr>
<td>Doing something that will give you a sense of achievement ...</td>
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<tr>
<td>Putting in the effort ...</td>
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<tr>
<td>The ability to store and retrieve information ...</td>
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The intention to learn

A student’s intention to learn is a crucial factor in the learning outcomes achieved. As illustrated in the conceptual framework, each student enters the learning context with intentions in place. These intentions are mediated by the student’s interaction with the assessment process, the teaching process and the learning process. If positive intentions are to be fostered, then positive motivational factors need to be encouraged. These positive motivational factors relate most closely to the development of intrinsic motivation with the goal of involving students in learning that is challenging, interesting and fulfilling. The assessment process is a vital component in the fostering of intrinsic motivation: if the assessment process is seen as rewarding and providing satisfaction and fulfilment to the student, the likelihood of subsequent quality learning outcomes is increased.

Data from the interviews revealed that students have many different motivations for learning. In broad terms, these motivations were either intrinsic or extrinsic in nature.

Motivation *intrinsic* to the task of learning included:

- learning for the sake of learning;
- learning for understanding;
- interest in what was being learnt;
- wanting to establish a solid foundation for a career;
- needing to achieve personal goals; and
- needing to prove that “I could do it”.

Motivation *extrinsic* to the task of learning included:

- wanting to please one’s family;
• being seen as successful (as opposed to being a “failing” student);
• keeping up with peers.

Many students, however, were ambivalent about their motivations and goals. Many students - those who might be thought of as the “average” students - derived their motivation from a range of contextual sources which mirror those factors that students identified as enhancing their learning. For example, students found particular subjects grabbed their attention and, as a result of this interest, they were motivated to learn. One example of this was provided by Student 4. This student’s motivation could best be described as “running hot or cold” depending on the contextual factors inherent in the various subjects she had completed. Student 4 started her course with mixed feelings about whether it was what she wanted to do and her attitude to learning and to study reflected this.

*I used to leave everything till the last minute when I first started. Do the assignment due on Monday on the weekend. The night before, study for exam. Cram.*

Now in her final year and committed to her career choice, this student’s attitude to learning had changed.

...well, I get organised earlier. I go through my workload and draw up a calendar... and I think this year every assignment’s been completed a week before it’s been due. And I’ve started studying a week before my exams. *(Student 4)*

This student, like many others, was greatly affected by the way a subject was run and the relevance of the subject to her perceived professional needs. Speaking about two subjects both of which had been considered by other students as necessary for competency in their chosen profession, Student 4 differentiated between the two in terms of perceived relevance and practical application. Speaking of the first subject, she said:
I think (I learnt a lot) because I found it interesting. It seemed relevant to my course - extremely relevant. And I had an extremely good tutor who would not only ask questions but when we answered the questions she would say, "Well, why? Why does that happen?" ... And she also worked in the clinical field, as well as taught, which was really good because she knew current things, she was up to date.

Of the second subject she said this:

... (it) didn’t seem very relevant to nursing at all. Had no real practical application - you know, where I can’t see myself actually using that when I go out in the field.

However, when questioned further, the deciding factors which determined why she considered the first subject as being one in which she had learnt a lot and the second as being one where she felt she gained little, centred not only on their professional relevance but also on the way the subjects were taught. In the first subject the teacher "was up to date" and "inspiring". She went on to say this, "Everybody really liked her. We'd heard really scary things about her and then we all thought she was great". In the subject where she felt she had learnt little, the cause for her lack of interest and motivation was eventually explained in terms of the way the course was run.

Very boring. Very vague (subject) outlines too. At the moment we're having a bit of a dispute over an assignment because on the subject outline they didn't specify exactly what they wanted. (Student 4)

Other motivational factors that were less than positive were also derived from data. Some of these factors, such as an overloaded curriculum and a lack of freedom in the assessment process, have already been discussed. Limited feedback was also seen to almost inevitably lead to frustration and confusion. It had the potential to reduce motivation and to create an atmosphere in which learners saw themselves as powerless and, in extreme cases, in an environment which appeared to work against their learning.
... Most of the students found the labs very frustrating because we didn’t complete most of our (work) - there were problems because we didn’t find out what went wrong.

Why was that? We had so much work to get through that there wasn’t time to spend going over what we’d already completed - there was too many other things that we had to get done. (Student 32)

Other themes emerged such as the negative impact of norm referencing on motivation, wanting to minimise work, and the use of cheating. Student 14 reflected on how the norm referencing procedures in place in her faculty had had a demotivating impact on her. At this university, students have grades, not marks, printed on their university transcript and she said that this had also affected her approach to assessment.

... because I’ve always been good at (name of subject)... I was surprised that I was only getting Passes. And I remember in the first semester I got 81 per cent, and I couldn’t understand why I got a Pass and he said, “You missed out by 1 mark on getting a Credit”. Because everyone had (done) really well in that.

... It’s so unfair because I could have put in no effort and got 50 per cent and still got a Pass.

Well I’m doing (same subject area) this semester and I’m just putting in a Pass effort. Because I think, well I’ve only got Passes and if I put in more effort I won’t get higher than a Pass. (Student 14)

As was evident from data presented earlier in this chapter, some students used the feedback they received about assessment to minimise their work effort rather than to achieve quality learning outcomes. Cheating was another method that some students used either in exams or to complete their assignments. Student 4 from the preliminary round of ten interviews reported
the first case. This student was enrolled in a computer science degree and talked about an incident that had occurred in an examination.

There was a lot of cheating in my course. In one exam where students were working at computer terminals, the majority of them turned on their e-mail during the exam and talked about the questions. The university took action to stop this happening in later examinations.

The second case was reported by Student 17 who spoke about a student she knew who had cheated. This student had

... put a Walkman up the sleeve of her coat with the ear phone attached to the cuff edge of her sleeve. She had notes and key-words on a tape and when she needed something she quietly turned on the tape and put the ear phone to her ear. It just looked as if she was leaning on her arm.

Other students complained about assignments that went missing.

Usually (assignments that were being returned after marking) were put in a box at the lecturer's door. And one from this semester went missing too. I got 98 per cent for it and it went missing . . .

How many assignments have gone missing? Well, I've had three missing over the last four years. They're all good ones. The bad ones - well, I've never got a bad one - but the not-so-great ones are always there. (Student 18)

One student spoke about his experiences in a subject in which cheating appeared to be sanctioned by the lecturer.

We had weekly quizzes in the tutorial. . . . The first ten minutes was devoted to the quiz.
... We did fourteen of them, about ten minutes each. ... That was about 25 per cent of our mark. ... and then at the end of the lesson we had a quiz for next week - just to prepare us for next week.

... while the lecturer was helping us out there, some people would go up and ask him a question and he'd have the answers to the quiz there. So someone would walk off with the piece of paper and write down the quiz answers for the next few weeks. ... he wouldn't care. That's the way it was. ... (Student 22)

The teaching-learning context

The influence of the teacher and of a supportive learning environment and curriculum were perceived as being factors that had a positive effect on student motivation. Indeed, it was evident from the interviews that the personal and professional qualities of university teachers impacted strongly on their undergraduate students. The following extract is an example of what many students had to say about this impact.

What about the experiences from which you learnt the most? Well, I'm thinking of a particular lecturer in just helping me with my confidence - and I felt I learnt so much through that confidence I gained from her teaching - that's what stands out for me.

And how did she achieve that? ... she made us feel that we all had the skill ... she had this amazing ability to bring out the best in you... (Student 42)

Students generally spoke about the positive effects of a teacher being approachable or easy to work with in relation to other dynamics of the teaching-learning process. In the following extract the student acknowledges that the integration of various components of the learning context - the teacher was approachable and skilled; the curriculum was well designed - interact to provide a satisfying learning process.
I found with that subject that I probably learnt more than I learnt in any (other subject) because of the lecturer. She explained things really, really well. She helped us out if we had any problems with the jargon or anything else. It had a clinical placement . . . It was only for three days . . . and that helped to consolidate what you had had (in class).

. . . And when you had your three day clinical, was that followed up in any way?
Yes. We had debriefing sessions where we talked about our experiences. . . . All the lectures beforehand related to the clinical and then afterwards if you had any worries about what you did, or what you saw, you could talk about it, so it was a really good follow-up.. (Student 20)

And another example of this integration of approachable teacher, good teaching and a challenging curriculum.

Oh, the lecturer was our professor and he always makes things very interesting, and we learn a lot from him. But he also makes us think and . . . it meant that you had to put in full effort or you couldn’t get through.

So what does he do to make you think? Well, he gives you real-life problems, and he gives you the broad outline of the nature of the problem, and you have to go away and think your way through algorithmically, and come up with one, two solutions - because there are infinite solutions that can be formed in this process.

So would you bring those solutions back to class? You’d bring them back to class and there would be discussion on the validity of all these solutions. The discussion helps and you learn from that process. You see what things you are missing in the way you approach the problem or solve the problem and what things need to be added. So (the discussion) helps you in the thinking process. (Student 29)

Six students, in response to Question 1, cited active involvement in tutorial activities as enhancing learning and other students identified being involved in problem-solving as promoting learning. Similarly, the ability to apply theory
to practice, having a good balance of theory and practice, and being able to see the link between theory and practice were perceived by ten students as enhancing learning. This is what Student 30 had to say.

Well, in the lectures they covered the topic and then when we had labs they let us practise, they went over it again. And then when we went to clinical we could put it into practice. . . . Sometimes in labs you think that what you are learning is not worth being there but then when you go to the hospitals (for clinical) you see how important (it is) in your career that you should have that basic knowledge. (Student 30)

Not only does the academic environment provide the impetus and the conditions for students to develop the ability to monitor the quality of their learning, the learning context impacts on students’ conceptions of learning. Just as many students start university possessing a limited ability to monitor their learning, so many students commence university with a naive conception of learning in which learning is seen to be the reproduction of material. The development of a sophisticated approach to learning where learning is seen as the transformation of information through understanding is reliant, to a great extent, on the academic environment.

In the interviews, students were asked specific questions about the nature of learning. To gain a complete profile of a student’s conceptions of learning it was necessary to analyse the data that made up the entire interview. For example, data about what a student saw as enhancing their learning and limiting learning added to the overall profile of that individual student’s conception of learning. During the interviews students were asked questions which probed their beliefs and opinions, which, when analysed could yield data which would effectively classify that student into one of the six sub-categories of Marton et al.’s two main categories of learning (reproducing knowledge and transforming knowledge). This, in reality, proved a difficult task. It was decided that rather than categorising students into one of the six sub-categories - a task that seemed fraught with problems of reliability - that
each student would be categorised according to the two broad categories: that they conceived learning as being principally either a reproducing of information or a transformation of information through understanding. The findings are shown in Table 6.2.

<table>
<thead>
<tr>
<th>Conception of Learning</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproducing or naive conception of learning</td>
<td>8</td>
<td>19.4</td>
</tr>
<tr>
<td>Transforming or sophisticated conception</td>
<td>27</td>
<td>64.3</td>
</tr>
<tr>
<td>Unable to make a judgement</td>
<td>7</td>
<td>16.3</td>
</tr>
</tbody>
</table>

As can be seen from the above table, well over half the students were classified as having a sophisticated or transforming conception of knowledge. It should also be noted that 16.3% of the students could not be accurately placed in one or other of the broad categories.

These figures should be viewed with caution. They are based on findings about students' beliefs and attitudes but these beliefs and attitudes were often not synonymous with their accounts of their behaviour. Many students, from across the three undergraduate programs, spoke about times they had adopted a surface approach to their learning or had left their learning to the last minute and done it in a less than thorough and considered way even though they had expressed highly laudable views about learning being about seeking understanding.

Factors within the teaching-learning context were also seen as mitigating against learning. In response to Question 2,

Now think of a subject where you thought you were not engaged in real learning.

A subject from which you learnt little. What were the features of this subject?

students identified factors that they perceived as having limited their learning (see Appendix 10). While perceived irrelevance of content to future career
needs was the most cited single factor, students also referred to ineffective organisation, uninspiring subject content, teaching, and tutorials and workshops as limiting their learning. Some of the comments made about teachers highlighted the negative impact that can result from teachers being perceived to be unapproachable. One of the factors identified as mitigating against students developing self-monitoring skills was their reluctance to approach teachers. This reluctance would appear to be of concern. While some students see this as their own problem - a matter of shyness or of not making full use of available resources - others felt unable to approach some teachers because of the negative response they would get.

*She wasn’t approachable. You couldn’t go up to her and say, “I’m having a problem with this aspect of course”. And she’d say, “Well, you just haven’t done enough work” or something like that.* (Student 20).

*Did you ever go to the lecturer? The lecturer? No-one wanted to approach him. He was so condescending when you went down to him. He’d sort of look down at you and say, “Well, that’s that”. And you’d ask why and he’d say, “Because that’s that. You should know that if you’re doing this subject”. . . . You wouldn’t want to approach him* (Student 22).

Student 21, in response to Question 2, did not identify adverse judgements made by teachers about certain students as limiting her learning although she spoke about this later in the interview. She was wary of some of her teachers prejudging her and spoke about the difficulties she had relating to one of her teachers.

*She hated me. She was very negative every time I asked her something. . . . I think she wanted to concentrate on the really academic people and I think I’m in the middle of the grade.*

When asked about why this occurred she thought it was because
the more academic students . . . ask more questions - they hassle a bit more compared to us.

As a result of her negative experience in that subject, she explained that she became more cautious in her relations with teaching staff.

Sometimes it’s good not knowing your lecturer so they wouldn’t be prejudging you - unless you made a really bad first impression with them. . . . (If you don’t get to know them it can mean that) they’ll respect you more and you respect them more because you don’t know their territory and they don’t know your territory.

. . . For those kind of lecturers (the ones that I don’t know well), it’s OK to approach them whenever I want whereas for the lecturers that I see all the time, I will not approach those. (Student 21)

Student 21 was not the only student to speak about lecturers forming poor opinions of students.

Another reason why I don’t want to go to a lecturer and ask for help is, then they will look at me as if, “No, you don’t understand it”. I don’t know, I’d rather seek help from my peers than a lecturer. I find the lecturers, not intimidating, I just stay away. . . . I think just the whole concept of a university with lecturers, this really intellectual person way up here and I’m way down here, therefore any question I come to them with, they’ll think, “Oh, you should know that” or “You shouldn’t be here if you don’t know that”. (Student 6).

and . . .

We felt that we had to watch everything we said. She was very sarcastic - even when she’d hand back our assignments the comments on those assignments were real put-downs. . . And I suppose (when) you add those (comments) up to how she was in the tutes and in the lectures . . . we found that she put us down all the time. (Student 31)
Students also spoke about the fact that they were reluctant to approach lecturers in their first year at university and it was not until Second Year that they “built up the courage” to seek out their teachers for feedback or advice. When one considers the fact that neophyte students are generally more in need of support, assistance and direction from their teachers than any other students, then this is a worrying feature of undergraduate life.

*So how long did it take before you realised that you needed to go to lecturers?*

*Probably, the beginning or half way through last year, Second Year. It took that time to build up the courage and, I guess, knowing the lecturers, that they are people too not scary other-type people.*

*Why did you need to build up the courage? I guess because they have the power to fail you so you see that authority in them.* (Student 5)

and . . .

*Did you go to see the lecturers about your work in First Year - for example, after you failed your essay? No. Not in First Year. In Second Year, yes, at the end of lectures and tutes - only sometimes in their rooms. It was not until this year (3rd) that I felt really comfortable approaching them.* (Student 12)

Other students, however, felt at ease with lecturers from the start of their undergraduate study.

*And when you go to do assignments, do you go and speak to them about what you need to do? Not unless I have queries, because, most of the time, I find them (assignments) straightforward. But I’ve always felt that I’ve been able to talk to my teachers and tutors about any problems and they’ve been more than understanding in certain circumstances. So, that has meant a lot . . .* (Student 7)
In response to Question 2, five students identified poor teaching as limiting their learning. Student 22 spoke about some of the less-than-ideal teaching situations he had encountered in one subject.

So why didn’t you (learn a lot)? . . . the lecturer - he just assumed that everyone knew four unit maths and just put on a slide, spoke through it, asked the question: “Did we all understand?” and if one person said, “Yes”, he said, “OK, you’ll all do well”. And only one person said yes and he took it that we all understood. (Student 22)

Other students cited poorly organised subjects as limiting learning. In the following extract, Student 24 points to lack of organisation in terms of coordinating the presentation of new material with the timing of assessment tasks as well as the teacher’s lack of control as leading to a less than rewarding learning experience.

The timing also was very disappointing to us in that the assignments that we had early in the piece, we would have the lecture for that after it was due. . . . It was very disjointed and very confusing. In our tute, the tutor didn’t have much control over the class and we had one group sort of leading the class all the time . . . and it didn’t give much chance for anyone else to give their views. (Student 24)

Some other students referred to laboratory sessions in which the heavy demands of the curriculum meant that students perceived that they never really gained feedback as to why circuits did not work out or what could be done to remedy this.

Finally, the inability of teachers to work within the confines of the criteria for assessment tasks was perceived by some students as having a negative impact on learning and on motivation. Five students from one course complained of criteria being ignored by teachers in the marking process. Although a maximum word length was established for assignments, it was perceived by
students that better marks were received for assignments well in excess of this limit. As one student said,

(In) a lot of subjects - it said, "Maximum of 2,000 words", and I've written 4,000 words and I'll get a better mark. . . . (writing 2,000 words) would reflect on us as if we haven't written enough. (Student 15).

As students' self-efficacy and their causal beliefs regarding success and failure are influenced by the conditions of learning and the reactions of those around them (Weiner, 1985; Bandura, 1986), the development of a learning context that fosters students' state motivation would appear to be crucial. The impact of a supportive context for learning is evident on each component of the conceptual framework: on the student's intention at the outset of the learning process; on the interactions between the assessment, the teaching, and the learning processes; the ways this interactive process impacts on and mediates the student's intentions; and finally, on the learning outcomes themselves.

As the context of learning is recognised as playing a key role in the quality of student learning and in their expectations of themselves (Christophel, 1990; Study Group on the Conditions of Excellence in American Higher Education, 1984), contextual factors mitigating against learning would appear to be an area requiring further investigation. In particular, the reluctance of many first year students to approach their teachers for advice and feedback is of concern.

Moving from First Year

In this final part of Section Three, findings related to the changes students undergo in their first year of university and then in later years will be presented. Students spoke not only of changes in their responses to the learning context and learning process but also of changes in the way they were taught. Many students discussed, either directly or indirectly, the impact of the implicit curriculum.
The section begins with an excerpt from the interview with Student 31 who articulates her responses to study on entering university and then on moving into Second Year.

... So First Year, I didn't do terribly well but I got there. ... Second Year, Third Year - a lot more work but I knew what it was all about by then so, yeah, it was a lot easier.

... (I was) very apprehensive in First Year. Perhaps not very focused, that's the word. I just didn't know where to go with a lot of subjects and a lot of the topics in essays. You tend to be finding out all this extra material that you didn't know and you just put everything into your assignments without thinking too much. ... And then by the time you're in Second Year, you seem to know what's going on ... you become more focused, ... It becomes easier, you start getting more feedback - you start going to your lecturers and finding out (about assignments) from them and you find out from your friends, and you ask in tutes, too - so you become more focused on exactly what's required.

... (In Second Year) you begin to know what the different lecturers want. ... I think that's also important, to make sure that you really find out who's marking your paper, (and) what they're on about, because that can make a difference. I got to know that I had to go and speak to people and find out exactly what they wanted... (Student 31)

The comments made about the changes this student experienced reveal the gradual recognition of various contextual influences on the assessment and learning process and her development of a proactive orientation to assessment and learning. In response to Question 8,

*Has your approach to assessment and learning changed from when you first started university?*

every one of the 42 students interviewed answered in the affirmative with comments such as the following being indicative of the general feelings about assessment and learning in First Year.
Yes. First Year was a big step up from Year 12. Just going to uni after being at high school is different in so many ways - the physical environment, academic standards are higher than those at high school and essay writing and everything like that is different. You have to learn exactly what they expect of you at uni and that takes most of First Year. (Student 12)

The way students responded to the university environment and the assessment process differed. From the data, it would appear that the assessment process impacted significantly on students’ motivation during the first semester of First Year. The achievement of either higher than or lower than expected results from their assignments and examinations influenced students in the way they approached later learning. Some worked harder to achieve better results while others became demotivated. Student 31 spoke about working harder after not doing “terribly well” in First Year although other people became discouraged very quickly.

... I wanted to succeed, and I know that some people didn’t ... it really put them off. Some people stopped coming to classes and things like that because they became so disheartened. (Student 31)

In contrast, Student 19’s motivation for learning and work effort diminished after first semester, First Year:

... when I first started I thought uni was going to be a lot harder. Yeah, I thought it would be constantly hitting the books ...

So when did you find out it was a lot easier than you thought it would be? Probably about half way through First Year. ... (I did) better than I thought (I would). It was a nice surprise.

... what happened after that? I slackened off. I found it hard going from school to uni. I found that a lot of the mature age students coped better with uni and were more
enthusiastic about it than what the people who had come straight from school were. (Student 19)

Even though a highly motivated student, Student 42 discussed her growing sense of dissatisfaction, after the completion of her first year of study, with the quality of the teaching and the standards that were being set. In the interview, she expressed her disillusionment with some subjects which were less than challenging.

I suppose, especially in the first part of First Year, you’re doubting yourself a lot still. So you’re a lot more open to what you’re being taught, you’re a lot more forgiving and once you’re in Second Year you start getting a lot more dissatisfied with the quality - you’re a lot more critical of the standards. (Student 42)

Some students remembered feelings of defeat and disappointment when faced with average or poor results in First Year. Others, however, were motivated by the fact that they had succeeded - even if their marks were not always as high as they would have liked.

In First Year, as I said, I didn’t know how much I needed to study to get a Pass or get a High Distinction. So that was one factor. Another factor was people were failing and dropping out. That was a bit of a push in the back. (Student 3)

There was quite a high dropout rate in the first semester after everyone failed Anatomy. . . I guess 25 per cent at least dropped out because of that.

And what effect did that have on you? I was thinking “Gee, I’m one of the lucky ones who passed. Stay with it”. (Student 21)

Different responses to their assessment results can be linked to students’ beliefs about their ability to perform (that is their self-efficacy or control beliefs or attributional style). As discussed in Section 3 of Chapter 2, the research suggests that students who believe they have the capacity to perform are more
likely to persist at a task and eventually succeed than students who have poor perceptions of their capabilities. In other words, students with high self-efficacy who fail to gain the grades they expected in their first assignments are more likely to increase their efforts and cognitive engagement than those students with low self-efficacy. As well as wanting to do well and having the ability to do well, students also need to believe they have the ability to do well. Lastly, students need to acknowledge that they themselves are ultimately responsible for their learning outcomes.

Student 8 was one of many students who were aware of the different responses students could make to the university system. At the end of his third year of study, what he said about his approach to learning was indicative of the responses of a number of other undergraduate students interviewed.

And once you start to work out what’s actually happening around you, well, it’s got a lot to offer obviously (but) you can fall into the thing where, “I’ve just got to get the assessment done”, and “That’s done and out of the way”.

As you sit down and read about a topic that you’ve got to write an essay about, you will learn things but . . . It’s more of a, “OK, this has got to be done, I’ve got to get it out (of the way)”. It’s not viewed, especially now, as a big learning experience. (Student 8)

The vulnerability of First Year students was evident from comments made by many students. Student 32’s reflections reveal the pressures of First Year study.

Coming to university from school is overwhelming. Very scary. I think, in First Year, the worst thing is that you feel so alone and you’re not sure if what you are doing . . . is enough to pass the assignments and the exams. If you can get through First Year, then you’re all right for the rest of the course.

... How did you go in First Year? I failed two subjects and I was shocked at first but then I realised that I wasn’t the only one who had failed. It made me realise that I had to work that little bit harder. For me it was like a race or a game and I got most of the
points - after that I knew what the game was about and so in Second Year I was all right. (Student 32)

The recognition of a hidden curriculum and its impact on assessment was a common point of discussion raised by students in response to Question 8. The responses of Students 22 and 41 to this question are representative of what many of the students said.

... when I first came into uni ... I didn’t know what to expect. But after the second year you’d sort of know the patterns of what certain lecturers would expect - you’d talk to other people and say “Oh yeah, that lecturer there expects you to write something about that”, or “She expects something there” - so you sort of tailor your assignments towards what they want. (Student 22)

As you go through your uni course, you begin to learn what lecturers expect of you - and that’s mainly in assignments - and you adjust the way you go about things to make sure you give them what they want. (Student 41)

The hidden curriculum was generally perceived, by most students, to be an integral part of the teaching-learning process and was, in many instances, viewed in a tolerant way - as part of the process of learning at university. Other students, however, perceived aspects of the hidden curriculum to be working against students.

Also, one thing I really don’t like about university is that lecturers say different things to different classes. So when you talk to students from other tutes you get different ideas about what is expected in assignments - it can be very confusing. (Student 12)

Others perceived aspects of the hidden curriculum worked in favour of some students to the disadvantage of others.

I think I’ve become a bit cynical with marking and assessment because you’ve always got your top people in the year and, in my opinion, from what I’ve seen and what I’ve
experienced, these people start out with the marks and whatever they do wrong, they get taken off. Whereas, everyone else in the year starts off with no marks and they earn their marks. (Student 9)

Learning to recognise this hidden curriculum is one aspect of developing the ability to monitor one's learning to meet expectations not explicitly stated in course and subject requirements. Because of the obvious recognition of an implicit curriculum and the way students shape their assignments and their learning in response to it, a heavy responsibility is placed on university teachers. The strong response of students to teachers' expectations heightens the need for teachers to examine the learning outcomes they anticipate and to make these explicit to their students. The crucial nature of this support and the benefits of a curriculum that supports students being independent in their learning was evident in the comments of the following student.

This year (Third Year) we are very independent and the only time that I think that I need to go to my tutor is to get my assignments back. They have been very helpful. They help you through your tutorials. They wouldn't expect you to do everything yourself. (This year they have a lot of help but) in First Year we were left in the dark. (Student 21)

In the program this student was completing, it was apparent from the comments of Student 21 and other students completing the same course, that they had had virtually no input into the way subjects were organised until Third Year.

Oh, we (felt) really limited. You know, this is what you've got to do, hand it in at this time, if you hand it in late you'll be penalised. (Student 20)

The benefits of giving students some say in what they would learn and how they would go about it are readily identified. As discussed in both Chapters 2 and 4, assessment decisions that include learner input can result in higher
levels of intrinsic motivation and increase the likelihood of deep learning (Boud, 1988; Higgs, 1988). The detrimental effects of a program where teachers used their powers in a non-supportive way are highlighted in Student 21’s final comment, “. . . in First Year we were left in the dark”. A “sink or swim” approach appeared to be applied in terms of students becoming independent, autonomous learners in this particular course.

... in First Year - they don’t tell you anything. You’re the one - you have to find out everything for yourself. I think (teachers) should guide the students . . . some of them they do (Student 30)

Another Third Year student, from the same course, had this to say about the power imbalance. She had been asked whether students in her program had been given many opportunities to make choices about assignment topics.

Well actually this year was the first time. Because prior to that all our assignments were: “Here’s the topic” and you do it.

And did you have choices within the given topic? Yes, some of them you did have but you still had to do one of their topics - and we found that easier. But now, this year, we’re big people now (laughs) . . . (Student 24)

Finally, feedback about learning emerged as an area of concern for some students when thinking back to their experiences of first year of university study. Student 20 was asked about the feedback that she had received from her assignments.

I don’t remember getting much (feedback). . . . It was sort of “Good effort” and that was it. . . . And it wasn’t good but it wasn’t bad so you felt you couldn’t go and ask why you got that mark. (Student 20)

Another student doing the same course as Student 20 also felt that the feedback students had received in First Year was inadequate.
I think in First Year I would have benefited a lot if I had had more feedback from the lecturers - even if they had got up in the lecture and spent twenty minutes (doing that). (Student 31)

The authors of a recent study, *First Year on Campus*, which involved 4000 first year undergraduate students in 7 Australian universities, concluded from their findings that improvement in First Year teaching could be achieved if teachers communicated *clearly and often* the learning outcomes they wanted students to achieve and if diagnostic feedback was provided *early* in the course (McInnes & James, 1995). Given that the study found that only just over half the students surveyed found their subjects interesting and that only 53 per cent of the 4000 students thought their teachers were interested in them or in the subject they were teaching, a well designed teaching and assessment plan with clearly stated objectives integrated into an instructional program designed to aid students in their learning would do much to indicate a teacher’s enthusiasm and commitment to the teaching-learning process. Ideally, this would result in a corresponding rise in students’ motivation, commitment to learning and self-monitoring skills.

Seven main findings relating to First Year undergraduates emerged from the data generated by Question 8. They were that during their First Year the students interviewed:

- were unsure of the standard of work that was expected;
- were unsure of individual lecturers’ expectations;
- tended to work alone and only later learned to discuss learning/assessment with peers, lecturers and so on;
- often did not make the best use of their time;
- were often reluctant to approach lecturers;
- received a lot of input from teachers, in lectures and tutorials, about assignments *before* they were due (eg, referencing procedures, where to find
information, types of things to include in assignments) but often not much
follow-up in lectures/tutes/labs after assignments have been marked and
returned;
• sometimes became demotivated after marked assignments were returned
  (especially in first semester) if they have not received a good grade.

Section Three summary

A range of motivators was identified from the data including motivation
intrinsic to the task of learning through to work avoidance goals and strategies.
It was evident that students’ motivation, in many cases, could be influenced by
the teaching-learning context. Students’ perceptions about the value of what
they were learning and about the assessment program were associated with
their motivation. Curriculum that was student-centred and required students
to be active in the learning and assessment processes resulted in heightened
interest and commitment. Other experiences, however, had less positive
results. For example, students spoke about their feelings of frustration and
powerlessness when confronted with teachers who were unapproachable or
unprofessional in their teaching or with a system that had artificial cut-off
points for grades.

First year was found to be crucial in terms of student motivation and students’
later orientation to learning. The assessment process was the main indicator for
these neophyte students of how they were coping with undergraduate study
and became the basis for their later effort and ability attributions. Some
students responded well to lower than expected results from assessment tasks
in first semester, striving harder in later learning. Others became demotivated.
As a result of outcomes from assessment early in their program, students often
either increased or decreased their learning efforts. What is needed at this
early stage of their undergraduate study, is an assessment and learning
program that involves students actively in gaining skills to direct their own
learning, and that has built-in strategies which require students to seek support
and guidance from each other and from their teachers. Direct involvement in independent, teacher supported self-directed learning would appear to be just as vital in the first year of undergraduate study as it is in the final year (when it appears to be almost *de rigeur*). Involvement in forms of assessment that challenge students, allows them choice, and is designed to encourage collaboration with peers and teachers, would seem to provide the conditions necessary for students to become actively engaged in the learning process and, as usually occurs as a result of this engagement, develop positive motivational goals for their learning.

**Section Four:**

**Varying approaches and learning outcomes**

Findings provided in the first three sections of this chapter have been focused on providing answers to the questions:

1. In what ways did assessment strategies either enhance students’ learning or inhibit their learning?
2. In what ways was feedback used to develop students’ ability to monitor and direct their learning?
3. How did the assessment and teaching processes impact on students’ motivations towards learning?

Factors students perceived as being important in either enhancing or inhibiting their learning were identified as:

- the types of assessment strategies that were used;
- the provision of feedback;
- the opportunities to develop self-monitoring skills;
- the teaching-learning context; and
- the student’s motivation to learn.
It was deduced from the data that the nature of each of these five factors contributed to learning outcomes. Findings presented in Section Three demonstrated the insecurities and vulnerability of many First Year students. Responses indicated that the assessment process in First Year was perceived to be a crucial factor in deciding whether students continued on at university, whether they increased their learning activities or whether they “slackened off”. Students’ motivation and self-esteem have a significant effect on the way they interact with information and with learning in general (Abouserie, 1995). In light of this and the findings from Stage 2 interviews, the assessment process in First Year, could be viewed as having a “make or break” impact on students shaping, in many cases, their later responses to assessment and learning.

A fourth question was posed at the beginning of this chapter:

Were varying approaches evident in the ways students spoke about assessment and learning at university?

As the interviews were being conducted and during their analysis it became apparent that students approached their undergraduate study in varying ways. Each of the students interviewed is remembered for something unique that they brought to the interview process. Perhaps it was their initial reticence or the way they handled what was, to some, a potentially threatening situation. Others were remembered for their forthright manner or for their enthusiasm for learning. One student, in particular, stood out because of his sheer indifference to the usual pressures of study. Various subjects and programs were soon recognisable because of a number of students making similar comments about them - some positive, some negative.

While all of these features were important to the data collection and analysis process, one aspect of the interviews gained added significance as the interviews progressed. It became apparent to the researcher that students were
very different in the way they spoke about assessment and learning and in the way they went about it. While this may seem an obvious conclusion, the researcher began to detect the differences as forming very distinctive profiles of some of the different types of learners. Three clear learner types began to emerge during the interview process:

- students seeking depth of understanding;
- students wishing to minimise their learning efforts; and,
- students needing to prove that “I can do it”.

Because of the limited amount of time spent with each student, the learner type of the majority of students could not be clearly identified. However, a number of students did show a clear tendency to align principally with one of the three learner types. Indeed, further investigation may result in the identification of other learner types.

Profiles were developed to describe the characteristics of each of the three learner types. The profiles are a tentative synthesis which facilitates exploration of the ways students’ motivation, goals and ultimate learning outcomes can affect and be affected by the assessment process and by factors related to the teaching and learning processes. Through the development of these profiles, the learning outcomes based on inter-relationships that exist in the various processes impacting on students will be explicated. Specific factors to be examined in the discussion of each of the profiles will be students’ conceptions of learning, the use of feedback, the development and use of self-monitoring skills, their learning intentions and the way curriculum design and assessment tasks can impact on the ultimate learning outcomes.
Profile One: Students seeking depth of understanding in their learning

In this final section, profiles of these three different types of students are presented in turn. Features which have been derived from the data as distinguishing this first type of student are presented in Table 6.3.

Table 6.3  Profile One: Students Seeking Depth of Understanding in Their Learning

Generally, these students:

- were highly motivated
- were determined to do well
- wished to establish a strong foundation for their career
- were high achievers
- had a strong commitment to the profession they have chosen
- achieved depth in their learning if the academic opportunities were available
- maximised their learning outcomes
- had disciplined work habits
- made deliberate use of their time
- planned their undergraduate study on a month by month as well as a week by week basis
- actively sought out teachers and other students for advice and assistance
- made effective use of feedback from assignments
- developed strong self-monitoring skills
- recognised their academic ability

Students who fitted into this profile were generally highly motivated to make the most of their undergraduate study and had high expectations of themselves and yet, at the same time, were aware of their own shortcomings. They generally started their study with clear goals in place and were ready and willing to put in the time and effort to achieve those goals. Perhaps as a result of this singlemindedness, they often viewed positive and negative experiences that they had as opportunities in their search for deep understanding in their learning. The profile will be developed by using extracts from interviews with three students selected from among those who were perceived to approach their learning in this way - Students 11, 29 and 23. Each of these students was completing a different undergraduate program. Of the three students:
• two were in the fourth year of their degree program while the third was completing third year;
• all ranked themselves as a five out of five in terms of their academic achievements;
• two had entered university straight from school while the third was a mature age student who had been in paid employment;
• one had completed one year of undergraduate study at another university before transferring to UWS (Nepean);
• one had definite plans in place for further study, one wanted to do postgraduate study but had no definite plans, and the third was not intending to do any further study.

The first student whose experiences and perceptions are used to develop this profile of students who seek depth of understanding in their learning is Student 29. Student 29 was in his final year of study and was highly motivated and ready to persevere even when learning was not easy. In fact this student viewed learning as “a struggle” engaged in by the learner.

Learning is a process where you struggle along and in doing so you’re not always getting it right the first time. . . . So that the learning process is making mistakes and learning from those mistakes and going ahead, going one step forward every time.

Student 29 was determined to do well. He had a clearly developed career path mapped out for himself and had long-term plans in place for postgraduate study. While this student had likened learning to a “struggle”, he also spoke of the way the course had helped him enjoy learning and that this enjoyment of learning at university was one of the main reasons he wished to pursue postgraduate study. Student 29’s desire to gain understanding was linked to his desire for learning plus a strong desire to establish a firm basis for his professional career and to do well.
... when you get into uni you become more mature, you have to dedicate yourself to your subjects 100 per cent and that's the only way that you can manage to increase your knowledge and also graduate with a good degree.

The need to gain full understanding in his learning as well as the need to gain a broad knowledge of his discipline appear to be inseparable motivating factors for Student 29. The determination and self-discipline required to gain full understanding and to achieve the high standards he has set for himself is evident in the following extract.

... in a three hour paper you would get six questions and in each question there are multiple parts that you have to answer. The whole exam tests you in every aspect of the course outline.

*How do you prepare for those exams?* You have to study everything and understand everything. It's impossible to learn it off by heart, so you have to understand quite a lot of it in order to pass.

... You have a strong dedication to that subject, to all your subjects, so that you understand them. *(Student 29)*

What was also evident throughout the interview with this student was the nature of his motivation. Throughout the interview, learning was spoken of in terms of gaining understanding, broadening one's knowledge, being able to develop strategies to solve problems and gaining meaning by working with others. There was little evidence of motivation that was extrinsic to the task of gaining understanding and establishing a sound professional base.

The second student included here, Student 11, is a Third Year student who has revealed himself - from both the interview and his results - to be a conscientious student who approached his studies seriously and with enthusiasm. He was slightly older than the other students in his course coming to undergraduate study after several years in the workforce. He is well known
to his university teachers and likes university life. While this student wished to do very well and, indeed, has gained Distinction and High Distinction grades throughout his course, he, nevertheless, felt thwarted by the overwhelming content of his course. Because of the excessive workload - confirmed in interviews with other students completing the same course as Student 11 - he felt that he could not complete the assignments to the best of his ability or as he would ideally have liked. He said quite early in the interview.

As I said . . . there’s only two assignments that I would rate as being the ones that I have been totally happy with. (Student 11)

In the following extract, Student 11 recounts his initial reactions to assessment and learning at university and goes on to discuss the impact that a course heavy on content had on his learning.

First semester, I was disorganised, I didn’t know how to write an essay . . . I was unsure of the requirements of the course and the study requirements.

. . . I began to feel confident when I started to get assignments back, my first couple, which were OK and I passed. I also did a lot of work, and started communicating with peers.

After that? No, before that. So (I communicated) with peers. And a friend had done the course two years before and I got copies of some of her work and I could see the style in which she had done it. And then, I tried to use a similar sort of thing in mine. It was, also, by getting peers to read my work and giving advice. And then, it was in second semester when I got my . . . essay back where I came second top of the whole group which gave ecstatic confidence because I had failed English in the HSC. So from then on I haven’t looked back and essay writing has been something that I’ve been able to do. . . . (Student 11)

By the end of the interview, it was evident that this student was wanting to learn more. While he valued his course he was aware that the very heavy
workload that was placed on students undertaking this undergraduate program mitigated against them achieving depth of understanding in their learning.

My time management is not bad but there's just no time. Often the material you study for the exam, you don't (have lectures on till the end of the subject), it's not there. And secondly, we don't have StuVac which doesn't give us any time (for study). The only option we do have is to cram. . . . most of us are here because we want to succeed - particularly in Second and Third Year, we've decided this is what we want to do and we want to do it as best we can. Now to do that, all our time is taken up with assignments and making the notes that we do have in lectures.

The final student to be discussed in the development of this profile, Student 23, was also a high achiever. As did Students 11 and 29, Student 23 had developed disciplined work habits, made careful use of her time, planned her study with her strengths and weaknesses in mind, and was continually wanting to improve her learning. She was career oriented in her approach in that she needed to see the relevance of what she was learning. This student placed a high value on the use of feedback in the learning process. Her desire to develop and fine-tune her self-monitoring skills were evident in this recognition of the value of feedback for future learning and in the high standards she sets for herself.

Looking back over your time at uni, what might you change or modify so that you are able to learn things more deeply? Well, a lot of the time when we do do assignments we don't cover any of it in class, in lectures. It's all up to you and what your assignment is like - so what you're learning in assignments is only what you've found out for yourself and I think if they really want us to learn a bit more about these assignments, because obviously they're important, then they could spend a bit more time in lectures, after the assignments been done, going over it. Telling us what other people did. . . . I'd like to know what other people did. I'd like to follow up on the assignments.
... I think that's where you learn the most, by gaining feedback about what other people have done, as well.

**Why do you think it's where you learn most?** ... whenever you hand in an assignment you always think you've performed up to your best but then they show you other ways where you could have performed better

While this student sought depth in her learning, this search for understanding appeared to be motivated by the desire to establish a solid foundation for her career as well as by the high standards she set herself when approaching study. While she revealed herself to be motivated to fully understand her work, her motives were pragmatic - indeed her straightforward acknowledgement that she was interested in gaining high marks could be erroneously perceived as indicative of a surface approach to learning.

**And at the end of first semester when you got your results back, were you pleased with them?** Yeah. Actually that semester I only got all Passes and I wasn't very happy but I thought, well, if I want to get any better I'll have to put a bit more work into it. So I did and got better grades.

Her highly pragmatic approach was in marked contrast to Students 11 and 29 who were strongly motivated by their love of learning. In contrast to Student 23, Students 11 and 29 saw their undergraduate program not just as a basis for their career but also as a basis for ongoing learning throughout their careers. Student 23 had no plans for further study and appeared to see her undergraduate program as an end in itself - to gain professional qualifications - rather than as a precursor to postgraduate study.

In essence, students who fitted this profile could be described as highly motivated and mature in their approach. They made good use of feedback and wanted to establish a firm foundation for their career.
Profile Two: Students wanting to minimise their learning efforts

Distinguishing characteristics of the second type of student identified from the data are now presented. While many students may seek ways, at different times, to minimise their learning, students who fit this profile have work-avoidance as their primary goal.

Table 6.4  Profile Two: Students Wanting to Minimise Their Learning Efforts

<table>
<thead>
<tr>
<th>Generally, these students:</th>
<th>At times, these students:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• were poorly motivated</td>
<td>• were motivated to work harder by individual teachers/subjects</td>
</tr>
<tr>
<td>• were motivated by factors extrinsic to learning</td>
<td>• started their undergraduate programs motivated to learn</td>
</tr>
<tr>
<td>• minimised their learning outcomes</td>
<td>• became disillusioned by difficulties encountered in their first year of undergraduate study and stopped trying</td>
</tr>
<tr>
<td>• did not seek lecturers’ input and advice</td>
<td>• used input and advice from other (more motivated) students to complete assignments and prepare for exams</td>
</tr>
<tr>
<td>• used surface learning strategies</td>
<td>•</td>
</tr>
<tr>
<td>• gave minimal time and effort to their learning</td>
<td>•</td>
</tr>
<tr>
<td>• had poorly developed self-monitoring skill</td>
<td>•</td>
</tr>
<tr>
<td>• approached their work on an <em>ad hoc</em> basis</td>
<td>•</td>
</tr>
<tr>
<td>• made poor use of feedback</td>
<td>•</td>
</tr>
<tr>
<td>• were not interested in further study</td>
<td>•</td>
</tr>
<tr>
<td>• had failed several subjects</td>
<td>•</td>
</tr>
<tr>
<td>• skipped over difficult work rather than seeking understanding</td>
<td>•</td>
</tr>
<tr>
<td>• were highly stressed by exams</td>
<td>•</td>
</tr>
<tr>
<td>• blamed their shortcomings on lack of ability rather than lack of effort</td>
<td>•</td>
</tr>
<tr>
<td>• felt powerless to change their learning behaviour</td>
<td>•</td>
</tr>
<tr>
<td>• did their assignments at the last moment</td>
<td>•</td>
</tr>
<tr>
<td>• had a less than sophisticated conception of learning</td>
<td>•</td>
</tr>
<tr>
<td>• equated learning with assessment</td>
<td>•</td>
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</tbody>
</table>

One's first thoughts could be that students fitting this profile are among the students who fail in their first year at university and drop out. However, all the students interviewed in this study were at the end of their third or fourth year of their undergraduate program and, while failing some subjects, were now well on the way to completing their degrees. Only two of the students interviewed in both the preliminary and in the large-scale interview phases
could be viewed as being firmly in this category. There was evidence from the data, however, that other students were engaged in minimising their learning efforts. Among the indicators for this were the frequent references to cheating and to stolen assignments (almost always those assignments that had gone missing were those which had been awarded a Distinction or High Distinction grade).

Student 28 from the Large-scale Interview phase and Student 5 interviewed in the Preliminary Investigation were among those who could be regarded as working towards minimising their learning efforts. While interviewed in the Preliminary Investigation, Student 5 is used as an example in this profile as she so clearly fits into the category of a student who sought to minimise her learning and because she is different in several respects from Student 28. Student 28 had entered university straight from school but was far from committed to his chosen career. He was pragmatic in his approach to learning and this extended to the use of cheating to achieve his goals. Some of the strategies this student used to minimise his efforts included:

- not attending classes;
- asking students who had attended for notes, feedback and so on;
- completing work in groups where assignments were shared out and then copied by other members of the group;
- often not collecting marked assignments;
- rarely making time to see lecturers even though he admitted they were only too willing to give assistance to students;
- skipping over difficult work rather than spending time and effort in working through it and achieving understanding;
- when repeating subjects, only doing the minimal amount of work to achieve a pass;
- using input from successful students to aid him in his study rather than doing the work himself.
When discussing assignments and feedback, Student 28 commented that on occasions students had not had assignments returned and had not been told of the mark they had received.

You won’t get the marks back? Yeah, you do the assessment, the assignment and give it to the lecturer, and the lecturer just keeps it with him. He doesn’t give you the marks back. And the feedback is not there. You don’t know how much you’ve done in the assignment, what is wrong with it.

So you never get it back? No, in some of the subjects, you don’t get it back.

(Do) you get a mark back? I mean, we don’t even get the mark back either. And the question might come in the exam and you won’t have a clue what to do.

However, when questioned further this student admitted that he rarely attended lectures. It would appear highly likely that assignments, with marks and feedback, were given to students after marking but that Student 28 was not present on these occasions to receive his.

I hardly ever go to the lectures.

And why is that? I don’t know. I don’t feel it’s that urgent or something. I go sometimes but only if it’s really urgent. I know who the people are who go to the lecture every now and then and instead of going (to the lecture) I just ask these guys if the assignments are OK, or if an assignment is due or if (the teacher has) told them about the exam - how many questions and things like that. I just find it out from my friends.

So you find out about your exams that way? Mostly in the last two weeks you have to attend those lectures. We ask them so that we will know what’s going on. And they’ll come and give you a few hints about it. Probably heaps of things. And you go away and study those things.
Unlike many other students, Student 28 was not committed to establishing a sound foundation for his career and relied on extrinsic motivators. For him, working with peers who were successful in their studies and keeping up with them was one of his main motivating factors.

*If you stay with the right group of people, the right team, you’ll pass your way up. You’ll just look at how hard other people work and then you just like . . . well, a bit of competition is there. If you’re in the wrong group that doesn’t do much of the work then you can easily fall.*

Several times during the interview Student 28 had referred to the benefits of group work or team work. The full meaning of what this ‘groupwork’ entailed did not become clear until the following comments were made.

*And once you get to Third Year, you make five or six good friends and you tend to stay in that group and then there’s more of a teamwork from Third Year on.*

* . . . And do you do most of your study and your assignments as a team now? . . . well, it’s the time, time is not good, so sometimes we do all the questions together. One person does one thing and someone else does another part and you swap them over.*

In essence, this strategy amounts to cheating. Comments made by Student 28 about cheating were made so openly and without any apparent embarrassment that one wonders whether these types of cheating were recognised as such among some students, at least, as a normal component of undergraduate study. Apart from assignments which had received high grades being taken from boxes of returned assignments and reports of cheating with take-home exams and workbooks, two other reports of cheating indicated widespread acceptance of cheating in the first instance and the ‘creativity’ of one student in the second.

Students who are driven by work-avoidance goals have been found to have the greatest use of rote-learning when compared to task-oriented or ego-oriented
students (Meece & Holt, 1993). In response to the question - Do you think learning things “off by heart”, or rote learning, helps you to understand what you are learning? - only three of the 42 students interviewed in this phase of the study and the 10 in the preliminary interviews, thought that rote learning might lead to understanding. Some discussed the necessity of rote learning as a first step in acquiring and understanding knowledge but were firmly of the opinion that it was a preliminary step on the way to understanding. Others spoke of rote learning material for exams but did not see this as leading to understanding. The remaining three students were more ambivalent in their responses. Student 22 saw the need to go beyond rote learning if a “deeper level of understanding” was required but believed that for most learning at school and at university rote learning was sufficient for you to do well. Student 32 believed that rote learning led to familiarity with material that could not be easily understood and that sometimes this familiarity led to understanding.

Student 28 replied to the question in this way -

It depends, I guess. Theory-wise, it helps you. For the exams it does but after the exams you probably forget. You do something else and you won’t remember it.

During the interview with Student 28, it became obvious that for him learning at university was synonymous with passing exams and performing satisfactorily on other assessment tasks. Student 28’s goal of passing with only the minimum of effort extended to subjects which he had initially failed and had to repeat. Most students who had spoken of repeating a subject were generally either anxious about failing a second time and so put in a lot of time and effort into their study or saw it as an opportunity for gaining a good mark. While not being specific, Student 28 had said that he had failed several subjects.

And did you find it easier doing the subject the second time? You know what’s going on. In my case, every time I failed a subject, I failed it narrowly, so the second time - I knew most of the things except for the hard parts, or there was an unexpected
question. You know out of the 7 questions, you learn 5 and then out of that 5 only 3 will come and then, you know, (when you repeat the subject) you prepare for the harder question. The second year is pretty easy. You don’t study that much, just enough to pass. That’s in my case, I don’t know about others.

The shortcomings of this student’s approach and his poor self-monitoring skills are evident in the following extract.

When people sit for an exam or hand in an assignment, they usually have some idea of the mark they will get. Do you feel that that’s a correct statement? No, not really. I don’t have a clue.

... What do people have to do to get good marks? They have to study hard.

What about a poor mark? What other reasons are there for students getting low marks? It depends. If you don’t understand the lecturer and what he’s teaching you about - and there a few lecturers like that - they understand, so they expect you to know or (to) go and find out. Well, some people like me, I guess, we study at the last minute most of the time and we haven’t got good sets of notes from studying or whatever the topic was. So in the end, it’s very hard to know what material he is going to ask you in the exam.

The other student who stood out in the interviews as having a minimalist approach to her learning was Student 5. Student 5 was, however, a very different type of student from Student 28. She spoke of her lack of maturity and sense of direction as prime factors in her lack of motivation. As she expressed it, her motivation was,

... just finishing your degree and getting out of there, I guess. (Student 5)

Unlike Student 28, she was only too aware of her shortcomings and predicted a different course of events if she approached formal study in the future.
If I was going back to uni again I would approach it very differently. I would have to know exactly what I wanted to do and why I was doing it. I'd want to enjoy doing that and learning about something. (Student 5)

Another way in which she differed from Student 28 was that she was mixing with a group of high achievers who did not engage in any form of cheating. As this student pointed out, cheating did not occur to her as a way of getting through her studies and was never considered by any members of the group of students that she mixed with. Student 5 tended to leave her assignments to the last minute. She frequently handed in assignments that she knew would not gain a pass but was ready to put in the work if she needed extra marks to pass a subject. While aware of the fact that students who did well used the many resources available to achieve this including making appointments to see teachers about feedback from assessment, Student 5 did not do this.

What you got written on your essay was very brief and if you wanted to follow it up with your lecturer that was fine. There were people who went. The lecturer or tutor was always available for discussion of where you went wrong or where you could be helped. That was only if you sought them out.

And what about you? No.

Why not? I couldn't be bothered.

Although she had no goals in terms of why she was doing her degree course or where it was leading her, she did successfully complete her degree with a double major in two demanding subjects. When contacted after she had graduated and asked about further study, this student was most reluctant to commit herself to any further university study. Her undergraduate experiences had left her with reservations about her ability even though she had achieved a very good result in her Higher School Certificate and had completed her degree. She had lost confidence in her ability and felt that she
had let herself down by the way she had approached her learning. Indeed, her loss of confidence was evident in the interview when she spoke of her peers as being of much higher ability than herself; as the literature suggested, her low self-efficacy led her to attribute her poor performance as much to lack of ability as to lack of effort.

Profile Three: Students needing to prove to themselves that "I can do it"

The final profile is focused on students whose motivating goal is to prove to themselves that they can complete their undergraduate study. Distinguishing characteristics of students who may fit into this profile are presented in Table 6.5.

Table 6.5  Profile Three: Students Wanting to Prove to Themselves That "I can do it"

<table>
<thead>
<tr>
<th>Generally, these students:</th>
<th>At times, these students:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• were goal oriented</td>
<td>• saw failure as an opportunity for learning</td>
</tr>
<tr>
<td>• were determined to succeed</td>
<td>• developed strong self-monitoring ability</td>
</tr>
<tr>
<td>• were focussed on gaining a qualification rather than on learning <em>per se</em></td>
<td>• had long term plans for post-graduate study</td>
</tr>
<tr>
<td>• saw themselves as average students who had to work hard</td>
<td>•</td>
</tr>
</tbody>
</table>
Two students, Students 15 and 30, were selected as representative of students who could fit this profile. These students were unsure of themselves when they first entered their undergraduate programs and so had definite reasons or needs for having to prove to themselves that they could complete the degrees.

Student 15 entered university through a special admissions program called UniStart. She had not done well enough in her Higher School Certificate to gain university entry but had enrolled in a Diploma course at TAFE. While still completing her first year of her Diploma she attended the UniStart program two nights a week from July to November and then gained admission to university the following year.

Student 15 at the time of the interview was a high-achieving student (although she rated herself as an average student); one who was ambitious and who had established long-term study and career goals for herself. This extract from her interview illustrates her determination and grit.

When I first came I was really, really scared because knowing that I came in through UniStart scared me even more because I thought, "I don't have the ability like the other students." . . . And then, my actual first assignment that I handed in to uni I failed. . . . I thought, "Hey, I'm not going to get through uni". I thought, "Maybe this is not what I should be doing".

. . . I have a real problem writing essays but once I found my weakness in that - like I sat down with the UniStart people and I found my weakness in that - I haven't failed an essay since. . . . So with failing that first assignment that I ever did, I had a bit of a cry about it, and then I was OK. And then I became really motivated after I passed the subject and I did really well.

This extract highlights several factors: the student's determination; her ability to use failure in a positive, productive way; her readiness to make use of people resources that will help her achieve success; her readiness to use feedback to enhance her learning; and the early development of her self-monitoring skills.
For this student, at least, her ability to turn around failures and disappointment in her first semester were vital in her ensuing success.

The second student used to illustrate the type of student who could fit this category is Student 30. Like Student 15, she came from a non-English speaking background. Before starting to discuss this student, a brief description of some of her experiences and her lifestyle are provided to give further insights into her determination. Student 30 had lived in a refugee camp from the age of 10 to 15 and had received minimal schooling whilst there. On arrival in Australia she completed her secondary education. The interview with this student was carried out in her home. Facilities for study were non-existent. The unit faced on to a busy road and was small, crowded and rather noisy. Student 30’s parents did not speak English and were rather impatient with her need to complete her university degree.

Student 30’s spoken English was good but she had difficulties with written English. Only two excerpts from her interview are included as these clearly illustrate her determination and strong-mindedness to succeed and her growing awareness of a hidden curriculum at work.

At the beginning (First Year) - you’re not sure, sometimes, what you’re doing. But towards the end, like now, I know the system. I know not to give up so easily. You become tougher.

and ...

What do you think it is that you have to do to get a good mark? Check your assignments before you hand them in. Make an appointment and go and see (your teachers) and show them the piece of work you have done because each of them, they’re looking at (assignments) in a different way.

... If you get a poor mark, you just have to go back to the lecturers and ask them why you got a poor mark and take it to a higher person ... keep asking. ... The university
does prepare you to go out, it's really what you make out of it. If you want something badly, you get it. Never give up. (Student 30)

As this student was in her final semester, she had proved to herself that she could do it. She was also in the final year of an Advanced Certificate that she was completing at TAFE which would provide her with further qualifications and she had definite plans for postgraduate study in the future.

Section Four summary

The three profiles indicate three different learner types, three ways that students can view learning at university. While these three views are indicative of those held by other students they do not represent the full range of motivations and goals that students have regarding their undergraduate learning. It is tempting to state that all students who do not fit neatly into these three categories could be classified as ‘average’ students - ‘average’ not in relation to their grades but in the general approach that they take to their learning. This, however, would be an oversimplification as so many of the students who did not fit readily into the above profiles were, in many cases, very different from each other in their motivation, use of feedback and approach to learning.

Conclusion

Findings from the interviews carried out in Stage 2 of this study have confirmed that the assessment process is a significant factor in shaping student learning. Data from the interviews revealed that students perceived the assessment process as influencing their motivational state, their intentions for learning at university and the way they interacted with the content of their learning. Examples were provided of assessment being used to guide students through their learning and, in other cases, purely as a means of evaluating student knowledge and skills. The findings emphasise the importance of
focusing on quality if students' intentions for learning and their engagement in learning are to be maximised. To limit any inhibiting aspects of the assessment, teaching, and learning processes, quality needs to be an inbuilt characteristic of each of these processes. This quality can only be judged in terms of the outcomes of the learning process and these outcomes extend beyond marks and grades to include the belief that learning is life-long, that knowledge is not static but ever-changing, and that ongoing learning is an empowering response to a continually changing workplace and society in general.

While the data from the interviews indicated that university educators want students to move from directed to self-directed learning, in their final year of study at least, this transition was, in general, only partially supported. For students to be self-directing they need to be able to monitor the quality of their work. The provision of appropriate feedback by teachers and its use by students is a required step in this process. In addition, students need to be skilled in assessing their own work; there appeared to be few opportunities for students to develop this skill. It was evident from the interviews that virtually all feedback came from the teacher. If students are to be encouraged to read and use feedback and to take feedback as a commentary on their work not as a criticism of themselves, if they are to appreciate the value of feedback from their peers, and if they are to be skilled in assessing their own work then we need to involve students in the feedback process. This could mean:

* providing opportunities for assessment which involves peer and self assessment;
* training students in providing feedback;
* asking students to identify specific areas in which they need assistance;
* giving students the opportunity to nominate the type of feedback they require; and
* training students in how to use feedback in future work.
While much was found from this second stage it became evident that further investigation was needed to clarify issues which appeared to be of a contradictory nature in the interviews, to explore areas where gaps occurred or when insufficient data were collected, to establish whether some issues warranted research beyond this study and, finally, to validate and confirm views that emerged from the literature and the interviews in Stage 2. Four key areas were identified as requiring further investigation.

Firstly, while students perceived assessment tasks that challenged them and involved them in deep thinking, problem solving and experience based learning as enhancing learning in general, no clear picture of specific assessment tasks involved was derived from the interviews. Students gave examples or different types of assessment that were used and which they valued but this information was limited. Further information needed to be collected to answer questions such as:

- How frequently are various types of assessment used?
- What are the types of assessment tasks that students value?
- Are some of these assessment types seen as ‘better’ or ‘fairer’ indicators of learning that others?

Secondly, further information needed to be collected about the nature of feedback that students were receiving, what value they placed on that feedback, and what use they made of it. While the data collected about feedback was rich and informative, gaps existed in the findings. Not all students interviewed provided data about feedback; not enough time was available in the interviews to fully investigate all areas of assessment. Issues related to the nature of feedback, the types of feedback that students value and the use made of feedback needed further investigation.

The third area which required further investigation was motivation. Motivation was demonstrated, both through the literature and this study, to be
a vital factor in the learning process. Undergraduate students' motivational goals and the relationship of motivation to other facets of assessment needed to be explored.

The profiles of three types of learners revealed varying interactions between elements of the assessment process, the teaching process and the learning process. However, it could not be deduced from Stage 2 of the study whether these profiles were specific to the context of the interviews or whether they were identifiable in other student populations. Further investigation into the characteristics of various types of undergraduate learners forms the fourth area that requires further research.

These four areas that require further investigation form the basis of the third and final stage of this study.
CHAPTER SEVEN

DESIGN AND DEVELOPMENT OF SURVEY

Introduction

This chapter provides an account of the methodology for Stage 3 of this study. The in-depth interviews reported in Chapters 3, 5 and 6 provided data about individual learners within the specific context of the undergraduate program they were completing. The data collected provided information about the ways individual learners go about their learning, how their own personal perspectives impact on and influence their learning and the way in which the learning context can either support or limit their learning outcomes. In particular, data from the in-depth interviews highlighted, as did the literature reviewed in Chapters 2 and 4, the mediating effect that assessment has on the learning process, on the approach students take to their learning and on the outcomes of this learning.

At the conclusion of Stage 2, specific issues were identified that required further research. The issues identified were:

1. Specific assessment strategies that are used in undergraduate programs
   - How frequently are various types of assessment used?
   - What are the types of assessment tasks that students value?
   - Are some of these assessment types seen as 'better' or 'fairer' indicators of learning than others?

2. The nature of the feedback that undergraduate students receive
   - What type of feedback are students receiving?
   - What type of feedback do they value?
• What use do they make of the feedback they receive?

3. **Students' motivational goals**
• What motivates undergraduate students?
• What is the relationship of motivation to other facets of assessment?

4. **Characteristics of various types of undergraduate learners**
• How do undergraduate students' values shape the way they approach their learning?
• How does the way undergraduate students use feedback affect their learning?

This chapter is about the decisions made about how to find answers to the above. In the process of making decisions, three questions, designed to focus Stage 3 of the study, were considered.

The first question considered was, *Where can we find answers to Questions 1-4 above?* It would appear logical to assume that as data from students were the sources of these issues, then the answers would lie within students themselves. Undergraduate students, then, would continue to be the focus of the study.

The second question arises from the answer to the first: *Should the study continue to focus on one university and one population of students or should it be broadened to include undergraduate students from other universities and other programs?* As the questions to be examined in this stage are broader and emerged from a relatively small sample of students, it was decided to strengthen the study by extending it to include a larger sample of students and a larger sample of universities. Because of the overall breadth of the study, it was decided to continue to limit the study to undergraduate students in professionally oriented courses.
The third question was, *What would be the best method for gathering data?* The dominant and most practical method utilised for collecting data for a large sample is the survey. While the use of surveys limits the detail and depth of the data that can be collected, this detail and depth were features of the data gathered in Stages 1 and 2. In Stage 3, general findings - rather than depth and detail - were considered a more appropriate goal. Indeed, the issues identified for further study listed above suggested much could be learned from the level of responses customarily obtained in survey research.

The remainder of this chapter provides an outline of the rationale for, and limitations of, employing a survey approach here, an account of the sampling and recruitment of subjects, data collection strategies, development of the survey instrument, and the data analysis strategies employed. It commences with a discussion of the use of surveys for educational research.

**Using surveys for research**

The two data collection strategies used in this study - the interviews and the questionnaire survey - are complementary in nature with each being designed to achieve quite different outcomes. In-depth interviewing was recognised as a highly appropriate and rewarding strategy for collecting data about the individual differences among learners as well as indicating areas of commonality. The survey is considered to be the most appropriate data collection strategy to use when a large amount of information is needed from a larger group of students as was the case in the final step of the empirical research. The interviews focused on *individual differences* of learners and allowed the researcher to gain insights into the world of the undergraduate student; the survey was designed to gather data from a large sample so *relationships* between variables could be established. The large data set that resulted made it possible to explore relationships among variables. This exploration went beyond the description level of Stages 1 and 2. As well as providing insights into specific variables or sets of variables, it sought
relationships where knowledge about one variable or set of variables supports predictions about the behaviour of another variable or set of variables with a specified level of confidence through the use of inferential statistics.

No matter what research strategy is chosen, certain limitations will be inherent in the philosophies underpinning its use or in its implementation. With in-depth interviews, limitations are generally perceived in the effect the interviewer's presence has on the informants' generation of data (internal validity) and whether the data collected can be generalised to other situations (external validity) (Burgess, 1984; Minichiello et al., 1995). de Vaus (1991) provided a brief review of the limitations that have been attached to the use of surveys. These limitations range over philosophical, political and technique based issues.

Philosophically based criticisms include the arguments that surveys:

- cannot effectively establish causal relationships between variables;
- cannot fully arrive at the meaningful aspects of social action;
- examine particular aspects of subjects' beliefs and experiences without exploring the context in which they occur and, as a result, the meaning of such behaviour or beliefs may be misinterpreted;
- neglect the role of human consciousness in the determination of human action;
- are characterised by sterile, rigid and ritualistic modes of inquiry;
- are empirically based and provide nothing of theoretical value;
- are not effective in measuring many aspects of social research (de Vaus, 1991).

The politically based criticism de Vaus identified is that survey research is "intrinsically manipulative" giving power to those in control and produces knowledge that is an "ideological reflection whose acceptance by 'the public'
furthers particular interests" (de Vaus, 1991, p. 9). The technique based criticisms assert that surveys are too restricted because of the highly structured nature of questionnaires and that they are too statistical thus reducing interesting aspects of the data to "totally incomprehensible numbers" (de Vaus, 1991, p. 9).

de Vaus presents a counter-argument to each of these criticisms and his view of the research experience can be summarised by this brief quote:

The course that a piece of research actually takes will be peculiar to that piece of research: it is affected by the research topic, the technique of data collection, the experience and personality of the researcher, the 'politics of the research', the types of people or situation being studied, funding and so on. . . . The prime goal of research should be to gain accurate understanding. Use the method: do not let it use you (de Vaus, 1991, pp. 9-10).

In this study, the survey was considered an optimum way of providing a new and different source of data that had the potential to provide further insights into the research questions. As stated at the outset of this study, the three parts of the study - the literature review, the interview study and the survey - should be viewed as complementary, as well as sequential, in nature. While providing new and more specific data to those already collected, each stage of the study served to inform and validate the others.

Surveys, according to de Vaus (1991), are distinguished by the specific form of data collection and the methods of analysis that are used. While the survey data may be collected in a number of ways - for example, through questionnaires, observations, content analysis - the data are then structured using a variable by case matrix by which comparisons between cases and patterns among cases can be identified. The survey was seen as the most appropriate way to resolve issues generated from the in-depth interviews and to produce evidence to confirm, or otherwise, findings from the interviews.
Surveys are generally acknowledged as being a useful means of describing the characteristics of a large population (for example, see Babbie, 1995; Berdie & Anderson, 1974; Borg & Gall, 1989; Hyman, 1991). The survey is also an excellent means of generalising findings obtained from a small sample to a larger population although Borg and Gall (1989) warned that all self-report data such as that obtained from the interviews and the survey, are “sometimes” inaccurate indicators of actual behaviour. There has been both criticism and support for the use of surveys in educational research.

Babbie (1995) highlighted four advantages attached to the use of surveys:

1. the use of a carefully selected sample combined with a standardised questionnaire provides the possibility of making “refined descriptive assertions” (p. 273);
2. very large samples are feasible;
3. the opportunity to ask many questions on a given topic provides the researcher with considerable flexibility in his or her analyses; and
4. as the same questions are being asked of all subjects, the results “have an important strength in regard to measurement” (p. 273).

Borg and Gall (1989) presented further advantages. They argued that a wide range of educational problems can be investigated through the survey and, in response to criticisms that surveys are limited to description only, they stated that survey research actually uses a variety of instruments and methods “to study relationships, effects of treatment, longitudinal changes, and comparisons between groups” (p. 417).

Many educational researchers have criticised surveys on the grounds that they are limited to description. Four further disadvantages attached to the use of survey research were given by Babbie (1995):
1. the need to standardise the survey items "often seems to result in the fitting of round pegs into square holes" (p. 273) as some or many of the questions may be only minimally relevant or appropriate to the individual subject’s experiences or circumstances;

2. survey research can seldom develop the "feel" for the total life context of the subject;

3. surveys typically require the initial design to remain unchanged whereas field researchers can often become aware of new variables and adapt their study design to accommodate these new variables; and,

4. surveys are subject to a degree of artificiality which can affect validity; Babbie gives the example that few people think of issues in terms of strongly agreeing, agreeing, disagreeing or strongly disagreeing and, as a result, survey responses must be viewed as "approximate indicators of what we have in mind initially in framing the questions" (p. 274).

In this study, the use of a survey allows the researcher to describe the characteristics of groups (sets of data), relationships between groups, and to identify possible causes for phenomena by comparing cases within the data (Borg & Gall, 1989; de Vaus, 1991). In this way the researcher is able to answer two fundamental questions, "What is going on (descriptive research) and why is it going on (explanatory research)" (de Vaus, 1991, p.11).

As noted earlier, in this investigation the survey was employed to further explore phenomena that had arisen in the two interview stages. The focus of the survey was explicitly derived from the interviews. In this way the significance and relevance of those limitations or criticisms of survey designs that are derived from a consideration of the survey as the singular data collection strategy employed in an investigation were minimised.
Development of the instrument

It was decided to conduct the survey at the end of the academic year so the responses would reflect the full cycle of students’ experiences. It was thus not feasible to conduct a mailed survey as there would have been little hope of a successful follow-up on non-returns. It was also felt that as many of the students would be finishing their undergraduate study they might be less inclined to respond to a mailed survey. Hence the instrument was administered by the researcher during class sessions.

The development of the survey instrument - a questionnaire - was guided by the need to investigate and gather data about the four issues identified at the beginning of the chapter:

1. specific assessment strategies that were used in undergraduate programs;
2. the nature of the feedback that undergraduate students received;
3. students’ motivational goals;
4. characteristics of various types of learners.

A questionnaire designed to investigate these four issues was developed. To maintain the content validity of the questionnaire, the items, where possible, were derived from the interview findings or from the interview transcripts. Students were asked to rate each of the items on a five-point Likert scale ranging from *strongly agree* (SA) to *strongly disagree* (SD). The complete questionnaire is included in Appendix 11.

The first section of the questionnaire examined students’ perceptions about various types of assessment. This section was included as it was evident from the findings from the in-depth interviews and the literature review that students responded in different ways to different forms of assessment. For example, assessment where students had to make decisions about the direction of their research, how they would carry it out, and the way it was reported was
generally linked to the development of independent learning skills and a deep approach to learning. The items were included in the survey for several reasons: firstly, to provide further data about the types of assessments used and the ways undergraduate students responded to them; next, to validate or confirm views that emerged from the literature and the interviews; and finally, to test potential relationships between variables in this section with those in the questionnaire relating to feedback and motivation.

While there are many forms of assessment, those included in this investigation were chosen because (a) they were specifically mentioned within the higher education literature, (b) they had been mentioned by students interviewed in the first two phases of the study, or (c) they were representative of the diverse assessment procedures employed in undergraduate programs in higher education institutions in Australia. Two of the twenty two forms of assessment included in the questionnaire (Items 9 and 17) were modelled on two items in Birenbaum’s (1994) Assessment Preference Inventory.

There were 22 items in this section - one for each of the chosen forms of assessment. The types of assessments covered ranged across examinations, written assignments, tasks related to professional skills, group assignments and oral presentations. An important factor taken into consideration in the development of items was the need to consider the students and the programs they were undertaking so that appropriate language and terminology were used. For each assessment item, respondents were asked three questions:

- the frequency of use of that specific type of assessment;
- whether they felt they had “learnt a lot” from that assessment; and
- whether they thought that the assessment method was fair.

The survey responses were all based on a five point Likert scale in which the choices ranged from strongly agree (SA) to strongly disagree (SD). An example
showing the format used for this part of the questionnaire is provided below. The final form of the questionnaire is included as Appendix 11.

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Are used frequently:</th>
<th>I learnt a lot from these:</th>
<th>Is a fair method of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports on practical work done in class</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
</tbody>
</table>

Section Two of the questionnaire examined various forms of feedback students might have received. They were asked to consider each of twelve forms of feedback which were chosen because (a) some, at least, represented forms of feedback generic to most assessment procedures, (b) they were forms of feedback that were mentioned in the higher education literature, or (c) they had been mentioned by students interviewed in the first two phases of the study. Respondents were asked questions about:

- the frequency of use; and
- whether they considered that specific form of feedback was effective.

The decision to explore this facet of the assessment process was influenced by the fact that there is a dearth of empirical data related to feedback in the assessment process in the context of Australian universities and hence there was a need to research it more fully. An example from this second section is included below.

<table>
<thead>
<tr>
<th>Forms of Feedback</th>
<th>Is used frequently.</th>
<th>Provides effective feedback.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing feedback about work-in-progress</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
</tbody>
</table>

In the third section, students were asked to consider ways they use the feedback that they received. The items in this section were devised to reflect the range of uses to which feedback might be put by undergraduate students. The use that students make of feedback has been demonstrated as one of the key factors in the development of self-monitoring skills. Some students make good use of
feedback and were better able to monitor the quality of their learning and direct their learning. Others make poor use of feedback and, as a result, often have difficulty monitoring their work and becoming independent in their learning. In this study, good use and poor use of feedback were not conceptualised as two extremes on one continuum. Good use of feedback indicates that students found the feedback they received helpful to them in their learning and motivated them to work harder. Poor use of feedback indicates that students tended to disregard the feedback they received, considered it of little use to them in their future learning and tended to segment their learning into isolated (assessment) tasks - the outcomes of one (learning/assessment) task having little to do with the next.

The inclusion of this section was instigated by the need for more empirical research into this area of the assessment process. Little guidance in the development of the list of uses was found in the literature. A tentative list was developed by drawing on this researcher’s experience in undergraduate courses as both student and teacher. The initial list was then refined by seeking reactions from a number of undergraduate students and from students involved in trialing the questionnaire.

The fourth section of the survey investigated students’ motivation for learning. As two main types of motivations are recognised, intrinsic and extrinsic, in this section two corresponding scales were developed. The twelve items in this section were derived from data from the interviews carried out in Stages 1 and 2 of this study and from the higher education literature.

Sections five and six picked up those issues that, while noted at the beginning of this chapter, were not included in previous sections. Some items served to triangulate others already used in the survey, while others explored students’ perceptions about issues not already explored (eg, perspectives on cheating). Items from these two sections are provided as examples below.
5. In my experience at university, most students appear to think that:
1. It's OK to cheat if the pressure of work gets too much.

6. I find that:
7. When preparing for exams, I study a few topics well and hope they will be in the exam paper.

The questionnaire given to the students included a cover letter explaining the purpose of the study, the reason for asking them to be involved, their rights and so on. Ethics approval to conduct the survey was obtained from the Ethics Committee of the University of Western Sydney, Nepean (see Appendix 12). Students who agreed to be involved were then asked to provide some demographic information about themselves. The information related to age, gender, first language, country of birth, home postcode, undergraduate program being completed, university in which they are studying, usual grade for a subject, whether they had failed or not, and - in the case of failed subjects - the number of subjects failed. The final question asked students how likely it was that they would undertake further university study.

From among the 124 items, sixteen scales were developed. These scales were associated with assessment strategies (three scales), feedback (six scales), and motivation (seven scales). The scales, together with the items that constitute each scale, are listed in Appendix 13. A summary of data associated with these scales is included in Table 7.1. This summary indicates the association or grouping to which a scale belongs, the name or label given to the scale along with a sample item. For all scales, Cronbach alpha coefficients greater than 0.60 were achieved.
Table 7.1 Summary Data on Scaled Variables Used in the Questionnaire

<table>
<thead>
<tr>
<th>Scaled Variable</th>
<th>Cronbach Alpha</th>
<th>No. of items</th>
<th>Sample item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment strategies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of authentic assessment</td>
<td>0.61</td>
<td>5</td>
<td>Tasks related to real life situations/events.</td>
</tr>
<tr>
<td>Value of communication based assessment</td>
<td>0.63</td>
<td>4</td>
<td>Assignments based on group work.</td>
</tr>
<tr>
<td>Value of autonomous assessment</td>
<td>0.62</td>
<td>7</td>
<td>Assignments negotiated between student and teacher.</td>
</tr>
<tr>
<td><strong>Feedback</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good use of feedback</td>
<td>0.74</td>
<td>5</td>
<td>Feedback has usually helped me to do better in later assignments.</td>
</tr>
<tr>
<td>Poor use of feedback</td>
<td>0.76</td>
<td>5</td>
<td>The written comments aren't much use to me because I have already been marked on the assignment.</td>
</tr>
<tr>
<td>Frequency of ongoing feedback</td>
<td>0.76</td>
<td>6</td>
<td>A sheet given to all students providing overall feedback on an assignment or an exam.</td>
</tr>
<tr>
<td>Effectiveness of ongoing feedback</td>
<td>0.77</td>
<td>6</td>
<td>Oral feedback in lectures after assignments have been handed back.</td>
</tr>
<tr>
<td>Frequency of personally oriented feedback</td>
<td>0.62</td>
<td>4</td>
<td>Individual meeting with marker of assignment.</td>
</tr>
<tr>
<td>Effectiveness of personally oriented feedback</td>
<td>0.62</td>
<td>4</td>
<td>Combined feedback from teacher and other students.</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>0.78</td>
<td>5</td>
<td>Gaining a full understanding of the subject.</td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td>0.67</td>
<td>5</td>
<td>Doing as well as my friends in the course.</td>
</tr>
<tr>
<td>Needs achievement</td>
<td>0.74</td>
<td>4</td>
<td>Proving to myself that I can do it.</td>
</tr>
<tr>
<td>Learning for understanding</td>
<td>0.71</td>
<td>4</td>
<td>I try to learn as much as I possibly can when I'm doing assignments.</td>
</tr>
<tr>
<td>Minimalist approach</td>
<td>0.64</td>
<td>4</td>
<td>My motivation is to pass without having to do too much work.</td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td>0.75</td>
<td>2</td>
<td>Getting good marks to increase my employment prospects.</td>
</tr>
<tr>
<td>Cheating</td>
<td>0.92</td>
<td>2</td>
<td>It's OK to cheat if the pressure of work gets too much.</td>
</tr>
</tbody>
</table>

Ten undergraduate students, known to the researcher, were used to trial the survey instrument. The instrument was refined a result of their input.

**Characteristics of subjects participating in the survey**

In order to strengthen the study, it was extended, in Stage 3, beyond UWS (Nepean) to also include undergraduate students from two other universities in Sydney - The University of Sydney and the University of Technology, Sydney.
(UTS). The University of Sydney and the University of Technology, Sydney, are two universities that are very different from each other as well as being very different from UWS (Nepean). The University of Sydney is Australia’s oldest university and, as a result, has all the benefits that derive from age, tradition, status and success. The University of Technology, Sydney, has a long history in the area of technology. Originally, an institute of technology, it became a university in its own right in 1988 and, while retaining a strong emphasis on technology, has expanded into other academic areas. As mentioned in Chapter 6, UWS (Nepean) is one of the newest universities in Australia having been established in 1989 and is situated in a region frequently targeted to alleviate educational disadvantage.

Even though the survey had broadened beyond one specific university, it was still context specific in that the survey instrument was designed to tap students’ perceptions and beliefs about issues related to the specific programs they were undertaking. Undergraduate students from Education, Engineering and Nursing remained the focus of the study although this focus was broadened to include students from an Occupational Therapy program. An opportunity arose to include these students and this convenience sampling was accepted. Initial preparation for the professions selected is predominantly at undergraduate level in Australia. As shown in Table 7.2, eight groups of students were surveyed.

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>UWS (Nepean)</th>
<th>UTS</th>
<th>The Univ. of Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nursing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Students surveyed had all completed at least two and a half years of their undergraduate degrees and were all enrolled in professionally oriented programs. They ranged in age from 20 to 55 years of age with a mean age of
24.5 years. Of the sample, 68 per cent of the students were female and 32 per cent were male.

The 418 subjects cited 35 different countries in response to the question inquiring about their country of birth; 77 per cent of the subjects were born in Australia. Eighty-six per cent of the sample gave English as their first language with 21 other languages being indicated as subjects' first language. Characteristics of the students who participated in the survey are presented in Table 7.3.

Table 7.3 Background Information about Subjects Participating in the Survey

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>133</td>
<td>31.8</td>
</tr>
<tr>
<td>Female</td>
<td>285</td>
<td>68.2</td>
</tr>
<tr>
<td><strong>Professional program</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>106</td>
<td>25.4</td>
</tr>
<tr>
<td>Nursing</td>
<td>130</td>
<td>31.1</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>58</td>
<td>13.9</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>124</td>
<td>29.7</td>
</tr>
<tr>
<td><strong>University Attended</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UWS (Nepean)</td>
<td>157</td>
<td>37.6</td>
</tr>
<tr>
<td>UTS</td>
<td>157</td>
<td>37.6</td>
</tr>
<tr>
<td>University of Sydney</td>
<td>109</td>
<td>26.1</td>
</tr>
</tbody>
</table>

While the intention of the researcher was to gain a cross section of undergraduate students from the programs and universities selected, it was not possible to control students' voluntary participation. As can be seen in Table 7.3, the gender mix of 32 percent male students and 68 per cent female students reflects the female dominated nature of three of the professional groups surveyed.

Respondents were asked what their usual grade had been for the subjects they had completed. The percentages, presented in Table 7.4, indicate data collected about the whole sample as well as data about each group of students by profession. The sample covered the whole range of students in terms of grades
obtained although students in Occupational Therapy reported a history of higher grades than did others.

Table 7.4 Respondents’ Usual Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total %</th>
<th>Engineers %</th>
<th>Nurses %</th>
<th>OTs %</th>
<th>Teachers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>24</td>
<td>26</td>
<td>29</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>Credit</td>
<td>57</td>
<td>61</td>
<td>51</td>
<td>67</td>
<td>57</td>
</tr>
<tr>
<td>Distinction</td>
<td>17</td>
<td>11</td>
<td>15</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>High Distinction</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(Missing cases)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

While these were students in their third and fourth years of their program, 40 per cent had failed at least one subject during their undergraduate study. Table 7.5 presents the reported number of subjects failed by students as a group and in terms of the professional program of enrolment.

Table 7.5 Number of Subjects Failed

<table>
<thead>
<tr>
<th>Subjects failed</th>
<th>Total %</th>
<th>Engineers %</th>
<th>Nurses %</th>
<th>OTs %</th>
<th>Teachers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 fails</td>
<td>60</td>
<td>24</td>
<td>62</td>
<td>72</td>
<td>82</td>
</tr>
<tr>
<td>1-3 fails</td>
<td>27</td>
<td>39</td>
<td>31</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>4-6 fails</td>
<td>8</td>
<td>23</td>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>7-9 fails</td>
<td>2.5</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10-15 fails</td>
<td>2.5</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(Missing cases)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Data about the likelihood of subjects engaging in further university study are presented in Table 7.6. Examination of percentages shows that distinct differences exist among the four professional groups. Teacher education and nursing students (74 per cent and 68 per cent respectively on total percentages for “likely” and “highly likely”) have a much higher expectation of engaging in further university study than do engineering and occupational therapy students (37 per cent and 20 per cent respectively) (chi-square = 92.7; df = 9; p<<.05).

Table 7.6 Likelihood of Further University Study by Profession

<table>
<thead>
<tr>
<th>Further Study</th>
<th>Total %</th>
<th>Engineers %</th>
<th>Nurses %</th>
<th>OTs %</th>
<th>Teachers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not likely</td>
<td>16</td>
<td>28</td>
<td>6</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>Some chance</td>
<td>29</td>
<td>35</td>
<td>26</td>
<td>45</td>
<td>19</td>
</tr>
<tr>
<td>Likely</td>
<td>29</td>
<td>24</td>
<td>39</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Highly likely</td>
<td>26</td>
<td>13</td>
<td>29</td>
<td>5</td>
<td>44</td>
</tr>
</tbody>
</table>
Recruitment and Data Collection

The survey was conducted towards the end of the second semester of the student year at a time when students were completing assignments and preparing for exams. This time was chosen deliberately to derive maximum benefit from the students' experiences of three or more years of university study. It was also chosen to coincide with the time when students would be completing assignments, receiving feedback from completed assignments, and preparing for exams. In other words, it was a time when assessment would be foremost in students' minds and at a time when they would be drawing near to the end of their undergraduate study.

All students were surveyed within the last six weeks of the academic year. As a result of the timing of the survey, it was necessary to ensure that the data collection was conducted as smoothly as possible as a second opportunity would not present itself. As a result of timetabling and the demands of Clinical Experience, students from one Faculty were surveyed on the last day of lectures.

Of the eight faculties approached, all agreed to be involved in the survey. Permission to survey the students was gained from the head of each of the faculties involved. An example of the letter seeking permission is included in Appendix 14. This approach ensured that the Dean and relevant member of faculty (eg, members of a Faculty's Research Committee) were fully appraised of the nature and intent of the survey and of details of who was to be involved and the nature of their involvement. The ethics approval for conducting the survey obtained from the Ethics Committee of the University of Western Sydney, Nepean (see Appendix 12) was notified to the the eight faculties involved.
Arrangements differed across faculties. In some, arrangements were made through the Dean and his or her Advisory Committee or the Faculty Research Committee. In other faculties, members of staff closely associated with students to be surveyed were delegated as the contact persons. Some faculties preferred to be in charge of the arrangements; others preferred the researcher to negotiate with staff members and make arrangements. All arrangements were cordially carried out with members of the various faculties doing all they could to facilitate the success of the survey. The researcher undertook to provide feedback to each of the faculties on completion of the study.

Students were asked to complete the surveys during a free period following a class. It was decided, in consultation with the various faculty members, that the researcher would spend a few minutes at the end of a lecture or tutorial speaking to students, explaining to them the purpose of the research and other pertinent issues, and inviting them to take a questionnaire, fill it in in the free period following their class and return it immediately. Because of limitations imposed by timetabling or at the direct request of the teacher involved, this procedure - during the process of the surveying - underwent modifications. Some teachers wanted the survey done during the break in their class time and invited the researcher to speak at the beginning of the class and distribute questionnaires to interested students in the break. In the case of two evening classes, the lecturers gave over the last twenty minutes of class time for the survey. They wanted the students they taught involved but did not want them to miss buses and trains by remaining behind. In all cases, however, the students were completely free to choose whether they would participate or not. A container was placed at a point in the room where students could return questionnaires - completed or otherwise - without having to approach the researcher or their teacher. The importance of fitting in with timetabling arrangements and staff requests, where possible, was recognised. There was no evidence to suggest that these variations significantly influenced the reliability of the data collected.
Return rate

A response rate of 76 per cent was achieved based on 550 questionnaires being distributed and 418 fully completed questionnaires being returned. The response rate was based on the return rate of questionnaires, not on the number of students present in each class. Table 7.7 shows completed responses received by program of study.

<table>
<thead>
<tr>
<th>Professional program</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>106</td>
<td>25.4</td>
</tr>
<tr>
<td>Nursing</td>
<td>130</td>
<td>31.1</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>58</td>
<td>13.9</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>124</td>
<td>29.7</td>
</tr>
<tr>
<td>Total</td>
<td>418</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Response rates were broadly similar across programs as shown in Table 7.8.

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>University of Western Sydney (Nepean)</th>
<th>University of Technology, Sydney</th>
<th>The University of Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>15 out of 15 (100%)*</td>
<td>91 out of 118 (77%)</td>
<td>46 out of 55 (84%)</td>
</tr>
<tr>
<td>Nursing</td>
<td>61 out of 90 (68%)</td>
<td>23 out of 30 (77%)</td>
<td>58 out of 80 (73%)</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>81 out of 105 (77%)</td>
<td>43 out of 57 (75%)</td>
<td>-</td>
</tr>
</tbody>
</table>

*Percentage in bracket is the response rate based on questionnaires accepted by students in that program.

Data analysis

Survey forms returned were checked for completeness. There were 418 usable forms of the 550 distributed. Each of the 418 forms was numbered and responses were coded. Data were then entered into a data file within the Statistical Package for the Social Sciences (SPSS) program for Windows (SPSS Incorporated, 1993). The accuracy of data entry was checked by an independent person.
Initially, descriptive analysis of the data resulted in means and standard deviations being calculated for all variables and scales. Comparisons of means using independent variables such as gender, age, grades received, program and intentions for further study were carried out using t-tests or ANOVAs as appropriate. Finally, relationships between pairs of variables were explored using bi-variate correlations techniques and between sets of variables using canonical correlation techniques. Canonical correlation techniques extend bi-variate correlation techniques in that a combination of several predictor variables are used in the former to predict a combination of several criterion variables (Borg & Gall, 1989). Survey results yielded through these analyses are reported in the next chapter.
CHAPTER EIGHT

FINDINGS FROM THE SURVEY

The primary aim of the survey questionnaire was to investigate further issues that arose from the interview study in Stage 2. The questionnaire was designed to investigate students’ perceptions about different types of assessment, forms of feedback and the use made of feedback, and their motivations for learning. The areas of investigation and the specific questions addressed in Stage 3 (see Chapter 7) through the questionnaire are revisited below in Table 8.1.

Table 8.1 Areas Investigated in Stage 3

1. **Specific assessment strategies that are used in undergraduate programs**
   - How frequently are various types of assessment used?
   - What are the types of assessment tasks that students value?
   - Are some of these assessment types seen as ‘fairer’ indicators of learning than others?

2. **Feedback from assessment**
   - What types of feedback are undergraduate students receiving?
   - What type of feedback do they value?
   - What use do they make of the feedback they receive?

3. **Students’ motivational goals**
   - What motivates undergraduate students?

4. **Relationships among motivation, feedback and other facets of assessment**
   - Do students’ perceptions of the value of different types of assessment and different forms of feedback affect the way they use feedback?
   - Do students’ perceptions of the value of different types of assessment and different forms of feedback affect their motivation for learning?
   - Does the way students use feedback impinge on their motivations for learning?
Section One:  
Assessment strategies used in undergraduate programs

Three questions about assessment strategies were explored in the survey. The questions were:

- How frequently are various types of assessment used?
- What are the types of assessment tasks that students value?
- Are some of these assessment types seen as ‘fairer’ indicators of learning than others?

In this section, descriptive findings about the frequency of use of assessment strategies are presented. Included is an analysis of the relative frequency of use of different types of assessment given to students in the four programs - engineering, nursing, occupational therapy and teacher education. Findings about the frequency of use of different types of assessment are followed by students’ perceptions of the value of these different assessment strategies in terms of learning. The section finishes with findings about students’ perceptions of the fairness of different types of assessment. In each set of findings, data from the overall sample are presented first. These overall findings are then followed by a more detailed analysis in which variations in students’ perceptions are related to background variables such as gender, program, usual grade received and intentions for further study in an attempt to “explain” why views differ.

Reported frequency of different types of assessment

Twenty two different types of assessment were included in the questionnaire. To facilitate analysis and reporting, these 22 strategies have been placed into four categories: examinations; authentic assessments; communication based assessments; and autonomous forms of assessment. Two types of assessment - reports on practical work done in class and completing journals or diaries which
document experiences - did not fit in any of these four categories and are reported separately. Students were asked to rate each of the 22 items in terms of frequency of use in their program using a Likert scale ranging from Strongly Agree (5) (that this type of assessment was used frequently) to Strongly Disagree (1) (that this type of assessment was used infrequently). The mean and standard deviation for each assessment type are provided in Table 8.2.

Table 8.2  Means and Standard Deviations for Frequency of Use of Types of Assessment

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Mean</th>
<th>St.Dev.</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examinations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Short answer exams.</td>
<td>3.24</td>
<td>1.09</td>
<td>413</td>
</tr>
<tr>
<td>2. Exams where you write in-depth about topics or provide solutions to problems.</td>
<td>3.24</td>
<td>1.13</td>
<td>415</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>3.46</td>
<td>1.24</td>
<td>417</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>3.87</td>
<td>1.17</td>
<td>408</td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>2.62</td>
<td>1.24</td>
<td>414</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>2.14</td>
<td>1.21</td>
<td>413</td>
</tr>
<tr>
<td>7. Class tests throughout the semester.</td>
<td>3.14</td>
<td>1.20</td>
<td>414</td>
</tr>
<tr>
<td><strong>Authentic Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in your chosen profession.</td>
<td>3.64</td>
<td>1.08</td>
<td>416</td>
</tr>
<tr>
<td>16. Assignments on field work (eg, clinical, practicum, professional experience).</td>
<td>3.72</td>
<td>1.09</td>
<td>416</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>3.41</td>
<td>1.09</td>
<td>417</td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment.</td>
<td>2.72</td>
<td>1.13</td>
<td>417</td>
</tr>
<tr>
<td><strong>Communication Based Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Leading a seminar.</td>
<td>3.69</td>
<td>1.17</td>
<td>415</td>
</tr>
<tr>
<td>19. Assignments based on group work.</td>
<td>4.15</td>
<td>0.81</td>
<td>417</td>
</tr>
<tr>
<td>20. Giving an oral presentation.</td>
<td>4.05</td>
<td>0.83</td>
<td>415</td>
</tr>
<tr>
<td><strong>Autonomous Forms of Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A large scale project that has developed over a long period.</td>
<td>3.16</td>
<td>1.17</td>
<td>414</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>3.82</td>
<td>0.86</td>
<td>416</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher.</td>
<td>2.62</td>
<td>1.10</td>
<td>415</td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>3.68</td>
<td>1.00</td>
<td>416</td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>3.47</td>
<td>1.03</td>
<td>416</td>
</tr>
<tr>
<td>18. Assignments requiring the application of your learning to new situations.</td>
<td>3.47</td>
<td>0.91</td>
<td>413</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Reports on practical work done in class.</td>
<td>3.20</td>
<td>1.09</td>
<td>413</td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td>3.29</td>
<td>1.16</td>
<td>416</td>
</tr>
</tbody>
</table>

This table shows considerable variation in how often assessment strategies were used (means ranged from 4.15 to 2.14). In addition, within some strategies, high standard deviations were found (range from 1.24 to 0.81) and this
suggested the need to investigate if there were systematic differences across programs.

In Table 8.3, data are presented, in order, about the most and least frequently reported types of assessment used in these students' experience.

Table 8.3  Reported Frequency of Assessment Types

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most frequently used:</strong></td>
<td></td>
</tr>
<tr>
<td>19. Assignments based on group work</td>
<td>4.15</td>
</tr>
<tr>
<td>20. Giving an oral presentation</td>
<td>4.05</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams</td>
<td>3.87</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis</td>
<td>3.82</td>
</tr>
<tr>
<td><strong>Least frequently used:</strong></td>
<td></td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment</td>
<td>2.72</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher</td>
<td>2.62</td>
</tr>
<tr>
<td>5. Open book exams</td>
<td>2.62</td>
</tr>
<tr>
<td>6. Take home exams</td>
<td>2.14</td>
</tr>
</tbody>
</table>

Findings in Table 8.3 indicate that assessment tasks involving collaborative learning, teamwork and the development of communication skills were among those perceived to be most frequently used. Although the suggestion is speculative and not based on the research evidence, the three most frequently used types of assessment suggest that marking considerations (lecturers' workload) could have been a determining factor in their use. Marking of one assignment for a group takes considerably less time, generally, than if individual assignments were submitted. Similarly, the marking of an oral presentation is usually less onerous than for written submissions. In the third case, *large scale, end of semester examinations*, as such examination papers are usually not returned to students, marking time is considerably reduced as feedback comments are not required.

While group learning, especially structured collaborative learning, is generally supported by educators (e.g., Bruning, 1994; Mezirow, 1990a; Nichols & Miller, 1994), group assessment has received less attention. Findings from a recent study in the UK, involving academics in 42 university computing
faculties/departments, indicated that while academics generally supported group learning, attitudes to group assessment were "cautious and uncertain" (Lejk, Wyvill & Farrow, 1997, p. 89). Respondents in this survey study were also uncertain as to whether group assessments saved time in marking: on a 5-point Likert scale ranging from strongly agree to strongly disagree, the mean for this item was at the centre of the range, uncertain (Lejk et al., 1997).

The four most frequently used types of assessment come from three different categories of assessment - communication based (2), examinations (1), and autonomous forms (1). None of the five items from the authentic assessment category appear. To investigate whether or not assessment types were used to a different extent in different programs, a one-way ANOVA with program as the independent variable was conducted for each type. Results are presented in Table 8.4.
<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>F value ANOVA</th>
<th>p</th>
<th>Differences among programs(^1) - Students-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Short answer examination.</td>
<td>22.73</td>
<td>***</td>
<td>N &gt; T, OT, E (^2) T &gt; E</td>
</tr>
<tr>
<td>2. Exams where you write in-depth about topics or provide solutions to problems.</td>
<td>30.12</td>
<td>***</td>
<td>E &gt; T &gt; N, OT</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>84.55</td>
<td>***</td>
<td>OT &gt; N &gt; T &gt; E</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>24.01</td>
<td>***</td>
<td>OT, E &gt; N &gt; T</td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>48.50</td>
<td>***</td>
<td>E &gt; T &gt; N &gt; OT</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>18.95</td>
<td>***</td>
<td>T, N &gt; OT &gt; E</td>
</tr>
<tr>
<td>7. Class tests throughout the semester.</td>
<td>62.44</td>
<td>***</td>
<td>E &gt; N &gt; T &gt; OT</td>
</tr>
<tr>
<td><strong>Authentic Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in your chosen profession.</td>
<td>21.10</td>
<td>***</td>
<td>N, T &gt; OT &gt; E</td>
</tr>
<tr>
<td>16. Assignments on field work (eg. clinical, practicum, professional experience).</td>
<td>27.50</td>
<td>***</td>
<td>T, OT &gt; N &gt; E</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment.</td>
<td>23.03</td>
<td>***</td>
<td>T &gt; N &gt; E, OT</td>
</tr>
<tr>
<td><strong>Communication Based Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Leading a seminar.</td>
<td>53.83</td>
<td>***</td>
<td>OT, T &gt; N &gt; E</td>
</tr>
<tr>
<td>19. Assignments based on group work.</td>
<td>18.72</td>
<td>***</td>
<td>OT, T &gt; N &gt; E</td>
</tr>
<tr>
<td>20. Giving an oral presentation.</td>
<td>17.40</td>
<td>***</td>
<td>OT, T &gt; N &gt; E</td>
</tr>
<tr>
<td><strong>Autonomous Forms of Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A large scale project that has developed over a long period.</td>
<td>6.75</td>
<td>***</td>
<td>E, OT, T &gt; N</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>2.34</td>
<td>-</td>
<td>T &gt; N</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher.</td>
<td>7.73</td>
<td>***</td>
<td>T, N &gt; E, OT</td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>10.77</td>
<td>***</td>
<td>N, T &gt; OT, E</td>
</tr>
<tr>
<td>18. Assignments requiring the application of your learning to new situations.</td>
<td>4.30</td>
<td>**</td>
<td>N &gt; E</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Reports on practical work done in class.</td>
<td>28.02</td>
<td>***</td>
<td>E &gt; N, T &gt; OT</td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td>56.12</td>
<td>***</td>
<td>T &gt; N &gt; E &gt; OT</td>
</tr>
</tbody>
</table>

\(^*\) p<.05  
\(^**\) p<.01  
\(^***\) p<.001

\(^1\) E = Engineering students  
N = Nursing students  
OT = Occupational Therapy students  
T = Teacher Education students

\(^2\) In the last column, group means are in descending order of value from left to right
It can be seen from the data presented in Table 8.4 that significant differences do occur in 19 of the 22 assessment items. Engineering students identified four of the seven types of examinations as being frequently used in their programs. These same students, however, reported the lowest means for frequency of use of the other three examination types: short answer examinations (mean =2.7), examinations where you choose from a set of given responses (mean =2.3) and take home examinations (mean =1.5). Obviously, some types of examinations are used frequently, others rarely. Engineering students had significantly lower means than had the three other groups of students for three of the four types of authentic assessment and for all three of the communication based assessment items.

Nursing students reported two of the examination items, two of the authentic assessment items and two of the autonomous forms of assessment as being frequently used in their programs. In contrast to the engineering students, nursing students reported relatively high frequency of use of short answer examinations (mean =3.8). Even though nursing students had the highest mean of all groups for take home examinations, a mean of 2.5 indicates that this form of examination was not often used in their programs. The clinically based nature of nursing programs is reflected in the high means reported for performing tasks closely resembling those performed by a qualified person in your chosen profession (mean =4.0) and assignments requiring the application of your learning to new situations (mean =3.7). Both nursing and teacher education students reported higher use of assignments involving a choice of topic (both having a mean of 3.7) than did occupational therapy and engineering students (both having a mean of 3.1).

Occupational therapy students reported very high frequency of use of examinations where you choose from a set of given responses (mean =4.6) and large scale, end of semester examinations (mean = 4.4). This suggests that the large scale, end of semester examinations may be predominantly multiple choice. Communication based assessment was frequently experienced by occupational
therapy students as evidenced by the high means: *leading a seminar* - mean of 4.6 compared to 2.8 for engineering students; *assessment based on group work* - mean of 4.5 compared to 3.8 for engineering students; and *giving an oral presentation* - mean of 4.4 compared to 3.6 for engineering students. Occupational therapy students reported little experience of writing *reports on practical work done in class* (mean = 2.3), however, when compared to engineering students (mean = 3.8) and had a significantly lower mean than all other groups of students for *completing journals or diaries which document experiences*. 

**Teacher education students** reported limited use of examinations in their programs with means ranging from a high of 3.4 for items 2 and 3, in-depth examinations and multiple choice examinations, to a low of 2.5 for *take home examinations*. They did have significantly higher means than all or some of the other groups of students for three of the four authentic assessment items where significant differences had occurred. Similarly, they had relatively high means for the three types of communication based assessment items and in all four of the autonomous forms of assessment. Teacher education students were more likely to be asked to keep journals than any of the other groups.

In Chapter 7, the formation of two "scales" based on frequency of use of groups of assessment items was discussed. Scales for *Frequency of Authentic Assessment* (Cronbach alpha coefficient of 0.6) and *Frequency of Communication Based Assessment* (Cronbach alpha coefficient of 0.7) were made up of the items that reflected their labels (as shown in Table 8.4). These scales had means of 3.37 for *Frequency of Authentic Assessment* (standard deviation = 0.74, n = 417) and 3.96 for *Frequency of Communication Based Assessment* (standard deviation = 0.74, n = 418). When a one-way ANOVA with program as the independent variable was conducted for each scale, statistically significant differences were found among the four groups.
Table 8.5 Extent of Frequent Use: ANOVA x Program

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>F value ANOVA</th>
<th>p</th>
<th>Differences among programs(^1) - Student-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/Frequency of</td>
<td>31.56</td>
<td>***</td>
<td>T, N &gt; OT &gt; E</td>
</tr>
<tr>
<td>Communication based assessment/Frequency of</td>
<td>52.92</td>
<td>***</td>
<td>OT, T &gt; N &gt; E</td>
</tr>
</tbody>
</table>

\(^*\) p<.05  \(^{**}\) p<.01  \(^{***}\) p<.001

\(^1\)E = Engineering students, N = Nursing students, OT = Occupational Therapy students, T = Teacher Education students

On both scales, the mean for engineering students is significantly lower than those of the other groups.

**Types of assessment students valued**

The reported frequencies of the 22 different types of assessment indicate a wide variety of assessment types had been experienced by the students surveyed. In this section, findings are presented which provide information about the value, in terms of learning, that students placed on different types of assessment. Once again using a five point Likert scale, students were asked to rate each of the 22 types of assessment. A rating of 5 indicated that a student strongly agreed that he or she had learnt a lot from that type of assessment. Conversely, a rating of 1 implied that little had been learnt.
Table 8.6  Means and Standard Deviations for Extent of Perceived Learning Value of Assessment Types

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Mean</th>
<th>St.Dev.</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examinations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Short answer exams.</td>
<td>3.32</td>
<td>0.98</td>
<td>411</td>
</tr>
<tr>
<td>2. Exams where you write in-depth about topics or provide solutions to problems.</td>
<td>3.42</td>
<td>0.94</td>
<td>415</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>2.94</td>
<td>1.06</td>
<td>414</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>2.89</td>
<td>1.10</td>
<td>403</td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>3.09</td>
<td>1.17</td>
<td>408</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>3.06</td>
<td>1.27</td>
<td>399</td>
</tr>
<tr>
<td>7. Class tests throughout the semester.</td>
<td>3.55</td>
<td>1.00</td>
<td>410</td>
</tr>
<tr>
<td><strong>Authentic Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in your chosen profession.</td>
<td>4.01</td>
<td>0.86</td>
<td>412</td>
</tr>
<tr>
<td>16. Assignments on field work (e.g., clinical, practicum, professional experience).</td>
<td>3.77</td>
<td>1.09</td>
<td>415</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>3.83</td>
<td>0.91</td>
<td>417</td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment.</td>
<td>3.26</td>
<td>0.96</td>
<td>412</td>
</tr>
<tr>
<td><strong>Communication Based Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Leading a seminar.</td>
<td>3.58</td>
<td>1.05</td>
<td>412</td>
</tr>
<tr>
<td>19. Assignments based on group work.</td>
<td>3.61</td>
<td>0.97</td>
<td>413</td>
</tr>
<tr>
<td>20. Giving an oral presentation.</td>
<td>3.68</td>
<td>0.95</td>
<td>416</td>
</tr>
<tr>
<td><strong>Autonomous Forms of Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A large scale project that has developed over a long period.</td>
<td>3.69</td>
<td>1.05</td>
<td>407</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>3.88</td>
<td>0.73</td>
<td>413</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher.</td>
<td>3.32</td>
<td>0.95</td>
<td>409</td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>3.85</td>
<td>0.86</td>
<td>413</td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>3.86</td>
<td>0.78</td>
<td>413</td>
</tr>
<tr>
<td>18. Assignments requiring the application of your learning to new situations.</td>
<td>3.72</td>
<td>0.76</td>
<td>412</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Reports on practical work done in class.</td>
<td>3.35</td>
<td>0.93</td>
<td>410</td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td>3.09</td>
<td>1.05</td>
<td>415</td>
</tr>
</tbody>
</table>

It is evident from these results, that examinations are the least valued of the four categories of assessment. The types of assessment that respondents most valued in terms of their learning and the types that they least valued have been isolated and are shown in Table 8.7.
Table 8.7  Perceptions of Learning Value of Assessment Types

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learned most from these assessment types</strong></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a</td>
<td>4.01</td>
</tr>
<tr>
<td>qualified person in your chosen profession.</td>
<td></td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>3.88</td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>3.86</td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>3.85</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>3.83</td>
</tr>
<tr>
<td><strong>Learned least from these assessment types</strong></td>
<td></td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>3.09</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>3.06</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>2.94</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>2.89</td>
</tr>
</tbody>
</table>

Of the five types of assessment most valued by students, two come from the authentic assessment category and three from the autonomous forms of assessment category. These results corroborate findings from Stage 2 of this study: students valued authentic assessment strategies closely aligned to the tasks they would be undertaking in their future careers. The mean of 4.01 out of a possible 5 indicates respondents particularly valued opportunities for performing tasks closely resembling those performed by a qualified person in their chosen professions. The results also corroborate findings from the literature and from the interviews carried out in Stages 1 and 2: students value assessment strategies that provide a high degree of student responsibility for, and autonomy in, their learning. Students' intrinsic motivation is linked to the provision of assessment tasks which are seen as relevant, meaningful and challenging and to the freedom to choose what they will do and how they will go about it.

The least valued forms of assessment for these students were examinations. However, it is evident from the standard deviations of the four examination types (all >1.05) (see Table 8.4) that these approaches were valued by some students and this is explored below.

While large scale, end of semester examinations were perceived by students to be the least valued form of assessment, they were shown in Table 8.2 to be
amongst the most frequently used. Students in the in-depth interviews in Stage 2 of this study indicated that they valued assessment and learning that was relevant to their future career needs and learning that was active and collaborative (see Section One of Chapter 6). Frequent use of examinations does not sit well with the self-directed, autonomous approach that is the goal of university education. Unless summative forms of examination such as large scale, end of semester examinations and examinations where you choose from a set of given responses are supported by teaching-learning strategies in place throughout the semester, these two types of examinations could be viewed as convenient evaluation tools but not as a means of appraising realistic performance.

Given the variations that occurred in students' ratings of the value of different types of assessment, t-tests and one way ANOVAs were used to explore whether gender and program differences were in evidence. The results are presented in Table 8.8. The statistical outcomes related to gender are confounded, however, with program. Three of the four professional groups surveyed (nursing, occupational therapy and teacher education) were predominantly female while the fourth group, engineering, was predominantly male. Sub-group means were compared using either a t-test (gender) or an ANOVA (program). (A two way ANOVA of gender x program was not feasible because of the strong confounding between these two variables and some cells with near zero frequencies).
Table 8.8  Perceived Value of Assessment Types: Comparison of Means Based on Gender and Program

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>t-test value</th>
<th>p (Gender)</th>
<th>F value ANOVA</th>
<th>p</th>
<th>Differences among programs - Student-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examinations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Short answer examination.</td>
<td>-2.25</td>
<td>*</td>
<td>2.80</td>
<td>*</td>
<td>N &gt; E</td>
</tr>
<tr>
<td>2. Exams where you write in-depth about topics or provide solutions to problems.</td>
<td>-</td>
<td></td>
<td>3.41</td>
<td>*</td>
<td>E &gt; N</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>-</td>
<td></td>
<td>9.68</td>
<td>***</td>
<td>N &gt; T &gt; OT, E</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>-</td>
<td></td>
<td>9.49</td>
<td>***</td>
<td>N, E &gt; T &gt; OT</td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>5.08</td>
<td>***</td>
<td>13.35</td>
<td>***</td>
<td>E &gt; T, OT, N</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>-3.84</td>
<td>***</td>
<td>10.53</td>
<td>***</td>
<td>OT, T, N &gt; E</td>
</tr>
<tr>
<td>7. Class tests throughout the semester.</td>
<td>6.08</td>
<td>***</td>
<td>14.88</td>
<td>***</td>
<td>E &gt; OT, N, T</td>
</tr>
<tr>
<td><strong>Authentic Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in your chosen profession.</td>
<td>-2.27</td>
<td>*</td>
<td>5.25</td>
<td>**</td>
<td>T, OT &gt; E</td>
</tr>
<tr>
<td>16. Assignments on field work (eg, clinical, practicum, professional experience).</td>
<td>-3.14</td>
<td>**</td>
<td>9.41</td>
<td>***</td>
<td>T &gt; N, OT, E</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>-</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment.</td>
<td>-3.54</td>
<td>**</td>
<td>10.48</td>
<td>***</td>
<td>T &gt; OT, N &gt; E</td>
</tr>
<tr>
<td><strong>Communication Based Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Leading a seminar.</td>
<td>-3.89</td>
<td>***</td>
<td>17.94</td>
<td>***</td>
<td>T, OT, N &gt; E</td>
</tr>
<tr>
<td>19. Assignments based on group work.</td>
<td>-</td>
<td></td>
<td>4.89</td>
<td>**</td>
<td>T &gt; E, OT, N</td>
</tr>
<tr>
<td><strong>Autonomous Forms of Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A large scale project that has developed over a long period.</td>
<td>3.10</td>
<td>**</td>
<td>11.98</td>
<td>***</td>
<td>OT, E &gt; T &gt; N</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>-</td>
<td></td>
<td>6.22</td>
<td>***</td>
<td>OT &gt; E, T, N</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher.</td>
<td>-</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>-</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>-2.96</td>
<td>**</td>
<td>6.54</td>
<td>***</td>
<td>T, N &gt; E</td>
</tr>
<tr>
<td>18. Assignments requiring the application of your learning to new situations.</td>
<td>-</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Reports on practical work done in class.</td>
<td>-</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td>-3.09</td>
<td>**</td>
<td>5.40</td>
<td>**</td>
<td>N, T &gt; E</td>
</tr>
</tbody>
</table>

*p<.05  f = female students  E = Engineering students  m = male students  N = Nursing students  OT = Occupational Therapy students  T = Teacher Education students

In the last column, group means are in descending order of value from left to right.
Gender differences are listed in column three of Table 8.8. Female respondents considered that they had learnt more in short answer and take home examinations whereas male students reported significantly higher levels of learning for open book examinations and class tests throughout semester. In other types of assessment, male students reported learning more from large scale projects than had female respondents. In forms of assessment other than examinations, male students were found to have rated large scale projects developed over a period of time as having contributed more to their learning than did the female students. In the remaining seven types of assessment, female students perceived they had learned more than male students from these types of assessment (see column three of Table 8.8).

As shown in the final two columns in Table 8.8, significant differences were found among the four professional groups in the perceived learning value of different types of assessment. In the case of the four examinations where significant gender differences were found to exist, an ANOVA revealed differences based on professional groups corresponding to what one would expect for those based on gender. For example, in interpreting the first assessment strategy listed in Table 8.8, short answer examinations, significant differences occurred between the means of male and female students (column three), with females perceiving that they had learnt more from short answer examinations. Differences also occurred between two of the four professional groups. As can be seen in the final column of Table 8.8, nursing students, predominantly female, reported that they had learnt more from short answer examinations than had engineering students (predominantly male).

Examination of group means for class tests throughout semester using a Student-Newman-Keuls test (p<.05), showed that engineers (mean =4.03) reported that they had learnt more from class tests throughout semester than had occupational therapists (mean =3.53), nurses (mean =3.51) and teachers (mean =3.18). Examination of group means for take home examinations and short answer examinations revealed similar results: the three predominantly female
professional groups had significantly higher means than did the predominantly male group of engineering students.

In Chapter 7, the formation of a number of "scales" based on groups of items was described. The purpose for the scales was to permit more parsimony in reporting than can be achieved by giving results for each item separately. The three scales developed mirror the categories such as those used in Table 8.2 and 8.8 earlier in this chapter. While a scale for examinations could not be constructed, scales were developed for the three remaining categories (each with a Cronbach alpha coefficient of 0.6). The content of each of the scales - Value of Autonomous Assessment, Value of Authentic Assessment and Value of Communication Based Assessment - is reflected in its name. Means and standard deviations for each scale are provided below.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>St.D</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/value of</td>
<td>3.72</td>
<td>0.64</td>
<td>417</td>
</tr>
<tr>
<td>Communication based assessment/value of</td>
<td>3.62</td>
<td>0.76</td>
<td>418</td>
</tr>
<tr>
<td>Autonomous forms of assessment/value of</td>
<td>3.73</td>
<td>0.49</td>
<td>418</td>
</tr>
</tbody>
</table>

The means for each of the scaled variables imply that students appreciated the value of each of the three types of assessment. Statistically significant differences did occur, however, for gender (t-test) (see Table 8.10) and program (one-way ANOVA) (Table 8.11).

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>t-test value</th>
<th>p (Gender)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/value of</td>
<td>-3.94</td>
<td>*** f&gt;m</td>
</tr>
<tr>
<td>Communication based assessment/value of</td>
<td>-2.75</td>
<td>** f&gt;m</td>
</tr>
<tr>
<td>Autonomous forms of assessment/value of</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05  **p < .01  ***p < .001
Table 8.11  Perceived Value of Assessment Types Comparison of Means of Scaled Variables with Program as the Independent Variable

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>F value ANOVA</th>
<th>p</th>
<th>Differences among programs' - Student-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/value of</td>
<td>14.49</td>
<td>***</td>
<td>T, OT, N &gt; E</td>
</tr>
<tr>
<td>Communication based assessment/value of</td>
<td>11.99</td>
<td>***</td>
<td>T, OT, N &gt; E, T &gt; N</td>
</tr>
<tr>
<td>Autonomous forms of assessment/value of</td>
<td>4.28</td>
<td>**</td>
<td>OT, T &gt; E, N</td>
</tr>
</tbody>
</table>

*p<.05  **p<.01  ***p<.001

Findings show that teacher education, occupational therapy and nursing students placed more value on authentic and communication based types of assessment, in general, than did engineering students. Certainly differences among groups on the first scale, Value of Authentic Assessment, could be partly the result of the high level of field work (practicum/clinical) undertaken by teacher education students and students in the health professions in comparison to engineering students.

No significant differences were found between groups on these scales when ANOVAs were conducted using independent variables related to age, usual grade received, and intentions for further study with one exception. In the Value of Communication Based Assessment scale, differences between means were found on the variable, Further Study Intended. A statistically significant difference (F value =2.65, p<0.05) was found between students who had stated that further university study was “highly likely” and those who had stated that it was “not likely”.

**Perceived fairness of assessment types**

After students had rated each assessment type on frequency of use and learning value, they were asked to consider the fairness of each type of assessment listed. As before, a rating of 5 indicated that a student strongly agreed that the particular type of assessment was fair. A rating of 1 indicated that the assessment type was considered to be very unfair. Overall findings are presented first. These are followed by a more detailed analysis of the data.
Findings related to students' perceptions of the degree of fairness of different types of assessment are presented in Table 8.12.

Table 8.12  Means and Standard Deviations for Extent of Perceived Fairness of Assessment Types

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Mean</th>
<th>St.Dev.</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examinations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Short answer exams.</td>
<td>3.65</td>
<td>0.95</td>
<td>413</td>
</tr>
<tr>
<td>2. Exams where you write in-depth about topics or provide solutions to problems.</td>
<td>3.37</td>
<td>1.03</td>
<td>416</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>3.12</td>
<td>1.10</td>
<td>412</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>2.75</td>
<td>1.18</td>
<td>403</td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>3.23</td>
<td>1.16</td>
<td>409</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>3.02</td>
<td>1.27</td>
<td>399</td>
</tr>
<tr>
<td>7. Class tests throughout the semester.</td>
<td>3.73</td>
<td>0.95</td>
<td>409</td>
</tr>
<tr>
<td><strong>Authentic Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in your chosen profession.</td>
<td>3.89</td>
<td>0.92</td>
<td>413</td>
</tr>
<tr>
<td>16. Assignments on field work (e.g., clinical practicum, professional experience).</td>
<td>3.61</td>
<td>1.14</td>
<td>415</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>3.80</td>
<td>0.95</td>
<td>417</td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment.</td>
<td>3.15</td>
<td>0.93</td>
<td>413</td>
</tr>
<tr>
<td><strong>Communication Based Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Leading a seminar.</td>
<td>3.42</td>
<td>1.11</td>
<td>412</td>
</tr>
<tr>
<td>19. Assignments based on group work.</td>
<td>3.17</td>
<td>1.24</td>
<td>412</td>
</tr>
<tr>
<td>20. Giving an oral presentation.</td>
<td>3.43</td>
<td>1.10</td>
<td>415</td>
</tr>
<tr>
<td><strong>Autonomous Forms of Assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A large scale project that has developed over a long period.</td>
<td>3.72</td>
<td>1.01</td>
<td>410</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>3.77</td>
<td>0.82</td>
<td>413</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher.</td>
<td>3.44</td>
<td>0.97</td>
<td>411</td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>3.78</td>
<td>0.86</td>
<td>413</td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>3.84</td>
<td>0.81</td>
<td>414</td>
</tr>
<tr>
<td>18. Assignments requiring the application of your learning to new situations.</td>
<td>3.68</td>
<td>0.79</td>
<td>412</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Reports on practical work done in class.</td>
<td>3.39</td>
<td>0.94</td>
<td>411</td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td>3.05</td>
<td>1.04</td>
<td>415</td>
</tr>
</tbody>
</table>

The means for all items ranged from 2.75 to 3.89 with only one form of assessment (large scale, end of semester examinations) having a mean less than 3.00. The assessment tasks considered to be most fair and those considered least fair are presented in Table 8.13.
Table 8.13  Perceptions of Fairness of Assessment Types

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment type perceived most fair:</strong></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in</td>
<td>3.89</td>
</tr>
<tr>
<td>your chosen profession.</td>
<td></td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>3.84</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td>3.80</td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td>3.78</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td>3.77</td>
</tr>
<tr>
<td><strong>Assessment type perceived least fair:</strong></td>
<td></td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td>3.12</td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td>3.05</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>3.02</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>2.75</td>
</tr>
</tbody>
</table>

A close relationship exists between what was valued and what was seen as fair. The same five types of assessment that students perceived as most valuable (see Table 8.8) are those that they identified as being most fair. This dual preference for these assessment strategies reinforces the fact that students value authentic assessment tasks and those which provide them with opportunities to direct their own learning.

Similarly, students once again gave low ratings to several types of examinations. Three of the examinations identified by students as having the lowest value in terms of learning of all assessment types listed were seen as being the most unfair (large scale, end of semester examinations, take home examinations and examinations where you choose from a set of given responses). Once again it is interesting to note that while large scale, end of semester examinations were perceived by students to be the least valued form of assessment and the least fair form of assessment, they were shown (in Table 8.3) to be amongst the most frequently used.

Item 21, completing journals or diaries which document experiences, which was categorised as an autonomous form of assessment, was perceived by students to be amongst the least fair types of assessment. When reporting findings from a study carried out at the University of Central Lancaster into the use of what they called “learning logs”, Hinett and Knight (1996) found that while students
they had interviewed were enthusiastic about the use of learning logs and had asserted that they had helped them to understand the learning process, the same students had difficulty in accepting these logs as a form of assessment. As the researchers stated, students “admitted that they did not trust this non-traditional style” of assessment and were “wary about the consequences of expressing personal opinion” (Hinett & Knight, 1996, p. 5).

After this overall analysis, the 22 different types of assessment in the questionnaire were analysed in terms of the following independent variables: gender and profession. Means within these variables were compared using either a t-test or an ANOVA. Results which were statistically significant are present in Table 8.14.
### Table 8.14  Perceived Fairness of Assessment Types: Comparison of Means Based on Gender and Program

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>t-test value</th>
<th>F Value</th>
<th>p (Gender)</th>
<th>F Value ANOVA</th>
<th>p</th>
<th>Differences among programs (^2) - Student-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examinations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Short answer examination.</td>
<td></td>
<td></td>
<td></td>
<td>2.95</td>
<td>*</td>
<td>N &gt; E</td>
</tr>
<tr>
<td>2. Exams where you write in-depth about topics or provide solutions to problems.</td>
<td></td>
<td></td>
<td></td>
<td>6.38</td>
<td>***</td>
<td>N &gt; T, OT, E</td>
</tr>
<tr>
<td>3. Exams where you choose from a set of given responses.</td>
<td></td>
<td></td>
<td></td>
<td>9.56</td>
<td>***</td>
<td>E, N &gt; T, OT</td>
</tr>
<tr>
<td>4. Large scale, end of semester exams.</td>
<td>4.61</td>
<td>***</td>
<td>m&gt;f</td>
<td>8.08</td>
<td>***</td>
<td>E &gt; T, N, OT</td>
</tr>
<tr>
<td>5. Open book exams.</td>
<td>-</td>
<td></td>
<td></td>
<td>4.25</td>
<td>***</td>
<td>T, N, OT &gt; E</td>
</tr>
<tr>
<td>6. Take home exams.</td>
<td>-</td>
<td></td>
<td></td>
<td>4.39</td>
<td>***</td>
<td>E, OT, N &gt; T</td>
</tr>
<tr>
<td>7. Class tests throughout the semester.</td>
<td></td>
<td>4.39</td>
<td>*** m&gt;f</td>
<td>9.86</td>
<td>***</td>
<td>E &gt; N</td>
</tr>
<tr>
<td><strong>Authentic Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performing tasks closely resembling those performed by a qualified person in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>your chosen profession.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Assignments on field work (eg, clinical, practicum, professional experience).</td>
<td>- 2.61</td>
<td>**</td>
<td>f&gt;m</td>
<td>7.02</td>
<td>***</td>
<td>T, N &gt; OT, E</td>
</tr>
<tr>
<td>17. Tasks related to real life situations/events.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Interviewing professionals and using that material in your assignment.</td>
<td>- 3.81</td>
<td>***</td>
<td>f&gt;m</td>
<td>8.61</td>
<td>***</td>
<td>T &gt; N &gt; E</td>
</tr>
<tr>
<td><strong>Communication Based Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Leading a seminar.</td>
<td>- 2.53</td>
<td>*</td>
<td>f&gt;m</td>
<td>9.54</td>
<td>***</td>
<td>T, OT, N &gt; E</td>
</tr>
<tr>
<td>19. Assignments based on group work.</td>
<td></td>
<td></td>
<td></td>
<td>2.76</td>
<td>*</td>
<td>T &gt; N</td>
</tr>
<tr>
<td>20. Giving an oral presentation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Autonomous Forms of Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A large scale project that has developed over a long period.</td>
<td></td>
<td></td>
<td></td>
<td>10.94</td>
<td>***</td>
<td>OT, E, T &gt; N</td>
</tr>
<tr>
<td>9. Assignments which require in-depth analysis.</td>
<td></td>
<td></td>
<td></td>
<td>3.21</td>
<td>*</td>
<td>OT &gt; T, E, N</td>
</tr>
<tr>
<td>11. Assignments negotiated between student and teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Assignments involving independent research.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Assignments involving a choice of topic.</td>
<td>- 2.54</td>
<td>*</td>
<td>f&gt;m</td>
<td>7.43</td>
<td>***</td>
<td>T, N &gt; OT, E</td>
</tr>
<tr>
<td>18. Assignments requiring the application of your learning to new situations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Reports on practical work done in class.</td>
<td>- 2.21</td>
<td>*</td>
<td>f&gt;m</td>
<td>3.00</td>
<td>*</td>
<td>T &gt; E</td>
</tr>
<tr>
<td>21. Completing journals or diaries which document experiences.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(* p<.05\)  \(^1f = \text{female students}\)  \(^2E = \text{Engineering students}\)  \(^m = \text{male students}\)  \(^N = \text{Nursing students}\)  \(^OT = \text{Occupational Therapy students}\)  \(^T = \text{Teacher Education students}\)

\(^* * p<.01\)  \(^** p<.001\)

\(^2\) In the last column, group means are in descending order of value from left to right.
When the findings are analysed according to the four categories of assessment - examinations, authentic assessment, communication based assessment, and autonomous forms of assessment - certain patterns emerge. Results from the examinations category show that nursing students generally perceive examinations to be a fairer form of assessment than do the other groups. While the engineering students perceived large scale, end of semester examinations, open book examinations and class tests throughout the semester as being more fair than any of the other groups of students, they also saw short answer examinations, examinations where you choose from a set of given responses and take home examinations to be less fair than did any of the other students. Significant differences occurred between groups in three items in the authentic assessment category. Teacher education students had significantly higher means for each of these items than did the other three student groups. Engineering students had the lowest means for these forms of assessment. A similar pattern occurred in the communication based assessment category. Of the four groups of students, teacher education students placed higher fairness ratings on the three forms of assessment in this category. In two, leading a seminar and giving an oral presentation, engineering students had the lowest means. These findings mirror findings from the in-depth interviews in Stage 2 where engineering students stated that these forms of assessment were not used often in their programs and were types of assessment that they found difficult. No clear pattern of results emerged from the findings in the autonomous forms of assessment category.

Significant differences were found to exist between the ways female and male respondents perceived fairness levels for the various forms of assessment. Male respondents perceived open book examinations and a large scale project that has developed over a long period as being significantly fairer than did female students. Female respondents perceived the following types of assessment to be more fair than males: take home examinations; assessment involving a choice of topic; leading a seminar; assignments on field work; completing journals or diaries which document experiences; and interviewing professionals and using that material in your assignment.
A summary of the key findings that have emerged from data about specific assessment strategies that are used in undergraduate programs is presented in Table 8.15.
<table>
<thead>
<tr>
<th>Frequency of Assessment</th>
<th>Value of Assessment</th>
<th>Fairness of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Assignments based on group work, giving an oral presentation, and large scale, end of semester examinations were reported as being the most frequently used types of assessment.</td>
<td>• Of the five most valued types of assessment, two came for the authentic assessment category and three from the autonomous forms of assessment category.</td>
<td>• A close relationship was found to exist between what was valued and what was perceived as fair.</td>
</tr>
<tr>
<td>• The first two of the above suggests that teachers want students to engage in collaborative learning and to develop their communication skills.</td>
<td>• Significant differences occurred in 14 of the 22 items when means were examined using ANOVAs with program as the independent variable.</td>
<td>• Significant differences occurred in 14 items when ANOVAs, with program as the independent variable, were used to compare means.</td>
</tr>
<tr>
<td>• The nature of the three most frequently used types of assessment suggests that work load might influence the types of assessment teachers use.</td>
<td>• Three scales were developed for the value of: authentic assessment; communication based assessment; and autonomous forms of assessment.</td>
<td>• Large scale, end of semester examinations were perceived to be the least fair type of assessment of all 22 listed.</td>
</tr>
<tr>
<td>• Significant differences occurred in 19 of the 22 items when means were compared using ANOVAs with program as the independent variable.</td>
<td>• No scale could be developed for examinations but four of the seven types of examinations included in the questionnaire were perceived by students as being of least value of all 22 types of assessment in terms of their learning.</td>
<td>• These types of examinations were also perceived to be the least valuable and amongst the most frequently used.</td>
</tr>
<tr>
<td>• Engineering students had the highest mean for three types of examinations and one form of autonomous assessment.</td>
<td>• When ANOVAs were used to compare means, statistical outcomes related to gender were confounded with program.</td>
<td></td>
</tr>
<tr>
<td>• Nursing students had the highest mean for one type of examination, one form of authentic assessment and two of the autonomous forms of assessment.</td>
<td>• ANOVAs revealed that teacher education, occupational therapy and nursing students placed more value on authentic and communication based assessment than did engineering students.</td>
<td></td>
</tr>
<tr>
<td>• Occupational therapy students had the highest mean for two types of examinations and for all three of the communication based assessment items.</td>
<td>• Occupational therapy and teacher education students had significantly higher means for the value of autonomous assessment scaled variable than did nursing and engineering students.</td>
<td></td>
</tr>
<tr>
<td>• Teacher education students had the highest mean for one type of exam, three types of authentic assessment and two of the autonomous forms of assessment.</td>
<td>• Large scale, end of semester examinations were perceived as being the least valuable form of assessment.</td>
<td></td>
</tr>
</tbody>
</table>
Section Two:
Feedback from assessment

Students were next asked to consider feedback:

- the extent of the provision of different types of feedback;
- the value they placed on different types of feedback; and
- the use they made of feedback.

Types of feedback received

Twelve items, each about a different form of feedback, were included in Question 2. In the first part of this question, students were asked to rate how frequently each form of feedback was provided in their undergraduate programs. Data related to the first two items, feedback consists of a mark (eg, 8/10) and feedback consists of a grade (eg, credit), were not included in the results as analysis indicated respondents were unclear about the intentions or meanings of these items. If the word “only” had been included, that is feedback consists only of a mark (eg, 8/10), responses would have been more useful in the interpretation of data.

Two scales were developed that related to frequency of different forms of feedback (see Table 7.1 in Chapter 7). The scale, Frequency of Ongoing Feedback (Cronbach alpha coefficient of 0.7), is made up of the five items based on the provision of ongoing feedback. The second scale, Frequency of Personally Oriented Feedback (Cronbach alpha coefficient of 0.6), consists of four items related to the provision of highly personalised forms of feedback. One item, discussion with other students about how they went, was not included in either scale. The two scales differ conceptually in that the items that make up the ongoing feedback scale place most of the responsibility for feedback onto teachers. This type of feedback is generally task specific and tends to be
prescriptive in nature (for example, teachers providing answers or solutions, presenting students with a sheet with overall feedback, specific feedback about tests or tasks carried out in class). The items that make up the second mentioned scale, *personally oriented feedback*, suggest that students take a more active role in the feedback process (for example, engaging in discussion, reading and reflecting on written comments, taking the initiative to approach individual teachers for feedback, and being involved in peer feedback).

<table>
<thead>
<tr>
<th>Types of Feedback</th>
<th>Mean</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ongoing Feedback/Frequency of (Scaled Variable)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Solutions/answers provided as feedback after examinations.</td>
<td>2.90</td>
<td>0.79</td>
<td>416</td>
</tr>
<tr>
<td>4. Ongoing feedback given about laboratory or tutorial tasks or small tests.</td>
<td>2.67</td>
<td>1.29</td>
<td>416</td>
</tr>
<tr>
<td>5. Ongoing feedback about work in progress</td>
<td>3.05</td>
<td>1.08</td>
<td>416</td>
</tr>
<tr>
<td>6. Oral feedback in lectures after assignments have been handed back.</td>
<td>2.82</td>
<td>1.05</td>
<td>417</td>
</tr>
<tr>
<td>8. A sheet given to all students providing feedback on an assignments or an exam.</td>
<td>3.21</td>
<td>1.12</td>
<td>417</td>
</tr>
<tr>
<td><strong>Personally Oriented Feedback/Frequency of (Scaled Variable)</strong></td>
<td>2.77</td>
<td>1.23</td>
<td>418</td>
</tr>
<tr>
<td>7. Discussion in tutorials/laboratories after assignments have been handed back.</td>
<td>3.06</td>
<td>0.77</td>
<td>418</td>
</tr>
<tr>
<td>9. Written comments on your assignments.</td>
<td>3.20</td>
<td>1.12</td>
<td>418</td>
</tr>
<tr>
<td>10. Individual meeting with the marker of the assignment.</td>
<td>3.78</td>
<td>0.99</td>
<td>418</td>
</tr>
<tr>
<td>12. Combined feedback from teacher and other students as part of peer assessment methods.</td>
<td>2.37</td>
<td>1.19</td>
<td>417</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>2.90</td>
<td>1.18</td>
<td>417</td>
</tr>
<tr>
<td>11. Discussion with other students about how they went.</td>
<td>3.87</td>
<td>0.99</td>
<td>418</td>
</tr>
</tbody>
</table>

*The items feedback consists of a mark (eg, 8/10) and feedback consists of a grade (eg, credit) have not been included.*

For each of the items, students were asked to respond to the phrase: *This form of feedback is used frequently.* Each student's response, then, was a value judgement based on his or her interpretation of “frequently”. Students who were self-directed and confident of their ability to rely on their own judgements and personal resources might define frequency of provision of feedback very differently from students who had not developed strong self-monitoring skills and relied on feedback from their teachers to direct their learning efforts. Research by Kember *et al.* (1995), reported in Chapter 2 of the present study, found a positive correlation between the use (by mechanical engineering students) of a surface approach to learning and high attendance in class. The high attendance in class suggested to them that surface learners sought
"guidance and goal setting" from the lecturer. That is, they sought a high level of feedback - one would imagine that this feedback would be focused on the successful completion of assignments and examinations. Instruments measuring students' approaches to learning were not administered to the respondents in this current study, so approaches to learning could not be compared with students' responses to each of the items about frequency of provision of feedback. However, when means on each of the items related to the provision of feedback were analysed using an ANOVA with usual grade received as the independent variable, significant differences were found on only one of the items (Solutions/answers provided as feedback after examinations: F = 4.03; p < .05; means for Pass and Credit grades were significantly higher than those for students who usually gained a Distinction or a High Distinction). While students may have different needs in terms of feedback and support, these results suggest that they have not affected the way students responded to this section of the questionnaire.

The most frequently provided and least frequently provided types of feedback have been isolated and are shown in Table 8.17. Not surprisingly, the more traditional forms of feedback - written comments and feedback in lectures - ranked amongst the most frequently provided forms of feedback.

| Table 8.17  Reported Frequency of Provision of Different Forms of Feedback |
|-----------------------------------------------|---------|---------|-------|
| Type of Feedback                                    | Mean    | St. Dev.| n     |
| **Most frequently provided/used:**               |         |         |       |
| 11. Discussion with other students.               | 3.87    | .99     | 418   |
| 9. Written comments on your assignments.         | 3.78    | .99     | 418   |
| 6. Oral feedback in lectures after assignments have been handed back. | 3.21    | 1.12    | 417   |
| **Least frequently provided/used:**             |         |         |       |
| 8. A sheet given to all students providing overall feedback on an assignment or an exam. | 2.77    | 1.23    | 418   |
| 3. Solutions/answers provided as feedback after exams. | 2.67    | 1.29    | 416   |
| 10. Individual meeting with the marker of the assignment. | 2.37    | 1.19    | 417   |

The items feedback consists of a mark (eg, 8/10) and feedback consists of a grade (eg, credit) have not been included.
It can be speculated that *discussion with other students* not only provided students with feedback but was a way for them to gauge their performance in relation to their peers. The least frequently provided form of feedback, *individual feedback from the marker of the assignment*, presents a similar quandary as that derived from the in-depth interviews in Stage 2.

In the in-depth interviews, students, in general, stated that being aware of, and responding to, the hidden or implicit curriculum was vital to success in undergraduate study (see Section One, Chapter 6). They also recognised that the hidden curriculum was embodied in the attitudes and practices of the teachers (and in university procedures). In spite of this, many students were reluctant to meet personally with their teachers to gain input about their assessment tasks. The findings shown in Table 8.17 reinforce this fact - students made less use of this form of feedback than of any other. An *individual meeting with the marker of the assignment* demands more action and initiative on the part of the student than any of the other types of feedback listed. While it could be argued that to rely on one’s own counsel rather than that of a teacher is being autonomous and self-directed, to decide not to be proactive in gaining individualised feedback and in finding out about “hidden aspects” of the curriculum would appear to be a deliberate omission in the process of maximising one’s results and, hopefully, the quality of one’s learning. However, it could be that students generally feel satisfied with the written feedback received and feel no need to approach the marker. It may also be the culture of the particular subject or program to actively or unwittingly discourage students approaching markers. This is a known deliberate practice in some large first year undergraduate programs. Such practices may be seen as protecting inexperienced staff. Such teacher related aspects of the hidden curriculum as it relates to assessment practices were not directly canvassed in this study. The positive outcomes that can flow from a strong teacher-student relationship have been the subject of research on many levels. For example, in reporting a longitudinal study involving students at high school and university, Hughes (1990) found that the top two per cent of best performing
students in his study linked their success to the assistance they had received from individual teachers with a frequency twice the average listed for all other students.

A one-way ANOVA with program as the independent variable was conducted for both the scales and significant differences were found to occur among programs on both scales.

Table 8.18 Frequency of Provision of Two Forms of Feedback - Comparison of Means x Programs

<table>
<thead>
<tr>
<th>Forms of Feedback</th>
<th>F value ANOVA</th>
<th>p</th>
<th>Differences among programs' -Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of Ongoing Feedback</td>
<td>15.62</td>
<td>***</td>
<td>E &gt; N &gt; T, OT</td>
</tr>
<tr>
<td>Frequency of Personally Oriented Feedback</td>
<td>23.21</td>
<td>***</td>
<td>N, T &gt; E &gt; OT</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p<.001

Engineering students reported highest frequency of ongoing feedback (mean =3.23) while nursing students reported the highest frequency of personally oriented feedback (mean =3.30). Occupational therapy students had the lowest mean for both scales (frequency of ongoing feedback, mean=2.50; frequency of personal feedback, mean =2.42). (For ANOVAs based on frequency of provision of each individual item in forms of feedback by program see Appendix 15.) These differences appear to be specifically related to differences in teaching practices or in cultures in regard to the provision of feedback across the programs as there were approximately equal numbers of opportunities for feedback provision. Provision of both ongoing feedback and personally oriented feedback suggests that teachers recognised the value of feedback in the learning process and were aiming to produce graduates who were self-directed and able to take responsibility for their learning. While feedback needs to be timely and constructive, professional discretion needs to be exercised by teachers as to how much feedback is required by students. Too much feedback could result in students becoming dependent on their teachers’ directions rather than their own. Too little feedback could mean that students are unable to gain the skills required to become self-monitoring.
Types of feedback valued

The students surveyed were also asked about the types of feedback that they valued. As before, a five point Likert scale was used. Two scales were developed that related to effectiveness of ongoing feedback (Cronbach alpha coefficient of 0.7) and the effectiveness of personally oriented feedback (Cronbach alpha coefficient of 0.6). The items that made up the scales are included in the table as well as the item that stood alone (discussion with other students about how they went).

Table 8.19 Means and Standard Deviations for Extent of Perceived Effectiveness of Different Types of Feedback

<table>
<thead>
<tr>
<th>Types of Feedback</th>
<th>Mean</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ongoing Feedback/Effectiveness of (Scaled Variable)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Solutions/answers provided as feedback after examinations.</td>
<td>3.89</td>
<td>0.69</td>
<td>418</td>
</tr>
<tr>
<td>4. Ongoing feedback given about laboratory or tutorial tasks or small tests.</td>
<td>4.02</td>
<td>1.10</td>
<td>412</td>
</tr>
<tr>
<td>5. Ongoing feedback about work in progress.</td>
<td>3.94</td>
<td>0.91</td>
<td>414</td>
</tr>
<tr>
<td>6. Oral feedback in lectures after assignments have been handed back.</td>
<td>3.98</td>
<td>0.88</td>
<td>414</td>
</tr>
<tr>
<td>8. A sheet given to all students providing feedback on an assignments or an exam.</td>
<td>3.82</td>
<td>1.03</td>
<td>416</td>
</tr>
<tr>
<td><strong>Personally Oriented Feedback/Effectiveness of (Scaled Variable)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Discussion in tutorials/laboratories after assignments have been handed back.</td>
<td>3.88</td>
<td>0.97</td>
<td>416</td>
</tr>
<tr>
<td>9. Written comments on your assignments.</td>
<td>4.35</td>
<td>0.81</td>
<td>417</td>
</tr>
<tr>
<td>10. Individual meeting with the marker of the assignment.</td>
<td>3.91</td>
<td>1.00</td>
<td>416</td>
</tr>
<tr>
<td>12. Combined feedback from teacher and other students as part of peer assessment methods.</td>
<td>3.94</td>
<td>1.00</td>
<td>415</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Discussion with other students about how they went.</td>
<td>3.6</td>
<td>1.03</td>
<td>418</td>
</tr>
</tbody>
</table>

The items feedback consists of a mark (eg, 8/10) and feedback consists of a grade (eg, credit) have not been included.

It is evident from results shown in Table 8.19 that students found all the different types of feedback listed as being valuable. Those they considered most and least effective are presented in Table 8.20.
<table>
<thead>
<tr>
<th>Type of Feedback</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most effective:</strong></td>
<td></td>
</tr>
<tr>
<td>9. Written comments on your assignments.</td>
<td>4.35</td>
</tr>
<tr>
<td>3. Solutions/answers provided as feedback after exams.</td>
<td>4.02</td>
</tr>
<tr>
<td>5. Ongoing feedback about work-in-progress.</td>
<td>3.98</td>
</tr>
<tr>
<td><strong>Least effective:</strong></td>
<td></td>
</tr>
<tr>
<td>8. A sheet given to all students providing overall feedback on an assignment or</td>
<td>3.70</td>
</tr>
<tr>
<td>an exam.</td>
<td></td>
</tr>
<tr>
<td>11. Discussion with other students.</td>
<td>3.61</td>
</tr>
<tr>
<td>12. Combined feedback from teacher and other students as part of peer</td>
<td>3.49</td>
</tr>
<tr>
<td>assessment methods.</td>
<td></td>
</tr>
</tbody>
</table>

The items feedback consists of a mark (eg, 8/10) and feedback consists of a grade (eg, credit) have not been included.

While solutions/answers provided about work-in-progress were perceived to be a highly effective type of feedback (with a mean of 4.02), respondents rated this form of feedback as one of the least frequently provided (mean of 2.67, see Table 8.17). The mean ratings of 3.49 for combined feedback from teacher and other students as part of peer assessment methods and 3.61 for discussion with other students while not low, are perceived as the least effective of all presented. While the ratings presented in Table 8.20 indicate that the respondents recognised the effectiveness of all forms of feedback, it would appear that students, in this study, tended to place less value on feedback from peers when compared to feedback from their teachers. Sub-group means were compared using t-tests and ANOVAs as appropriate.
Table 8.21  Perceived Effectiveness of Feedback Types: Comparison of Means
Based on Gender, Program, and Further Study

<table>
<thead>
<tr>
<th>Scale</th>
<th>t-test Value</th>
<th>p (Gender)</th>
<th>F value ANOVA</th>
<th>Differences among programs using Student-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of Personally Oriented Feedback</td>
<td>- 2.50 *</td>
<td>f&gt;m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of Ongoing Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Program</strong>¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of Personally Oriented Feedback</td>
<td>0.05</td>
<td>***</td>
<td>T, OT &gt; N, E</td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of Ongoing Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further Study Intended</strong>²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of Personally Oriented Feedback</td>
<td>- 59</td>
<td>-</td>
<td>4 &gt; 1</td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of Ongoing Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ p<.05  ² p<.01  *** p<.001

¹ (Programs) E = Engineering, N = Nursing, OT = Occupational Therapy, T = Teacher Education.
² (Further Study Intended) 1 = Not likely, 2 = Some chance, 3 = Likely, 4 = Highly likely.

Significant gender differences were found to exist when male (mean =3.78) and female (mean =3.97) means for the scaled variable, effectiveness of personally oriented feedback, were compared using a t-test. These results indicated that female students responded more positively to the personally oriented feedback than did males. No significant gender based differences were found on the effectiveness of ongoing feedback scaled variable.

Significant differences were found between the programs on the effectiveness of personally oriented feedback scaled variable with teacher education students and occupational therapy students being more likely to value and use this form of feedback than nursing and engineering students. Results indicated that students who had stated that it was highly likely that they would engage in further university study were more likely to value personally oriented feedback than were students who stated that further university study was not likely.
No significant differences existed between the means for age, usual grade received, failure (or otherwise), and fail group (0-3 failures or 4-15 failures) on either of the scaled variables related to effectiveness of feedback.

Students' use of feedback

As argued by Sadler (1989), Rowntree (1987) and others, the use that students make of feedback is a determining factor in their ability to monitor the quality of their learning and so become self-directed and in control of that learning. In the questionnaire, students were asked about the use they made of feedback. Ten items were included and these formed the basis of two scales, Good Use of Feedback (Cronbach alpha coefficient of 0.7) and Poor Use of Feedback (Cronbach alpha coefficient of 0.7). Each scale consisted of five items as shown in Table 8.22. As explained in Chapter 7, good and poor use of feedback were conceptually and empirically different. The correlation between the two scales was -0.31 indicating a moderate negative relationship.

Table 8.22  Reported Use of Feedback

<table>
<thead>
<tr>
<th>Use made of feedback</th>
<th>Mean</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good Use of Feedback (Scaled Variable)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. The feedback I receive motivates me to work harder.</td>
<td>3.65</td>
<td>0.66</td>
<td>418</td>
</tr>
<tr>
<td>2. Assignments which use peer feedback have provided valuable feedback.</td>
<td>3.64</td>
<td>0.95</td>
<td>418</td>
</tr>
<tr>
<td>3.</td>
<td>3.17</td>
<td>1.06</td>
<td>412</td>
</tr>
<tr>
<td>4. I find lecturers' comments about my assignments very helpful.</td>
<td>3.99</td>
<td>0.82</td>
<td>417</td>
</tr>
<tr>
<td>5. Feedback has usually helped me to do better in later assignments.</td>
<td>3.87</td>
<td>0.93</td>
<td>418</td>
</tr>
<tr>
<td>6.</td>
<td>3.56</td>
<td>1.08</td>
<td>416</td>
</tr>
<tr>
<td><strong>Poor Use of Feedback (Scaled Variable)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. When I get my assignments back I usually only want to know my mark and pay little attention to written comments.</td>
<td>2.29</td>
<td>1.17</td>
<td>418</td>
</tr>
<tr>
<td>8. My focus is on passing - feedback is fairly unimportant to me.</td>
<td>2.25</td>
<td>1.14</td>
<td>418</td>
</tr>
<tr>
<td>9. After getting assignments back I would rather start on the next thing to be learned than spend time going over assignments in tutorials.</td>
<td>2.64</td>
<td>1.16</td>
<td>416</td>
</tr>
<tr>
<td>10. There have been times when I haven't collected my assignments.</td>
<td>2.15</td>
<td>1.27</td>
<td>418</td>
</tr>
<tr>
<td>11. The written comments aren't much use to me because I have already been marked on the assignment.</td>
<td>2.15</td>
<td>1.05</td>
<td>417</td>
</tr>
</tbody>
</table>

Given the variations that occurred in students' reported use of feedback, subgroup means were compared using either a t-test (gender, failed a subject?) or an ANOVA (program, age, usual grade received, intentions for further study).
Results are presented in Table 8.23. Sub-groups in each of the six independent variables were found to present significant differences on the scaled variable, Poor Use of Feedback. Significant differences among groups on the scaled variable, Good Use of Feedback, were found in only one of the independent variables, Further Study Intended.

Table 8.23 Reported Use of Feedback: Comparison of Means of a Range of Background Variables

<table>
<thead>
<tr>
<th>Scale</th>
<th>t-test Value</th>
<th>p</th>
<th>F value p ANOVA</th>
<th>Differences among means using Student-Newman-Keuls test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>2.46</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Profession</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>9.70</td>
<td>***</td>
<td></td>
<td>N, E &gt; OT, T</td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>3.07</td>
<td>*</td>
<td></td>
<td>2 &gt; 3</td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Usual Grade Received</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>10.19</td>
<td>***</td>
<td></td>
<td>1 &gt; 2 &gt; 3</td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fails?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>5.06</td>
<td>***</td>
<td>Yes &gt; No</td>
<td></td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further Study Intended</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>5.74</td>
<td>***</td>
<td></td>
<td>1, 2, 3 &gt; 4</td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>3.42</td>
<td>*</td>
<td></td>
<td>4, 2, 3 &gt; 1</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p<.001

1 (Programs) E = Engineering, N = Nursing, OT = Occupational Therapy, T = Teacher Education.
2 (Age Groups) 1 = 20-24 years, 2 = 25-29 years, 3 = 30-55 years.
3 (Usual Grade Received) 1 = Pass grade, 2 = Credit grade, 3 = Distinction/High Distinction grade.
4 (Further Study Intended) 1 = Not likely, 2 = Some chance, 3 = Likely, 4 = Highly likely.

The findings indicate that male students are more likely to make poor use of the feedback they receive than female students and nursing and engineering students are more likely than their occupational therapy and teacher education counterparts to make poor use of the feedback they receive. Results related to the three age groups indicate that students in the middle age range, 25 - 29 years, are more likely to make poor use of feedback than are those students in the 30+ age range. Significant relationships existed between the usual grade a student receives and their use of feedback: students whose usual grade is a
Pass are more likely to make poor use of feedback than those students who generally receive a Credit, Distinction or High Distinction for their work. Similarly, students whose usual grade is a Credit are more likely to make poor use of feedback than students who generally receive a Distinction or High Distinction. Results also show that students who reported failing one or more subjects scored higher on the Poor Use of Feedback scale than those students who had passed all their subjects. In other words, the grades students earn are commensurate with the use they make of feedback: students with lower grades are more likely to make poor use of feedback than those students who earn higher grades. Examination of results related to the final variable listed in Table 8.23, Further Study Intended, shows that students who stated that future university study was either “not likely”, “likely” or that there was “some chance” of it happening, were more inclined to make poor use of feedback than that group of students who stated that further university study was “highly likely”. A significant difference in the means of these groups existed on the Good Use of Feedback scale with students in Groups 2, 3 and 4 - “some chance” of further study, “likely” and “highly likely” - having significantly higher means than those students in Group 1 who stated that further university study was “not likely”.

A summary of key findings related to feedback from assessment are provided in Table 8.24.
Table 8.24  Summary of Key Findings Related to Provision of Feedback, Value Students Place on Feedback and Use Made of Feedback

<table>
<thead>
<tr>
<th>Provision of Feedback</th>
<th>Value Placed on Different Types of Feedback</th>
<th>Use Made of Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two scales were developed for the provision of feedback.</td>
<td>Two scales were developed: Effectiveness of Ongoing Feedback and Effectiveness of Personally Oriented Feedback.</td>
<td>Two scales were developed: Good Use of Feedback and Poor Use of Feedback.</td>
</tr>
<tr>
<td>The first, Frequency of Provision of Ongoing Feedback, placed most of the responsibility for feedback on to teachers. This type of feedback is generally task specific and rather prescriptive in nature.</td>
<td>Students found all the different types of feedback listed as being valuable.</td>
<td>It was found that male students were more likely to make poor use of feedback than female students.</td>
</tr>
<tr>
<td>The second scaled variable, Frequency of Personally Oriented Feedback, puts students into a more active role in the feedback process.</td>
<td></td>
<td>Students' grades were commensurate with the use they made of feedback. Students with low grades were more likely to make poor use of feedback than students who earned merit grades.</td>
</tr>
<tr>
<td>The form of feedback that required students to take the initiative in seeking feedback, individual meeting with the marker of the assignment, was the type least frequently used.</td>
<td></td>
<td>Students who failed one or more subjects were more likely to make poor use of feedback than students who had passed all their subjects.</td>
</tr>
<tr>
<td>Occupational therapy students reported the lowest means for both scaled variables.</td>
<td></td>
<td>Students who stated that further university study was &quot;not likely&quot; were less likely to make good use of feedback than those who thought that further study was a possibility.</td>
</tr>
</tbody>
</table>
Section Three:
Motivation for learning

One general question about undergraduate students' motivational goals emerged out of Stages 1 and 2 of this study as requiring further investigation: What motivates undergraduate students? This question is complex and could well be the subject of a number of investigations. As many studies have established the strong links that exist between motivation and learning, it was felt necessary to address at least those aspects of motivation that appeared to be most closely linked to the general thrust of this study about the relationship between assessment and learning. Thus twelve items were included in the questionnaire about the possible motivational goals respondents might have other than passing their examinations and assignments and getting a degree. These items can be found in Question 4 of the Survey Questionnaire in Appendix 10.

As stated in Chapter 7, seven scaled variables were developed about student motivation: intrinsic motivation (Cronbach alpha coefficient of 0.8); extrinsic motivation (Cronbach alpha coefficient of 0.7); need achievement (Cronbach alpha coefficient of 0.7); minimal learning (Cronbach alpha coefficient of 0.6); learning for understanding (Cronbach alpha coefficient of 0.7); instrumental motivation (Cronbach alpha coefficient of 0.8); and cheating (Cronbach alpha coefficient of 0.9). Items in the two scaled variables, intrinsic motivation and extrinsic motivation, are mutually exclusive from each other but some items are also used in the other scaled variables (see detailed information about composition of scales in Appendix 12). Items in the other five variables are all mutually exclusive of each other. The final scaled variable, cheating, is made up of the two items, It's OK to cheat if the pressure of work gets too much and It's OK to cheat if you deserve to pass anyway. This scale has been included as a motivational scale as the act of cheating is a response to a motivational force. The means for the scaled variables related to motivational goals are shown in Table 8.25.
Table 8.25  Means and Standard Deviations for Scaled Variables Related to Learning Motivation

<table>
<thead>
<tr>
<th>Scaled Variables</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic motivation</td>
<td>4.12</td>
<td>0.58</td>
<td>418</td>
</tr>
<tr>
<td>Needs achievement</td>
<td>4.03</td>
<td>0.65</td>
<td>418</td>
</tr>
<tr>
<td>Learning for understanding</td>
<td>3.89</td>
<td>0.60</td>
<td>418</td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td>3.82</td>
<td>0.86</td>
<td>418</td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td>3.46</td>
<td>0.68</td>
<td>418</td>
</tr>
<tr>
<td>Minimal learning</td>
<td>3.00</td>
<td>0.82</td>
<td>418</td>
</tr>
<tr>
<td>Cheating</td>
<td>2.16</td>
<td>1.10</td>
<td>418</td>
</tr>
</tbody>
</table>

Sub-group means were compared to discover if there were differences among students in relation to motivation. Gender, profession, age, usual grade received, fails (Yes or No) and further study intended were used as independent variables in either t-tests or ANOVAs.
Table 8.26  Differences Between Means of Motivation Related Variables

<table>
<thead>
<tr>
<th>Scale</th>
<th>t-test Valp</th>
<th>F value</th>
<th>p ANOVA</th>
<th>Differences among means using Student-Newman-Keul test (p&lt;.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>- 4.47</td>
<td>*** f&gt;m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need Achievement</td>
<td>-3.69</td>
<td>*** f&gt;m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding in learning</td>
<td>-3.32</td>
<td>** f&gt;m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal learning</td>
<td>3.47</td>
<td>** m&gt;f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating</td>
<td>4.75</td>
<td>*** m&gt;f</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Usual Grade Received</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fails? (Yes/No)</strong></td>
<td>-3.14</td>
<td>** N&gt;Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need Achievement</td>
<td>-2.04</td>
<td>* N&gt;Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal learning</td>
<td>5.05</td>
<td>*** Y&gt;N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating</td>
<td>4.00</td>
<td>*** Y&gt;N</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further Study Intended</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal learning</td>
<td>4.07</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating</td>
<td>3.09</td>
<td></td>
<td>2 &gt;4</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p<.001  
1 (Programs) E = Engineering, N = Nursing, OT = Occupational Therapy, T = Teacher Education
2 (Age Groups) 1 = 20-24 years, 2 = 25-29 years, 3 = 30-55 years.
3 (Usual Grade Received) 1 = Pass grade, 2 = Credit grade, 3 = Distinction/High Distinction grade.
4 (Further Study Intended) 1 = Not likely, 2 = Some chance, 3 = Likely, 4 = Highly likely.
Comparisons of means across gender (although confounded with profession) indicated that female students were more intrinsically motivated than males, in this study, and that they were more likely to be motivated by a need for understanding in their learning and for need achievement. On the other hand, males were more likely than females to be seeking ways to minimise their learning and to sanction cheating.

Younger students were more likely to be motivated by factors extrinsic to their learning than students who were 25 while students who were 30 were more likely to be wanting to achieve understanding in their learning than students under 30 years of age.

Results indicated that students who usually received merit grades, who had not failed any subjects and who thought that future university study was a likelihood were intrinsically motivated. Those students who usually received a Pass grade, had failed one or more subjects and who thought that further university study was "not likely" were more likely than other students to have work avoidant motivation.

While the mean for the scaled variable, cheating, was not high (mean =2.16, standard deviation =1.10), the standard deviation suggested that for a number of students, at least, there was an acceptance of cheating behaviours. These behaviours, as outlined in the literature, can be defined in different ways by students and, as a result, findings about cheating in this current study should be seen as a general indication of students' attitudes towards cheating rather than a definitive result. Nevertheless, there is a statistically significant difference between male and female means related to cheating - confounded with means related to programs - and between students who have failed subjects and those who had not. The intimation in this study is that female students were less likely to sanction cheating than males and that students who had experienced failure were more likely to sanction cheating than students who had passed all their subjects.
Section Four:

Relationships among variables

In the three sections to date, descriptive findings about survey data have been explored. Means and standard deviations related to assessment feedback and motivation variables have been presented and, where appropriate, differences between sub-groups (comparisons of means using statistical techniques) have been explored.

In this final section, further insights into assessment and student learning will be gained through exploring the relationships among variables associated with types of assessment, forms of feedback, the use students make of feedback and their motivations for learning. Three questions will be considered:

- Do students' perceptions of the value of different types of assessment and different forms of feedback affect the way they use feedback?
- Do students' perceptions of the value of different types of assessment and different forms of feedback affect their motivation for learning?
- Does the way students use feedback impinge on their motivations for learning?

Assessment strategies and feedback

As illustrated earlier in this chapter, seven scaled variables were developed that related to assessment and feedback: value of authentic assessment; value of autonomous forms of assessment; value of communication based assessment; effectiveness of ongoing feedback; effectiveness of personally oriented feedback; good use of feedback; and poor use of feedback. When the three variables associated with valuing types of assessment were correlated with the effectiveness of ongoing and of personally oriented feedback, moderate positive correlations were found to exist, as shown in Table 8.27. People who valued the
three forms of assessment saw ongoing feedback as effective but saw somewhat more effectiveness in personally oriented feedback.

Table 8.27  Correlations Between Types of Assessment Valued and Effectiveness of Different Forms of Feedback

<table>
<thead>
<tr>
<th></th>
<th>Effectiveness of Ongoing Feedback</th>
<th>Effectiveness of Personally Oriented Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/value of</td>
<td>.26***</td>
<td>.36***</td>
</tr>
<tr>
<td>Autonomous assessment/value of</td>
<td>.25***</td>
<td>.31***</td>
</tr>
<tr>
<td>Communication based assessment/value of</td>
<td>.20***</td>
<td>.31***</td>
</tr>
</tbody>
</table>

*** p<.001

These results raise the question of whether students’ perceptions of the value of different types of assessment and of the effectiveness of different forms of feedback affect the way they use feedback. Bivariate correlations were conducted between the two scaled variables, good use of feedback and poor use of feedback, and those variables associated with students' perceptions of the value of different types of assessment and forms of feedback. These correlations are presented in Table 8.28. As pointed out earlier in this chapter, the variables poor use of feedback and good use of feedback are conceptually and empirically different and not two extremes of the one scale. In this study, the variable poor use of feedback indicates that students are generally more interested in moving on to new learning rather than reflecting on the outcomes of, and feedback from, previous learning and how it can inform new learning. Good use of feedback indicates that students value the feedback they receive, consider it in terms of their learning, and find it motivates them to work harder.
Table 8.28  Correlations Between Types of Assessment and Feedback Valued and the Use of Feedback

<table>
<thead>
<tr>
<th></th>
<th>Good Use of Feedback</th>
<th>Poor Use of Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/value of</td>
<td>.30***</td>
<td>NSR</td>
</tr>
<tr>
<td>Autonomous assessment/value of</td>
<td>.34***</td>
<td>-.17***</td>
</tr>
<tr>
<td>Communication based assessment/value of</td>
<td>.27***</td>
<td>-.12*</td>
</tr>
<tr>
<td>Effectiveness of ongoing feedback</td>
<td>.30***</td>
<td>-.15**</td>
</tr>
<tr>
<td>Effectiveness of personally oriented feedback</td>
<td>.41***</td>
<td>-.19***</td>
</tr>
</tbody>
</table>

* * * p<.001  NSR = No significant relationship

Moderate positive correlations exist between the variable, good use of feedback, and each of the assessment and feedback variables. A correlation of .41 with personally oriented feedback is not surprising when one remembers the conceptual underpinning of this variable. As explained in Section 2 of this chapter, ongoing feedback (as defined in this study) was teacher-centred and tended to be prescriptive in nature while personally oriented feedback depended more on interaction between students and teachers and, to a lesser extent, students and their peers, and required students to be more actively involved in the feedback process.

Negative, although low, correlations occurred between the variable, poor use of feedback, and all but one of the assessment and feedback variables. Authentic assessment did not have a significant correlation with poor use of feedback while the other two variables associated with types of assessment had low, negative correlations. While authentic assessment has been associated in the literature over the past decade as being highly related to meaningful learning, literature just published (see Terwilliger, 1997) points to the need for a reconsideration of the concept of "authentic" and the claims that surround authentic assessment. This unexpected result in correlations may provide some support for the need for some rethinking.

Table 8.29 looks at the overall relationship between the set of variables measuring the value of different types of assessment and different forms of feedback and the set of response variables, good and poor use of feedback.
Canonical correlations were conducted using these two sets of variables. That is, the variables associated with students' beliefs about the value, in terms of learning, of three types of assessment and the effectiveness of two forms of feedback were correlated with the two variables associated with use of feedback.

Table 8.29  Canonical Correlations Between Value of Assessment and Feedback Variables and Use of Feedback Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation with Canonical Variate 1 $R_1$</th>
<th>Correlation with Canonical Variate 2 $R_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables (Set A)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value of Assessment/Form of Feedback</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentic Assessment/value of</td>
<td>0.61</td>
<td>0.76</td>
</tr>
<tr>
<td>Autonomous Assessment/value of</td>
<td>0.71</td>
<td>-0.21</td>
</tr>
<tr>
<td>Communication Based Assessment/value of</td>
<td>0.55</td>
<td>0.09</td>
</tr>
<tr>
<td>Ongoing Feedback/effectiveness of</td>
<td>0.62</td>
<td>-0.14</td>
</tr>
<tr>
<td>Personally Oriented Feedback/effectiveness of</td>
<td>0.84</td>
<td>-0.06</td>
</tr>
<tr>
<td><strong>Dependent Variables (Set B)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of Feedback</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>0.99</td>
<td>0.14</td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>-0.45</td>
<td>0.89</td>
</tr>
<tr>
<td><strong>Canonical Correlation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% variance</td>
<td>0.49*</td>
<td>0.07*</td>
</tr>
<tr>
<td></td>
<td>24%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*p<.001

The analysis yielded a significant canonical correlation ($R = .49$) between the first canonical variate representing the value of different forms of assessment and feedback (Set A) and the first canonical variate representing use of feedback (Set B). All of the valuing variables loaded high to very high on the canonical variate for Set A. For the canonical variate for Set B, good use of feedback dominates while there is a moderate, negative loading for poor use of feedback. The significant value of $R_1$ means that the composite variate representing the value students placed on different forms of assessment and feedback was a statistically significant predictor of the composite variate on use of feedback and 24 per cent of the variance in the latter was associated with variance on the former.
The second canonical correlation ($R_2$) stems from the association between residual variances after the extraction of the first canonical correlation. Although statistically significant, the proportion of variance explained is very small and this relationship (which suggested an association between valuing authentic assessment and poor use of feedback) is not regarded as educationally significant.

These results provide an answer to the research question,

*Do students’ perceptions of the value of different types of assessment and different forms of feedback affect the way they use feedback?*

Students who see value in authentic, autonomous and, to a lesser extent, communication based types of assessment, value feedback and, in particular, types of feedback that require them to be actively engaged in the feedback process (eg, discussions in tutorials, meeting with the marker of their assignment, reflecting on written comments) and tend to optimise their learning outcomes by making good use of feedback and avoiding its poor use.

**Motivation and assessment**

Results of bivariate correlations carried out between the valuing of assessment (three variables) and feedback (two variables) and the seven motivation variables are presented in Table 8.30.
Table 8.30 Correlations Between Assessment and Learning Motivation Variables

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic assessment/value of</td>
<td>.29***</td>
<td>.10*</td>
<td>.24***</td>
<td>.26***</td>
<td>.11*</td>
<td>-.14**</td>
<td>-.13**</td>
</tr>
<tr>
<td>Autonomous forms of assessment/ value of</td>
<td>.30***</td>
<td>.13**</td>
<td>.30***</td>
<td>.27***</td>
<td>.12*</td>
<td>NSR</td>
<td>-.11*</td>
</tr>
<tr>
<td>Communication based assessment/ value of</td>
<td>.26***</td>
<td>.15**</td>
<td>.25***</td>
<td>.23**</td>
<td>.16**</td>
<td>NSR</td>
<td>NSR</td>
</tr>
<tr>
<td>Ongoing feedback/effectiveness of</td>
<td>.27***</td>
<td>.14**</td>
<td>.22***</td>
<td>.18***</td>
<td>.18***</td>
<td>NSR</td>
<td>NSR</td>
</tr>
<tr>
<td>Personally oriented feedback/effectiveness of</td>
<td>.30***</td>
<td>.11*</td>
<td>.30***</td>
<td>.23***</td>
<td>.12*</td>
<td>-.12*</td>
<td>NSR</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p<.001  NSR = No significant relationship

Low to moderate positive relationships existed when intrinsic motivation, extrinsic motivation, learning for understanding, need achievement, and instrumental motivation were correlated with each of the variables measuring the valuing of assessment and of feedback. Low negative correlations or no significant correlations were found between the latter set of variables and the minimal learning and cheating variables.

In Table 8.31, the global relationships between the value of different types of assessment and forms of feedback (Set A) and the response variables associated with learning motivations (Set B) are explored using canonical correlations.
Table 8.31  Canonical Correlations Between Value of Assessment and Feedback Variables and Learning Motivation Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation with Canonical Variate 1</th>
<th>Correlation with Canonical Variate 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables (Set A)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value of Assessment/Form of Feedback</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentic Assessment/value of</td>
<td>0.68</td>
<td>-0.34</td>
</tr>
<tr>
<td>Autonomous Assessment/value of</td>
<td>0.75</td>
<td>-0.07</td>
</tr>
<tr>
<td>Communication Based Assessment/value of</td>
<td>0.63</td>
<td>0.26</td>
</tr>
<tr>
<td>Ongoing Feedback/effectiveness of</td>
<td>0.52</td>
<td>0.65</td>
</tr>
<tr>
<td>Personally Oriented Feedback/effectiveness of</td>
<td>0.73</td>
<td>0.04</td>
</tr>
</tbody>
</table>

| | Correlation with Canonical Variate 1 | Correlation with Canonical Variate 2 |
|---------------------------------------------------------------|--------------------------------------|
| **Dependent Variables (Set B)** | | |
| **Learning Motivation** | | |
| Intrinsic Motivation | 0.94 | 0.02 |
| Extrinsic Motivation | 0.39 | 0.47 |
| Learning for Understanding | 0.89 | 0.07 |
| Need Achievement | 0.79 | -0.00 |
| Instrumental Motivation | 0.41 | 0.65 |
| Minimal Learning | -0.31 | 0.66 |
| Cheating | -0.21 | 0.39 |

| Canonical Correlation | 0.44* | 0.21* |
| % variance | 19% | 4% |

*p < .001

The analysis yielded a significant canonical correlation (R = .44) between the first canonical variate representing the valuing of different forms of assessment and feedback (Set A) and the first canonical variate representing learning motivations (Set B). All of the valuing variables loaded high to very high on the canonical variate for Set A while for the canonical variate for Set B, intrinsic motivation, learning for understanding and need achievement motivation were dominant while there was a low negative loading for the motivations, minimal learning and cheating. The significant R₁ value (R₁ = .44) suggests that the set of independent variables acts as a statistically significant predictor of the composite variable representing motivation for learning. In particular, a strong correlation exists between the predictor set and intrinsic motivation (r = .94), learning for understanding (r = .89) and need achievement (r = .79). Negative correlations existed between the composite of the independent variables and minimal learning (r = -.31) and cheating (r = -.21).
In the second set of variates, a significant canonical correlation ($R_z = .21$) was found between the two canonical variates. The variable, effectiveness of ongoing feedback, dominated the canonical variate for Set A while the variables, minimal learning, instrumental motivation, and extrinsic motivation dominated the canonical variate for Set B. While a relatively low canonical correlation exists, these results suggest that the effectiveness of ongoing feedback is a statistically significant predictor of minimal learning ($r = .66$), instrumental learning ($r = .65$) and extrinsic motivation ($r = .47$). Given results from earlier analyses, this finding suggests that students who wish to minimise their learning efforts or who are not intrinsically motivated may rely on teacher-directed ongoing feedback to give cues about what they need to learn and what will be required in order to gain Pass grades without having to put in more than a minimal work effort.

These results provide answers to the research question,

*Do students' perceptions of the value of different types of assessment and different forms of feedback affect their motivation for learning?*

The first finding indicates that students who place particular value on autonomous forms of assessment and a feedback process which requires them to be active participants, rather than passive recipients, are more than likely to be intrinsically motivated and be striving for understanding in their learning. The second finding, while not emerging as clearly from the data as the first, suggests that students who place high value on ongoing feedback (in this study defined as a more teacher centred and prescriptive approach) are more likely to be wanting to minimise their learning efforts, and are motivated by instrumental and extrinsic factors rather than intrinsic goals.
Feedback and motivation

The seven scaled variables developed for the various student motivations were also related to how students used feedback. Hence, in this part of Section Four, the question, *Does the way students use feedback impinge on their motivations for learning?* is considered. Correlations between the use of feedback variables and motivation variables are reported in Table 8.32.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Good use of feedback</td>
<td>.47**</td>
<td>.31***</td>
<td>.55**</td>
<td>.39***</td>
<td>.14**</td>
<td>.12*</td>
<td></td>
</tr>
<tr>
<td>Poor use of feedback</td>
<td>-.32**</td>
<td>NSR</td>
<td>-.32**</td>
<td>-.22</td>
<td>-.10*</td>
<td>.47***</td>
<td>.25***</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p<.001  NSR = No significant relationship

The pattern of relationships was quite striking. Good use of feedback was positively associated with both intrinsic and extrinsic motivation, learning for understanding, need achievement and instrumental motivation, but negatively associated with the motivation to minimise learning efforts and to tolerate cheating. Poor use of feedback showed just the reverse pattern (with the exception of extrinsic motivation where the result was not significant).

Canonical correlation techniques were again used to gain further insights into the relationships between the variates representing use of feedback and the variates representing learning motivation.
Table 8.33  Canonical Correlations Between Use of Feedback Variables and Learning Motivation Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation with Canonical Variate 1 ($R_1$)</th>
<th>Correlation with Canonical Variate 2 ($R_2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables (Set A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Use of Feedback</td>
<td>0.91</td>
<td>0.41</td>
</tr>
<tr>
<td>Poor Use of Feedback</td>
<td>-0.68</td>
<td>0.74</td>
</tr>
<tr>
<td>Learning Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>0.83</td>
<td>0.08</td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td>0.39</td>
<td>0.52</td>
</tr>
<tr>
<td>Learning for Understanding</td>
<td>0.93</td>
<td>0.19</td>
</tr>
<tr>
<td>Need Achievement</td>
<td>0.66</td>
<td>0.16</td>
</tr>
<tr>
<td>Instrumental Motivation</td>
<td>0.50</td>
<td>0.34</td>
</tr>
<tr>
<td>Minimal Learning</td>
<td>-0.52</td>
<td>0.82</td>
</tr>
<tr>
<td>Cheating</td>
<td>-0.33</td>
<td>0.35</td>
</tr>
<tr>
<td>Canonical Correlation</td>
<td>0.61*</td>
<td>0.43*</td>
</tr>
<tr>
<td>% variance</td>
<td>37%</td>
<td>18%</td>
</tr>
</tbody>
</table>

*p<.001

The analysis (see Table 8.33) yielded a significant canonical correlation ($R_1 = .61$) between the first canonical variate representing the use of feedback and the variate representing learning motivation. The variable, good use of feedback, loaded very high on the canonical variate for Set A while the other variable, poor use of feedback, had a high negative loading. For the canonical variate for Set B, the variables, learning for understanding, intrinsic motivation, need achievement, and instrumental motivation dominate with high to moderate positive loadings. The work-avoidance learning motivations represented by the variables, minimal learning and cheating, had moderate to weak negative loadings. Findings indicated in $R_1$ suggest that the variable, good use of feedback ($r = .91$) is a statistically significant predictor for learning for understanding ($r = .93$), intrinsic motivation ($r = .83$) and need achievement ($r = .66$).

For the second set of variates, the analysis yielded a significant canonical correlation ($R_2 = .43$). The variable, poor use of feedback, loaded higher on the
canonical variate for Set A. For the canonical variate for Set B, the variables minimal learning and extrinsic motivation dominated with high to moderate loadings. Results in R₂ show that poor use of feedback (r = .74) is a statistically significant predictor for motivation associated with minimising learning (r = .82) and extrinsic motivation (r = .52).

When these results are related to the research question, Does the way students use feedback impinge on their motivations for learning?, two clear learning outcomes are evident:

1. good use of feedback is associated with students being intrinsically motivated to achieve understanding and depth in their learning; and
2. poor use of feedback is associated with students seeking to minimise their learning efforts and, thus, their learning outcomes.

Conclusion

Findings from the survey data suggest that decisions university teachers make about the assessment strategies they use and the feedback they provide can influence undergraduate students’ perceptions about what is valuable in the learning process. Differing results across the four professional groups surveyed showed that students generally valued, and perceived as fair, those types of assessment with which they were most familiar. There was one exception to this. In the overall results, large scale, end of semester examinations were cited as amongst the most frequently used types of assessment and yet were judged to be the least valuable and the least fair of all 22 types of assessment listed. Students, in general, saw examinations as being of less value to their learning than other forms of assessment. They favoured assessment which included tasks associated with those performed in their chosen profession, tasks related to real life situations or events, assignments that challenged them to think analytically, and opportunities to work independently and to make choices about their assignments and, hence, their learning.
Students found all types of feedback included in the questionnaire effective. Results showed, however, that the form of feedback that required students to take the initiative in seeking feedback, *individual meeting with the marker of the assignment*, was the type least frequently used.

The data indicated that students’ attitudes and motivation were associated with their use of feedback. For example, it was found that students with low grades or those who had failed one or more subjects were more likely to make, or have made, poor use of feedback. That is, they were less likely to read written comments on their returned assignments, to see the value of building future learning on previously acquired knowledge and skills and, as a result, to be less involved in reflecting on their learning or wanting to spend time consolidating that learning. These students’ poor use of feedback might be attributed to their lack of understanding of the value of feedback or to their lack of understanding about how to utilise the feedback they received.

Results from canonical correlational procedures showed that good use of feedback was a statistically significant predictor (R =.49, p <.001) of students’ recognising the effectiveness of personally oriented feedback, that is, feedback which requires students to be active in the feedback process, and to value autonomous forms of assessment, that is, assessment that requires them to engage in higher order thinking and to show initiative and independence.

Seven scaled variables associated with students’ motivations were developed. These ranged from motivation to acquire understanding in their learning through to work avoidance motivation (the variables, *minimal learning* and *cheating*). The item in the questionnaire related to career needs, *establishing a solid foundation for my career*, was the single most favoured motivational goal (mean =4.25, standard deviation =0.69). Correlations between variables indicated that intrinsic motivation and the desire to achieve understanding were related to good use of feedback. The desire to minimise learning was related to poor use
of feedback. Through the use of canonical correlation techniques, the variables associated with different types of assessment and feedback (particularly the learning value of autonomous assessment and the effectiveness of personally oriented feedback) were found to be statistically significant predictors (R = .44, p < .001) of intrinsic motivation, learning for understanding and need achievement. The more teacher-directed of the two forms of feedback, effectiveness of ongoing feedback, was found to be a statistically significant predictor (R = .21, p < .001) of the motivation variables, minimising learning, instrumental motivation and extrinsic motivation.

What these findings suggest is that students who make good use of feedback are likely to value types of assessment that challenge them intellectually and allow them freedom in directing their learning. These students are likely to be proactive in seeking feedback and are likely to recognise the value of reflecting on previous learning in order to gain understanding. Finally, these learners will generally be intrinsically motivated to seek understanding and may also have a strong need to be successful in their studies. When one superimposes these characteristics on to the conceptual framework, as in Figure 8.1, a profile of what this learner might be like emerges. This “profile” needs to be read in terms of the findings from this survey and may not necessarily generalise to other groups of students, to other undergraduate programs or other university contexts.
- Predominantly intrinsically motivated
- Generally has a strong desire to achieve goals

- Values forms of assessment that require:
  - critical analysis;
  - independent research;
  - decisions to be made by students or negotiated with teacher (rather than alone)
- Uses feedback to inform present and future learning
- Usually becomes actively engaged in the feedback process

- Achieves understanding in learning and other personal achievement goals
- Has the ability to monitor the quality of his or her learning
- Has skills which allow for engagement in self-directed learning
- Likely to have achieved merit grades throughout program
- Unlikely to have failed any subjects
- Likely to undertake further university study

Figure 8.1 Interactive processes resulting in maximising learning outcomes
Students who do not have strong motivations to gain understanding or depth in their learning can also be identified from the findings from the survey. These are students whose predominant motivation is to minimise the efforts required to be successful in their learning. Students with this motivation tend to rely on their teachers to give them cues about what to learn and how much effort is required. These students value feedback that is prescriptive in nature and task specific. Feedback is perceived as enabling them to satisfactorily complete the next assignment or examination rather than to inform them about previous learning. Their poor use of feedback suggests that they do not value feedback generally, are not aware that feedback can be used to assist them in their learning, lack the skills needed to reflect on their learning, or to link present or future learning with previous learning and lack confidence in seeking feedback from others. When one relates this type of student to the components of the conceptual framework, a different profile emerges.
Figure 8.2 Interactive processes resulting in minimising learning outcomes

In the next, and final, chapter, these findings identified from the survey will be synthesised with findings from Stages 1 and 2 of this investigation.
CHAPTER NINE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to investigate the relationship between assessment and learning from the perspective of undergraduate students. The study was carried out in three stages and was developmental in nature with each stage informing the next and providing focus and direction to the ongoing study. Stage 1, reported in Chapters 2 and 3, consisted of two parts: a literature review, specifically aimed at examining interactions among learning, assessment and motivation; and a small-scale interview study. This preliminary round of interviews sought to isolate any areas related to assessment and learning which, in conjunction with findings from previous studies reviewed in Chapter 2, would inform the balance of the study. Stage 2 followed the same format as Stage 1, a literature review followed by in-depth interviews. The literature reviewed in Chapter 4 focused more particularly on assessment and its relationship to learning. Chapters 5 and 6 reported the design of the interview study and the findings. Forty two students from three faculties at the University of Western Sydney (Nepean) were interviewed. Specific outcomes from this second stage became the basis of the survey conducted in Stage 3 of the study. This survey, reported on in Chapters 7 and 8, focused on ten specific research questions that emerged from Stages 2 and 3. Four hundred and eighteen undergraduate students from four professional preparation programs across three universities responded to the survey.

In the remainder of this chapter, findings from each of the three stages of the study will be discussed. These findings will be synthesised and the implications explored. Finally, recommendations that arise from the study will be presented.
Findings from the study

In the first phase of Stage 1, the literature review, inter-relationships that exist among learning, assessment and motivation were explored. Seven main findings emerged from the literature review. Learning was found to be context specific and, in general, task specific with these contextual factors impacting on students' conceptions of learning. These conceptions of learning as well as students' previous learning experiences were found to impact on future learning. Students' goals or motivations were modified by the demands of curriculum, more particularly by the assessment requirements and these requirements impacted on students' understanding and learning outcomes. Finally, students' approaches to learning were mediated by the dominant messages conveyed by either the explicit or the implicit curriculum.

When students were interviewed in the second phase of Stage 1, the pivotal position of the assessment process to student learning received further confirmation. While none of the questions in the interview guide referred to assessment, virtually all discussion of learning was related, by the interviewees, to assessment tasks, to seeking clarification of assessment requirements, to the feedback the interviewees had received, and to the ways these factors related to the teaching process. For the students interviewed, assessment and learning appeared to be inseparable. While assessment is viewed by many teachers as part of the teaching process, for these students, at least, assessment was seen in terms of learning. As a result of the findings in Stage 1, the conceptual framework that had been developing was modified (see Figure 3.1 in Chapter 3). The assessment process was separated from the learning context into a separate category which emphasised the strong mediating effect assessment has on students' approaches to learning and on their learning outcomes. One of the key findings that emerged from Stage 1 was that assessment needs to be recognised as a process that starts with the
design of a subject or unit of study and encompasses an extended network of associated factors.

At the end of Stage 1, issues were identified that needed further exploration or clarification, especially those associated with the purposes of assessment, the way the assessment process has been used in relation to learning and ways the assessment process may be used to enhance student learning. The study was developed in Stage 2 to include a review of literature specifically related to assessment. Relationships between learning theory and assessment paradigms were explored as were the concepts of feedback and self-monitoring. The final part of this review explored the ways the assessment process can either limit or support student learning.

The review of the literature in Stage 2 highlighted the multi-faceted nature of the assessment process: it has a range of functions which serve the needs of different people in different ways; it can be formative or summative; and it can be referenced in different ways. The ways assessment are used in different learning paradigms and in the higher education context were explored particularly in relation to the emergence of a new assessment paradigm - one driven by educational rather than psychometric considerations. While psychological research into assessment and learning focused primarily on aspects of the individual within his or her immediate environment, the effects of systemic, institutional influences on teaching and assessment led to a consideration of factors beyond the individual learner. Two of the factors discussed which influence the assessment, teaching, and learning processes within universities included the effects of cutbacks to funding and the impact of overloading the curriculum with content and/or assessment tasks. The first of these factors, cutbacks to funding, has the potential to reduce the beneficial effects produced by having a variety of assessment methods supported by well designed feedback strategies, the availability of, and access to, human and physical resources necessary to gain maximum benefits from assessment tasks, and the capacity to cater for individual differences present in a diverse student
population. The second factor, an overloaded curriculum, forces students into a surface approach to learning in an effort to cope with the overwhelming demands of such a curriculum. Such learning can be narrow and limited and precludes a transformational approach aimed at depth of understanding.

While it has been confirmed that for meaningful learning to take place students need to be active in the learning process, and while teachers have acknowledged and expected students to be independent and autonomous in their learning, university teachers have traditionally assumed responsibility for decisions about what students are to learn and how they are to go about that learning. Students generally have little input into the content of their learning. Similarly, while constructivist perspectives are widely espoused by university teachers, widespread adherence to traditional didactic teaching methods and teacher-dominated, competitive systems of assessment deny the fact that knowledge is a social construct and that transformation of that knowledge into personally constructed knowledge occurs through social processes rather than transmission methods.

Integral to students gaining control of their learning, is their ability to use feedback on their performance. An appreciation of the interactive nature of the assessment, teaching, and learning processes is vital if students are to gain full benefit from feedback. Feedback is an integral part of both the assessment process and the learning process. Just as social activity is required for transformational learning to occur, so social activity is required for learners to gain maximum value from feedback. Only when students become actively engaged in using feedback to inform learning, only when teachers view feedback as being just as important as the content of a program or a subject in terms of students developing skills to become autonomous in their learning, will students be given opportunities to fully develop their metacognitive or evaluative abilities.
For students to be empowered in the learning process, that is for them to gain metacognitive skills necessary for them to monitor the outcomes of their learning and regulate their learning strategies, development of the required skills need to be a deliberate, considered part of the teaching-learning process and one that begins at the commencement of the undergraduate program. This means that a significant component in the planning of any undergraduate program is the delineation of a deliberate, ongoing, developmental set of strategies or processes designed to lead students to increasing levels of control of their own learning.

An Interactive Model of Assessment was developed from the findings to this point. This model illustrated the dynamic, interactive nature of the three processes - assessment, teaching, and learning. When this interactive model of assessment was linked to learning outcomes, outcomes that extended beyond a body of knowledge to include generic skills and job-related or professional skills, the conceptual framework developed at the end of Chapter 3 underwent a further refinement which resulted in the Interactive Learning Outcomes Model.

The empirical phase of Stage 2, involved further exploration of the impact of assessment strategies on learning outcomes from a student perspective. In-depth interviews were conducted with 42 undergraduate students then enrolled in programs in the Faculties of Engineering, Nursing and Health Studies, and Education at the University of Western Sydney (Nepean). All students interviewed had completed at least five semesters of their undergraduate program. The issues explored were based on the three interactive processes of assessment, teaching and learning and included:

- motivation;
- the ability to regulate one’s learning;
- monitoring the quality of one’s learning;
- the teacher and the teaching environment;
- the explicit and implicit curricula;
• types of assessment; and
• feedback and learning.

Findings were presented in response to four questions based on the key themes that emerged from the data.

1. *In what ways did assessment strategies either enhance undergraduate students’ learning or inhibit their learning?*

2. *In what ways was feedback used to develop undergraduate students’ ability to monitor and direct their learning?*

3. *How did the assessment and teaching processes impact on undergraduate students’ motivations towards learning?*

4. *Were varying approaches evident in the ways undergraduate students spoke about assessment and learning at university?*

Students perceived learning was promoted through the following processes:

• designing assessment tasks which entailed a high degree of student responsibility for, and autonomy in, their learning;
• establishing relevance of learning and assessment content to students’ needs and goals;
• integrating meaningful learning activities into the assessment and learning program; and
• integrating assessment process with the instructional design of a program/subject.

The factor that was identified repeatedly as inhibiting deep learning was *overloaded curriculum*. From the interview data, it was found that overloaded curriculum pushed students into surface approaches designed to complete assignments and pass examinations. This approach has been proven to result in poor quality learning and gaps in students’ understanding.
It was apparent from the data that well designed assessment tasks encouraged students to develop self-monitoring skills. When teachers involved students in the feedback process then students reported that their learning had been enhanced and that they gained insights into the learning process and how they themselves went about learning. Interactive ways that teachers used to include students in developing the skills to monitor and direct their learning included peer and self assessment and feedback being built into the teaching program, students and teachers working together to provide feedback to each other through interviews and group discussion, feedback about peer’s performances and various approaches that were used in response to assessment tasks, the use of diaries in conjunction with assessment tasks, and through personal contracts.

The assessment process could, however, mitigate against students developing the ability to monitor the quality of their learning. The more obvious ways this occurred included: too many assignments; limited or inadequate feedback about work-in-progress; lack of information about assessment requirements and marking criteria; lack of clarity of information provided about assessment requirements; reluctance to approach teachers; and non-return of examination papers. What was also apparent was that some students were using feedback to minimise their learning efforts or to reproduce what they believed teachers expected.

Two forms of feedback emerged from the data. The first, ongoing feedback, was defined in Stage 2 as feedback provided to students throughout the semester. The second form, personally oriented feedback, was characterised by the way in which both teachers and students are active in the feedback process. Personally oriented feedback requires students to engage in discussion and reflection and focuses on the interactive nature of feedback which may be teacher to student, student to teacher, student to student and so on. It was evident from the data that virtually all feedback came from teachers. While ongoing feedback may appear, on the surface to be highly desirable, it was used, by some interviewees
at least, as a medium for gleaning information about what teachers wanted and expected from students' assignments and examinations. In this context, ongoing feedback could be seen as a mechanism for supporting and encouraging a reproducing approach - in effect, it was providing students with a \textit{template} on which to model their learning. The fine line that existed between students using feedback to control their learning and students using feedback to reproduce what they believed teachers expected means that strategies used to provide feedback need careful planning and consideration. While the benefits of regular, timely feedback are recognised, it needs to be added that benefits from feedback can be marginalised if students are not actively involved in the feedback process.

The third research question addressed students' motivations towards learning. Motivational goals were identified from the data ranging from motivation intrinsic to the task of learning through to work avoidance goals and strategies. The findings showed that students' motivation was influenced by the teaching-learning context and that students' perceptions about the value of what they were learning and about the assessment program were associated with their motivation. Curriculum that was student-centred and required students to be active in the learning and assessment processes was found to result in heightened interest and commitment. Other aspects of teaching and learning and of assessment procedures, however, had less positive results and students expressed feelings of powerlessness and frustration engendered by teachers who were unapproachable or unprofessional in their teaching or with a system that had artificial cut-off points for grades.

The first year of undergraduate study was found to be crucial in terms of student motivation and students' later orientation to learning. The assessment process was the main indicator for these neophyte students of how they were coping with undergraduate study and became the basis for their later effort and ability attributions. As a result of outcomes from assessment early in their program, students often either increased or decreased their learning efforts. It
was found that at this early stage of undergraduate study, what students needed was an assessment and learning program that involved them actively in gaining skills to direct their own learning, and that had built-in strategies which required students to seek support and guidance from each other and from their teachers. Involvement in forms of assessment that challenge students, allow choice, and are designed to encourage collaboration with peers and teachers, would seem to provide the conditions necessary for students to become actively engaged in the learning process and, as usually occurs as a result of this engagement, develop positive motivational goals for their learning.

At the end of Stage 2, factors that students perceived as being important in either enhancing or inhibiting their learning had been identified. These included:

- the types of assessment strategies that were used;
- the provision of feedback;
- the opportunities to develop self-monitoring skills;
- the teaching-learning context; and
- the student’s motivation to learn.

The fourth question used in reporting findings from the in-depth interviews asked whether varying approaches were evident in the ways undergraduate students spoke about assessment and learning at university. Three clear types of learner emerged: students who were seeking depth of understanding; students who were wishing to minimise their learning efforts; and students who were needing to prove to themselves that they could complete their course. Each of the three types of learners differed in terms of factors such as motivation, ability to plan and regulate their learning, their use of feedback, their perceptions of their ability and their perceptions of the learning process and the assessment process.
At the end of Stage 2, it was clear that further investigation into four specific areas was required: specific assessment strategies used in undergraduate programs; feedback from assessment; undergraduate students' motivational goals; and relationships among motivation, feedback and other facets of assessment. A decision was made to broaden the study to include undergraduate students from three universities. In Stage 3, 418 undergraduate students studying either engineering, nursing, occupational therapy or teacher education were surveyed. The students came from eight different faculties across three universities. All had completed at least five semesters of undergraduate study. Ten questions were posed in relation to the four areas which became the basis for the survey:

1. How frequently are various types of assessment used?
2. What are the types of assessment tasks that students value?
3. Are some of these assessment types seen as 'fairer' indicators of learning than others?
4. What types of feedback are students receiving?
5. What type of feedback do they value?
6. What use do they make of the feedback they receive?
7. What motivates undergraduate students?
8. Do students' perceptions of the value of different types of assessment and different forms of feedback affect the way they use feedback?
9. Do students' perceptions of the value of different types of assessment and different forms of feedback affect their motivation for learning?
10. Does the way students use feedback impinge on their motivations for learning?

Findings related to these 10 questions are summarised briefly here and key findings from each of the three stages will then be synthesised.

The three types of assessment reported as being most frequently used were assignments based on group work, giving an oral presentation, and large scale, end of semester examinations. Significant differences occurred, however, in 19
of the 22 items when means were compared using ANOVAs with program as the independent variable. Students tended to value the types of assessment with which they were most familiar. A close relationship was found to exist between what was valued and what was perceived as fair although, in general, examinations were reported as being of less value than other types of assessment.

Feedback to students was generally from the teachers. Students tended to value all forms of feedback, however, the form of feedback that required students to take the initiative in seeking feedback, *individual meeting with the marker of the assignment*, was the type least frequently used. This finding links to the finding from the interview phase in Stage 2 where a number of the students interviewed expressed their reluctance to approach their teachers. This would appear to be of particular concern in the case of First Year students who need support in their studies - especially in their first semester - if their commitment to learning is to be enhanced.

Students were motivated in different ways. Results suggested that female students were more intrinsically motivated than male students whole males were more likely to be seeking ways to minimise their learning and to sanction cheating. Students who were 25+ were more likely to be intrinsically motivated than their younger peers and those students in the 30+ age range were more likely to be seeking understanding in their learning than those students under 30 years of age.

Relationships among motivation, use of feedback, the types of assessment students valued, and the forms of feedback they found effective were explored in this final stage of the study. Findings suggested that students who make good use of feedback are intrinsically motivated, seek depth of understanding in their learning, value types of assessment that provide them with opportunities to be self-directed and autonomous, and value a feedback process that is active, and involves discussion and reflection. Good use of
feedback was associated with assessment, teaching and learning processes that were student centred and aimed at achieving quality learning outcomes. Poor use of feedback was associated with a work-avoidance, extrinsically oriented motivation.

**Implications of the findings**

Findings from the literature, the interviews and the survey have confirmed that the assessment process is a critical factor in shaping student learning. The assessment process influences students' motivational states and the way they interact with the content of their learning. As illustrated by the *Interactive Learning Outcomes Model* (on Page 174), these motivational goals are mediated by students' interaction with the assessment process, the teaching process, and the learning process. Just as the assessment process exerted a strong influence on students and their learning, so too did the personal and professional qualities of university teachers. Teachers were perceived by students as being a key factor in whether or not they were motivated to learn. The reluctance of many students, particularly in the first year of undergraduate study, to approach their teachers for advice and feedback emerged as an area of concern. Data related to students' experiences in First Year suggested that the assessment process influenced their motivation during their first semester at university. Findings from this study and from other studies involving First Year students indicate that students need to be supported in their First Year and that well designed assessment tasks and feedback strategies go a long way towards providing this support.

It became apparent from the students' comments that the majority of students interviewed had limited or no experience of independent study or of choice in assessment tasks until the third or final year of their undergraduate program. This often abrupt transition from teacher-directed to self-directed learning in the final year, while desired and expected by teachers, generally was only partially supported by the instructional design of the program in the preceding
years. If students are to reach goals expected of graduates, in this case professionals who are self-directed decision makers, they need tasks which require higher order thinking and independent (rather than directed) learning from the start of their undergraduate study and benefit from early development of self-monitoring skills. Engagement in the learning process and commitment to quality learning outcomes are increased through students being given the responsibility to make choices about the direction of their learning, and training in ways to use feedback to inform that learning. As the first year of university is crucial in terms of students’ motivation and their later orientation to learning, and as the achievements related to the assessment process influence students’ later effort and ability attributions, involvement in independent, teacher supported self-directed learning would appear to be just as vital in the first year of undergraduate study as in the final year.

The key role of feedback in both the assessment process and the learning process was clear in both the qualitative and quantitative data gathered. Students valued all forms of feedback itemised in the survey. However, the two forms that related to feedback from peers, discussion with other students and combined feedback from teacher and other students as part of peer assessment methods were considered of least value of all forms listed. As shown in the findings from the survey, what students were familiar with was what they tended to value. It was evident from interview data that virtually all feedback came from teachers. From the survey data, the use students made of feedback was found to be a statistically significant predictor of students’ beliefs about the value of different types of assessment and forms of feedback and of their motivation to learning. From the literature, the integral place of feedback in both the learning process and the assessment process was acknowledged.

For feedback, then, to be of maximum benefit in developing students’ ability to reflect on, and gain control over, their learning, and for them to derive the intrinsic motivational goals and quality learning outcomes associated with good use of feedback, feedback needs to be seen as part of the active, social
process of learning. That is, feedback needs to be active in nature and social in context.

For this to occur, students need to be involved in the feedback process. When this involvement occurs and is seen by students and teachers as a valuable way of learning, then the value of feedback will be appreciated, the value of feedback from peers will be recognised, and students’ evaluative skills will be developed. Active involvement of students in the feedback process has the potential of limiting opportunities for students to use ongoing feedback provided by teachers to students as a template for future learning. An interactive feedback process involving students, teachers and peers, when well-designed and based on co-operation rather than competition, can be used as a process which involves students in the teaching-learning process and a guide to their becoming autonomous in their learning.

Students interviewed in Stages 1 and 2 were quick to point out the way an overloaded curriculum had a deleterious effect on their learning. Overloading - either in terms of content or of assessment - forced students to adopt a surface approach to their learning and left them feeling powerless and frustrated. Students also spoke about feelings of frustration and powerlessness when confronted with a grading system that had artificial cut-off points for grades. In many cases, students lessened their learning efforts if they felt that the likelihood of learning being recognised in terms of merit grades was remote. When a normative referenced grading system is coupled with transcripts of academic results which show only summary grades set as percentages of students enrolled in a subject (eg, the highest scoring 10 per cent of students to receive a High Distinction, the next 15 per cent to receive a Distinction, and so on), as is the case in many Australian universities, and do not portray what has been achieved, students have every right to begrudge instances of high effort, often mirrored in high marks, resulting in Pass rather than merit grades. When this response is also attended by a decrease in motivation and a resultant
decrease in commitment to learning and engagement in the learning process, then changes in institutional procedures need to be considered.

In Chapter 1, the gap between the 'ideal' in terms of student learning and the 'actuality' was identified as a cause of concern for educators, planners and employers. Students were not included in this list of 'concerned' people. In much of the discussion about this gap between the 'ideal' and the 'actuality' there was an intimation that as students were found lacking then the reason, and perhaps the fault, lay at their feet. Indeed, in many reports read as background to this study, it was noted that academics more often than not laid the blame for students' shortcomings with the students and did not often question their own part in the learning process. What has emerged clearly is students' instinctive drive to respond to the learning environment and to the people and processes within that environment.

In Chapter 1, Barnett (1990, p. 197) was quoted as stating that there was general agreement that the conceptual core of higher education was about students becoming "masters of their own thinking and development" (Barnett, 1990, p. 197). Students have been found wanting. But students have also been found to be concerned; concerned about their inability to understand, to learn, to evaluate their own learning, and to communicate confidently with their teachers. Many students were strikingly honest about their deficiencies, their faults and their often 'less than ideal' ways of going about their learning. Perhaps what emerged most clearly was the interest students had in the research topic: they were interested in assessment as it was close to their experience and they were concerned about their lack of ability to learn and about the often less than ideal conditions for learning that so clearly influenced their learning outcomes.

In this study, it was found that, in most instances, teachers exerted great control over the learning environment. Teachers decided what was to be learned, how it was to be learned, and how it was to be assessed. Instances where students
were involved in the planning of aspects of the curriculum or in an active, dynamic student-centred teaching-learning process or were offered some freedom of choice, featured in students’ accounts of factors that had enhanced their learning.

An approach which recognised the interactive nature of the assessment, teaching, and learning processes and the ways these can be designed to motivate students and produce quality learning outcomes is embodied in the recommendations about to be made. This approach, essentially collaborative in nature, is at one with the aims of the university education as expressed by the Australian Vice-Chancellors’ Committee (1992, p. 71),

(University education) relies on its students as active partners in the learning and scholarship process. Students share responsibility for the quality of their learning, along with the staff of the universities.

This comment was made, not as a directive to students, but as an admonition to teachers to include students as active partners. Active partnerships in learning have been found in this study to enhance learning, to assist students in managing and monitoring their learning, and to promote a commitment to achieving quality learning outcomes.

Recommendations

This study began as an exploration of the relationship between assessment and learning. What emerged increasingly throughout the study was the strength of the interactive relationship not just between assessment and learning but among assessment, learning, and teaching. The dominant impact of this relationship is on student motivation.

In order to maximise potential benefits from this interactive relationship, to ensure that undergraduate students gain the knowledge and skills to graduate
with the attributes necessary for them to function as self-directed professional decision makers and with the skills and confidence to take control of their professional development after graduation, it is recommended that:

- The three processes - assessment, teaching, and learning - be recognised as interactive processes which, if focused mainly on students and their development rather than on content, will lead to quality learning outcomes.

- The driving force of the curriculum be the achievement of learning outcomes which encompass a body of knowledge, generic skills and professional skills as well as embracing less tangible outcomes such as the development of the capacity for ongoing learning and professional development.

- Assessment and teaching processes be designed to ensure the conditions exist that maximise opportunities for the transformation of knowledge and skills into learning through co-operative rather than competitive learning activities.

- Feedback be recognised as an integral part of both the learning process as well as the assessment process and, as such, is a social construct.

- Students be active participants in the feedback process rather than passive recipients.

- Strategies involving peer and self feedback be regularly integrated into the assessment process.

- In planning undergraduate programs, a range of assessment strategies be employed, each chosen for its potential to contribute to student learning and the development of a range of skills.
• Greatest use be made of autonomous forms of assessment.

• Learning and assessment processes which facilitate students’ ability to increasingly take control of their learning be incorporated into programs from the first year of undergraduate study.

A range of issues requiring further research emerged from this study. It is recommended that:

• Further research into the efficacy of assessing students through large scale, end of semester examinations be conducted as a result of students’ perceptions of their lack of value in terms of learning and their low level of fairness in relation to other types of assessment.

• Further research be carried out into student failure and its association with use of feedback and motivation to learning.

• Further research be carried out into assessment in programs offered by alternative modes of delivery.

• Further research is needed into the gap that exists between students’ and teachers’ perceptions of the teaching and learning processes and of the way students are motivated.

Final word

The involvement of students in this study was marked by a generosity of spirit. The academics in the faculties where the research was carried out were also generous with their time, their interest and with the way they ‘smoothened the way’ for the researcher. Students were asked to reflect on their experiences and their responses to these experiences. Teachers also need to reflect on their
experiences, their practice and their beliefs and attitudes. Students’ motivation relies so much on the qualities demonstrated by their teachers - on the quality of their instruction and facilitation of learning, on the decisions they make about curricula, and on their beliefs about assessment, teaching and learning. When teachers and students work together, then the impetus to tackle challenges and to move forward is strengthened through their combined discussion, reflection, cooperation and goodwill. Learning becomes a socially-based experience. In this environment, the assessment process will, of necessity, be designed to enhance quality learning outcomes as well as providing evidence of achievement.
REFERENCES


PLEASE NOTE

The greatest amount of care has been taken while scanning the following pages. The best possible results have been obtained.
Dear

I am writing to you personally to seek your support in my PhD studies. I am carrying out research into students' perceptions of learning. My aim is to gain insights into students' learning that can be used by University teachers to better assist students in the future.

The success of my research depends on people like you who have already completed several years of University study. I am in the early stages of my study and approaching about ten people I know to interview about their experiences of learning at university. This will assist me in gaining a student-centred focus for my study. I need approximately one hour of your time to talk with you.

Should you choose to participate, the interview will be audio taped and conducted at a time and place to suit you. Any information you provide will be treated as confidential. My research findings will be written up in a way that ensures you cannot be identified.

Your decision about your participation will in no way affect your academic progress, your involvement or otherwise is confidential information. You may withdraw from the interview at any time.

Please read the enclosed "informed consent" form and, if you are happy to help me with my study, sign it and return it to me in the enclosed Reply Paid envelope.

If you have any questions about the study at any time, please do not hesitate to contact me.

Yours sincerely,

Gabrielle Koop
Faculty of Education
Phone: (047) 360 937 (b/h)
(02) 427 3344 (a/h)
INFORMED CONSENT

I, ................................................................................. (please print), have read the information above and agree to participate in the undergraduate students' approaches to learning study.

I understand that this will take the form of an audio taped interview of approximately sixty minutes duration.

I understand that my participation is voluntary and that I may terminate the interview at any point.

Signature of Participant: ....................................................
Date: ..................................................................................
Contact Phone Number: ....................................................

I would like to receive a summary of the findings of the study. YES NO
Please circle

Name of Participant: ..........................................................
Please write clearly
Address: ........................................................................
..................................................................................
Postcode: .................................................................

Note: This study has been approved by the University of Western Sydney, Nepean's Ethics Review Committee. If you have any complaints or reservations about any aspect of your participation in this research, you may contact the Ethics Committee through the Human Ethics Officer (phone: 047 360 169). Any complaint you make will be treated in confidence and investigated fully, and you will be informed of the outcome.
25 September 1995

Gabrielle Koop  
Faculty of Education  
University of Western Sydney Nepean  
PO Box 10  
KINGSWOOD NSW 2747

Dear Gabrielle

Re: An examination of undergraduate students' approaches to learning' HERC 1995/56

At the Human Ethics Review Committee meeting held 18 September 1995 the Committee reviewed your project and agreed to fully endorse it. Would you please include the refer complaints to the ethics Committee paragraph on the Information sheet. (see attached example)

You are advised that this Committee should be notified of any further change/s to the research methodology should there be any in the future.

Your approval will expire September 1997. The Protocol number HERC 1995/56 should be quoted in all future correspondence about this project. Please contact Kay Buckley, Human Ethics Officer, tel 047 360 169 if you require any further information.

The Committee wishes you well with your project.

Yours sincerely

Dr Keith Bennett  
Chairperson  
Human Ethics Review Committee
SIX CONDITIONS OUTLINED BY FOX (1969) FOR MEETING ETHICAL STANDARDS

1. The respondent is told the purpose of the research and the use to be made of the data he is being asked to furnish.

2. Respondents know the nature of the instrument and the research conditions, to as great an extent as possible, prior to the data collection. Where this knowledge would affect validity or objectivity of the data, then it is provided as soon as possible after the data collection.

3. The fact of participation does not have any unpleasant effects on the respondents or their setting.

4. Respondents are entitled to have their confidence respected. They should be fully informed as to the nature of the identification of individuals and institutions which will be possible as well as the extent to which individuals and institutions will be identified in reports of the research.

5. The instrument and the research situation do not require that the respondent behave in an unprofessional way.

6. The research situation permits the respondent to profit maximally from the fact of participation. The respondent should learn whatever there is to learn from the research, and the researcher should recognise his obligation to the respondent in this regard.
QUALITIES STUDENTS SAW AS CONSTITUTING GOOD TEACHING
(STAGE ONE INTERVIEWS)

Responses to question: *What do you think good teaching is?*

**Student 1:** . . . someone who is able to make it (the material taught) interesting and be flexible.

**Student 2:** . . . a good lecturer, I think it's someone who's really interested in the students. They're interested in what they're telling you and they've gone to some effort in preparing it in an interesting way. . . . and they don't overload you with assignments, and they're willing to help with your assignments.

**Student 3:** . . . making your students feel comfortable and, yet, stimulating them to learn.

**Student 4:** Good teaching would be, first, I suppose grabbing the students’ attention and getting them interested in the subject and then going on from there . . . explaining and teaching things in a way that would make it easy for them to understand and showing what they learned is applicable to their everyday lives as well.

**Student 5:** Good teachers have to enjoy what they’re doing.

**Student 6:** (Being) creative. Being diverse. . . . energetic in their tone and excited about what they’re teaching.

**Student 7:** A good teacher is very, very personable. (They are) energetic about what they’re doing . . . and interested.

**Student 8:** Making things clear - that's important. And taking the time to explain things if you don’t understand.

**Student 9:** Making learning fun and interesting. (Creating) a positive, supportive environment.

**Student 10:** Having a good rapport with the students. I think that's really important and I know that has a lot to do with personality but generally being able to relate to younger people or to people across the board and not treat them as high school students . . . You're dealing with adults. Having a good understanding of what you're teaching . . . and being able, then, to communicate that back to the students. To be approachable.
Dear

I am writing to you personally to seek your support in my PhD studies. I am carrying out research into students' perceptions of learning. My aim is to gain insights into students learning that can be used by University teachers to better assist students in the future.

The success of my research depends on people like you who have already completed several years of University study. I have obtained your name by a purely random sampling procedure and your participation is vital to the outcomes of this study. I need approximately one hour of your time to talk with you about your thoughts on learning at University.

All in all, I plan to interview (individually) forty five to fifty students from the Faculties of Education, Engineering and Nursing and Health Studies at UWS Nepean. You are one of only fifteen students selected from your Faculty. Should you choose to participate, the interview will be audio taped and conducted at a time and place to suit you. Any information you provide will be treated as confidential. My research findings will be written up in a way that ensures you can not be identified.

If you decide to participate, you may choose to withdraw at any time. Your decision about your participation will in no way affect your academic progress, your involvement or otherwise is confidential information.

Please read the enclosed "Informed Consent" form and, if you are happy to help me with my study, sign it and return it to me in the enclosed Reply Paid envelope. I need to receive your reply by your exam preparation.

If you have any questions about the study at any time, please do not hesitate to contact me.

Yours sincerely,

Gabrielle Koop  
Faculty of Education  
Phone: (047) 360 937 (b/h)  
(02) 427 3344 (a/h)

Encl
INFORMED CONSENT

I, ........................................... (please print), have read the information above and agree to participate in the final year undergraduate students' approaches to learning study.

I understand that this will take the form of an audio taped interview of approximately sixty minutes duration.

I understand that my participation is voluntary and that I may terminate the interview at any point.

Signature of Participant: ......................................................
Date: ..............................................................................
Contact Phone Number: ..............................................

I would like to receive a summary of the findings of the study. YES NO
Please circle

Name of Participant: ............................................................ Please write clearly
Address: ...........................................................................
...................................................................................
Postcode: .................................................................

Note: This study has been approved by the University of Western Sydney, Nepean's Ethics Review Committee. If you have any complaints or reservations about any aspect of your participation in this research, you may contact the Ethics Committee through the Human Ethics Officer (phone: 047 360 169). Any complaint you make will be treated in confidence and investigated fully, and you will be informed of the outcome.
25 October 1995

Dear

Recently, I sent you information about a study I am doing into learning at university. This study is important because we know very little about the ways students learn, the types of assessment that assist learning and how students adapt to the demands of university study.

If you can possibly find just one hour to take part in an interview (at UWS Nepean), return the attached consent form in the stamped addressed envelope or you can ring me on (02) 427 3344 after 7.00 pm.

Looking forward to hearing from you.

Yours sincerely,

Gabrielle Koop
Faculty of Education
Phone: (047) 360 937 (b/h)
 (02) 427 3344 (a/h)
8 November 1995

Dear

Maybe I caught you at a bad time with my last letter. This has certainly been true for some people who I'm going to interview after exams and everything are over.

I really do want the benefit of your experience of studying at university. If you feel you can find time between now and the end of January to talk to me for an hour please give me a ring so I know what's happening.

The best time to catch me is before 8.00 am and after 6.00 pm on (02) 427 3344 or email me on g.koop@nepean.uws.edu.au.

Hope you decide to share your ideas so we can try to make it better for others in the future.

Yours sincerely,

Gabrielle Koop  
Faculty of Education  
Phone: (047) 360 937 (b/h)  
(02) 427 3344 (a/h)  
Room: K1 89
APPENDIX 8

INTERVIEW GUIDE FOR STAGE TWO INTERVIEWS

Part A

1. Name.
2. Faculty of Enrolment.
3. Year of Enrolment.

Part B

1. Think of one subject from your undergraduate degree where you found yourself learning something valuable and learning it well. What were the features of this subject that contributed to this learning?
2. Now think of a subject where you thought you were not engaged in real learning. A subject from which you learnt little. What were the features of this subject?
3. What is learning?
4. What is the key to "real" learning?
5. Do you think learning things "off by heart", or rote learning, helps you to understand what you are learning?
6. Think of any one subject you have completed, or are completing, this year. What were the assessment tasks for this subject? How did you prepare for these assessment tasks? How did the assessment tasks affect the way you approached the subject?
7. Now think of another subject - one which had a different pattern of assessment. What were the assessment tasks for this subject? How did you prepare for these assessment tasks? How did the assessment tasks affect the way you approached the subject?
8. Has your approach to learning and to assessment changed from when you first started university? If "yes", in what way?

9. When people sit for an exam or hand in an assessment, they usually have some idea of the mark they will get. In your experience, what sorts of things do you have to do at university to earn a good mark? Why do people get poor marks?

10. Looking back over your time at uni, what might you change of modify so that you were able to learn things more deeply?

Part C

1. On a scale of 1 to 5, with 5 representing the most successful students, how do you rate yourself, academically, compared to other students?

2. Age. (Under 21; 21-30; 31-40; 40+)

3. Is English your first language?

4. What do you perceive as the dominant cultural perspective in your home? e.g. Japanese; Aboriginal; Polish?

5. Did a close relative of a person close to you, undertake university study prior to you starting this course?

6. Do you intend doing further study in the next five years to gain a postgraduate qualification?

7. Gender.

8. Postcode.
**APPENDIX 9**

**SUMMARY OF RESPONSES TO QUESTION 1 OF STAGE TWO INTERVIEWS:**

> Think of one subject from your undergraduate degree where you found yourself learning something valuable and learning it well. What were the features of this subject that contributed to this learning?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content/assessment relevant to future career</td>
<td>18</td>
</tr>
<tr>
<td>Positive teacher qualities</td>
<td>18</td>
</tr>
<tr>
<td>- teacher was inspirational</td>
<td></td>
</tr>
<tr>
<td>- teacher respected us/treated us as equals</td>
<td></td>
</tr>
<tr>
<td>- teacher was enthusiastic</td>
<td></td>
</tr>
<tr>
<td>- good teaching skills</td>
<td></td>
</tr>
<tr>
<td>- teacher was approachable</td>
<td></td>
</tr>
<tr>
<td>Tutorials/classes which involved active, collaborative learning</td>
<td>12</td>
</tr>
<tr>
<td>- tutorial activities designed to involve student</td>
<td></td>
</tr>
<tr>
<td>- co-operative learning with peers and teachers</td>
<td></td>
</tr>
<tr>
<td>- smaller tutorial group than is usual</td>
<td></td>
</tr>
<tr>
<td>- able to work at own level as different levels catered for in tutorial activities</td>
<td></td>
</tr>
<tr>
<td>- variety of strategies used in tutorials</td>
<td></td>
</tr>
<tr>
<td>Linking theory with practice</td>
<td>11</td>
</tr>
<tr>
<td>- able to apply theory to practical work in the field</td>
<td></td>
</tr>
<tr>
<td>- good balance of theory and practice</td>
<td></td>
</tr>
<tr>
<td>- assessments were well balanced between theoretical and practical tasks</td>
<td></td>
</tr>
<tr>
<td>- could see link between theory and practice</td>
<td></td>
</tr>
<tr>
<td>Involvement in tasks that lead to higher order thinking and learning</td>
<td>8</td>
</tr>
<tr>
<td>- challenged with problem-solving situations</td>
<td></td>
</tr>
<tr>
<td>- structure of subject facilitated indepth understanding</td>
<td></td>
</tr>
<tr>
<td>- thought provoking assignments</td>
<td></td>
</tr>
<tr>
<td>- learnt a lot from indepth assignments</td>
<td></td>
</tr>
<tr>
<td>- everything ‘jelled’ to become part of my way of thinking</td>
<td></td>
</tr>
<tr>
<td>Strong personal interest in the subject</td>
<td>5</td>
</tr>
</tbody>
</table>
Now think of a subject where you thought you were not engaged in real learning. A subject from which you learnt little. What were the features of this subject?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content/assessment not seen as relevant to future career students</td>
<td>16</td>
</tr>
<tr>
<td>Poorly designed subject</td>
<td>13</td>
</tr>
<tr>
<td>- poorly organised</td>
<td></td>
</tr>
<tr>
<td>- content boring</td>
<td></td>
</tr>
<tr>
<td>- subject too difficult</td>
<td></td>
</tr>
<tr>
<td>- subject too easy</td>
<td></td>
</tr>
<tr>
<td>- subjects overlapped</td>
<td></td>
</tr>
<tr>
<td>- subject presented too early in course</td>
<td></td>
</tr>
<tr>
<td>Negative teacher qualities</td>
<td>11</td>
</tr>
<tr>
<td>- teacher unapproachable</td>
<td></td>
</tr>
<tr>
<td>- teacher uninspiring</td>
<td></td>
</tr>
<tr>
<td>- teacher not committed (feel like you’re on your own)</td>
<td></td>
</tr>
<tr>
<td>- teacher talking down to you</td>
<td></td>
</tr>
<tr>
<td>- poor teaching skills</td>
<td></td>
</tr>
<tr>
<td>Limitations in assessment process</td>
<td>9</td>
</tr>
<tr>
<td>- assessment did not relate well to subject content</td>
<td></td>
</tr>
<tr>
<td>- not enough feedback from assessment</td>
<td></td>
</tr>
<tr>
<td>- no assessment so didn’t feel as if she had learnt anything</td>
<td></td>
</tr>
<tr>
<td>- assignments very similar to some completed in earlier subject</td>
<td></td>
</tr>
<tr>
<td>- teacher unable to give assistance with assessment queries</td>
<td></td>
</tr>
<tr>
<td>- too much assessment</td>
<td></td>
</tr>
<tr>
<td>- unreasonable expectations regarding assessment tasks</td>
<td></td>
</tr>
<tr>
<td>- vague assessment criteria</td>
<td></td>
</tr>
<tr>
<td>Tutorials stultify learning</td>
<td>6</td>
</tr>
<tr>
<td>- tutorials boring</td>
<td></td>
</tr>
<tr>
<td>- limited student involvement</td>
<td></td>
</tr>
<tr>
<td>- limited assistance in tutorials</td>
<td></td>
</tr>
</tbody>
</table>
October, 1996.

Dear student,

Thank you for agreeing to complete this questionnaire. As part of my doctoral research I have been asking students what they think about different aspects of assessment. Students from faculties of nursing, engineering, health sciences and education have provided me with some great information.

Your involvement is voluntary and there is no obligation on you to participate. Should you wish to discontinue completing the survey, you may withdraw at any time without recrimination.

The questionnaire should take about 15 minutes to complete and is completely anonymous. I do not want your name or student number. When providing answers please put down what you believe - your frank responses are necessary if the information is to be of value.

Thank you for participating. Your involvement is greatly valued and will be a significant contribution to the study. If you have any queries please call me on (047) 360 937 or leave a message on (047) 360 263.

Yours sincerely,

Gabrielle Koop

Gabrielle Koop
PLEASE PROVIDE SOME INFORMATION ABOUT YOURSELF

1. I am currently completing an undergraduate degree in ...
   
   engineering  □
   nursing      □
   occupational therapy  □
   teacher education  □
   other ..............................

2. I am studying at ........................................University.

3. I am ................................ male □
   female  □

4. I am ............ years old.

5. My home postcode is ..........................

6. My first language is .................................................. (Please print)

7. My country of birth was ..............................................

8. The usual grade I get for a subject is ...
   
   ... High Distinction □
   Distinction      □
   Credit          □
   Pass            □

9. Have you failed any subjects during your course?
   
   Yes  □
   No   □

10. If yes, how many? ......................

11. How likely is it that you will do further university study?
   
   Highly likely □
   Likely       □
   Some chance  □
   Not likely   □
ASSESSMENT AT UNIVERSITY - STUDENTS' PERCEPTIONS

This questionnaire is aimed at finding out your thoughts and feelings about assessment at university (not school assessment). When putting down your responses think about your experiences of assessment while you have been doing your degree and answer with those thoughts in mind.

1. How do you feel about assessment?

Here you are being asked to think of three things:
1) how frequently these different types of assessment occurred during your university study;
2) how much you learnt from each different type; and,
3) whether you felt that it was a fair way to assess students.

Please circle the response of your choice to each of the items below. The choices are:
SA- Strongly agree; A- Agree; N- No strong feeling either way; D- Disagree; SD- Strongly disagree. The first one is done for you.

<table>
<thead>
<tr>
<th>Types of Assessment</th>
<th>Are used frequently:</th>
<th>I learnt a lot from these:</th>
<th>Is a fair assessment method:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For example: Multiple choice exams.</strong></td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Short answer exams.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Exams where you write in depth about topics or provide solutions to problems.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Exams where you have to choose from a set of given responses.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Large scale, end of semester exams.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Open book exams.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Take home exams.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Class tests throughout the semester.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>A large scale project that has developed over a long period</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Types of Assessment</td>
<td>Are used frequently:</td>
<td>I learnt a lot from these:</td>
<td>Is a fair assessment method:</td>
</tr>
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<td>----------------------------------------------------------------------------------</td>
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<td>-----------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Several small assignments rather than one large assignment.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>&quot;On-the-job&quot; type assessments.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Assignments that are the result of negotiations between student and teacher.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Assignments which require you to become involved in independent research.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Assignments which involve a choice of topic.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Reports on practical work done in class.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Leading a seminar.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Assignments which focus on field work (eg. clinical, practicum, professional experience).</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Case studies</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Practical tests.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Assignments where you work in groups.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Giving an oral presentation.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Completing journals or diaries which document experiences.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Interviewing professionals and using that material in your assignment.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
</tbody>
</table>

Is there any other form of assessment you would like to include?  
If so, please include below along with your ratings.

SA A N D SD | SA A N D SD | SA A N D SD
2. What do you think are the most effective forms of feedback?

Here you are being asked to consider two aspects of feedback—how effective you think the different types of feedback are for you and how frequently you have encountered them in your university studies.

Please circle the response of your choice to each of the items below. The choices are:

SA - Strongly agree; A - Agree; N - No strong feeling either way; D - Disagree; SD - Strongly disagree.

<table>
<thead>
<tr>
<th>Forms of Feedback</th>
<th>Is used frequently.</th>
<th>Provides effective feedback.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback consists of a mark (eg. 8/10).</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Feedback consists of a grade (eg. credit).</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Solutions/answers provided as feedback after exams.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Ongoing feedback given about lab or tutorial tasks or small tests.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Ongoing feedback about work-in-progress.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Oral feedback in lectures after assignments have been handed back.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Discussions in tutorials/labs after assignments have been handed back.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>A sheet given to all students providing overall feedback an assignment or an exam.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Written comments on your assignments.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Individual meeting with the marker of the assignment.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Discussion with peers about how they went.</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Combined feedback from teacher and peers as part of peer assessment methods (eg. students in class filling in a feedback sheet about a presentation you gave).</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
<tr>
<td>Other?:</td>
<td>SA A N D SD</td>
<td>SA A N D SD</td>
</tr>
</tbody>
</table>

3. What use do you make of feedback?
Students respond to the feedback they get about their work in different ways.

Please circle the response of your choice to each of the items below. The choices are:  
SA - Strongly agree;  A - Agree;  N - No strong feeling either way;  D - Disagree;  SD - Strongly disagree.

<table>
<thead>
<tr>
<th>About Ways of Using Feedback</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There have been times when I haven't collected my assignments.</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
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<tr>
<td></td>
<td>N</td>
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<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>When I get my assignments back I usually only want to know my mark and pay little attention</td>
<td>SA</td>
</tr>
<tr>
<td>to written comments.</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>The written comments aren't much use to me because I have already been marked on the</td>
<td>SA</td>
</tr>
<tr>
<td>assignment.</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>My focus is on passing - feedback is fairly unimportant to me.</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>After getting assignments back I would rather start on the next thing to be learned than</td>
<td>SA</td>
</tr>
<tr>
<td>spend time going over assignments in tutorials.</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>I find lecturers' comments about my assignments very helpful.</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>I consciously try to use feedback from previous assignments when I start each new</td>
<td>SA</td>
</tr>
<tr>
<td>assignment.</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>The feedback I receive motivates me to work harder.</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>Feedback has usually helped me to do better in later assignments.</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>Assignments which use peer feedback have provided valuable feedback.</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
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<tr>
<td></td>
<td>SD</td>
</tr>
<tr>
<td>Other?:</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>SD</td>
</tr>
</tbody>
</table>
4. How important is university study for you?

Everyone wants to pass their exams and assignments and get their degree. Besides passing your subjects what motivates you?

Please circle the response of your choice to each of the items below. The choices are:  
SA- Strongly agree; A- Agree; N- No strong feeling either way; D- Disagree; SD- Strongly disagree.

<table>
<thead>
<tr>
<th>University Study Motivators</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaining a full understanding of the subject.</td>
<td></td>
</tr>
<tr>
<td>Doing well at something once I start it.</td>
<td></td>
</tr>
<tr>
<td>Getting good marks to increase my employment prospects.</td>
<td></td>
</tr>
<tr>
<td>Establishing a solid foundation for my career.</td>
<td></td>
</tr>
<tr>
<td>Doing well to ensure a well-paid job.</td>
<td></td>
</tr>
<tr>
<td>Proving to myself that I can do it.</td>
<td></td>
</tr>
<tr>
<td>Needing to achieve my goals.</td>
<td></td>
</tr>
<tr>
<td>Getting it over and done with.</td>
<td></td>
</tr>
<tr>
<td>Passing without having to do too much work.</td>
<td></td>
</tr>
<tr>
<td>Pleasing my parents/family.</td>
<td></td>
</tr>
<tr>
<td>Doing as well as my friends in the course.</td>
<td></td>
</tr>
<tr>
<td>Being seen as successful.</td>
<td></td>
</tr>
<tr>
<td>Other?</td>
<td></td>
</tr>
</tbody>
</table>
The statements listed below refer to what students think about assignments and exams. Please put a circle around your choice for each item.

5. In my experience at university, most students appear to think that:

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studying for exams takes priority over studying for assignments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Most assignments are too hard.</td>
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<tr>
<td>It is a waste of time to study beyond the requirements of the subject</td>
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<tr>
<td>even if the subject is of interest or of importance</td>
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<tr>
<td>The best assignments are those that are the most challenging.</td>
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<tr>
<td>It’s OK to cheat if the pressure of work gets too much.</td>
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</tr>
<tr>
<td>It’s OK to cheat if you think you deserve to pass anyway.</td>
<td></td>
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</tr>
</tbody>
</table>

6. I find that:

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>It’s a good idea to include things in assignments that I know the</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>lecturer likes.</td>
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<tr>
<td>Most assignments provide me with the opportunity to learn</td>
<td></td>
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<tr>
<td>something in depth.</td>
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<tr>
<td>I try to learn as much as I possibly can when I’m doing assignments.</td>
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<tr>
<td>I do everything I can to get the best possible mark.</td>
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<tr>
<td>I usually do my assignments a night or two before they’re due.</td>
<td></td>
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<tr>
<td>When preparing for exams, I study a few topics well and hope they</td>
<td></td>
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<tr>
<td>will be in the exam paper.</td>
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</tbody>
</table>
Thank you for participating.

If you have any further comments please write them in the space below.

<p>| | | | | |</p>
<table>
<thead>
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</tbody>
</table>
26 September, 1996

ETHICS APPROVAL FOR THE SURVEY

Gabrielle Koop
Faculty of Education
University of Western Sydney Nepean
PO Box 10
Kingswood NSW 2747

Dear Gabrielle,

Re: 'The Impact of assessment on undergraduate students' approaches to learning' ‘HERC 1996/52

The Committee reviewed your submission at its meeting held 16 September, 1996 and it was agreed to fully endorse the above mentioned project.

You are advised that this Committee should be notified of any further change/s to the research methodology should there be any in the future.

The Protocol number HERC 1996/52 should be quoted in all future correspondence about this project. The Protocol will expire October 1997. Please contact Kay Buckley, Human Ethics Officer, tel 047 360 169 if you require any further information.

The Committee wishes you well with your project.

Yours sincerely,

Dr Mavourna Collins
Acting Chairperson
APPENDIX 13

DETAILS OF THE SCALED VARIABLES USED IN STAGE THREE

Assessment strategies

Value of authentic assessment ("I learnt a lot"): Cronbach alpha coefficient of 0.61.
- Performing tasks closely resembling those performed by a qualified person in your chosen profession
- Assignments on fieldwork (clinical, practicum, professional experience)
- Tasks related to real life situations/events
- Assignments requiring the application of your learning to new situations
- Interviewing professionals and using that material in your assignment.

Value of communication based assessment ("I learnt a lot"): Cronbach alpha coefficient of 0.63.
- Leading a seminar
- Assignments based on group work
- Giving an oral presentation
- Interviewing professionals and using that material in your assignment

Value of autonomous forms of assessment ("I learnt a lot"): Cronbach alpha coefficient of 0.62.
- A large scale project that has developed over a long period
- Assignments which require in-depth analysis
- Performing tasks closely resembling those performed by a qualified person in your chosen profession
- Assignments negotiated between student and teacher
- Assignments involving a choice of topic
- Tasks related to real life situations/events
- Assignments requiring the application of your learning to new situations

Feedback

Good use of feedback: Cronbach alpha coefficient of 0.74.
- The feedback I receive motivates me to work harder.
- Assignments which use peer feedback have provided valuable feedback.
- I find lecturers' comments about my assignments very helpful.
- Feedback has usually helped me to do better in later assignments.
- I consciously try to use feedback from previous assignments when I start each new assignment.
Poor use of feedback: Cronbach alpha coefficient of 0.76.
- When I get my assignments back I usually only want to know my mark and pay little attention to written comments.
- My focus is on passing - feedback is fairly unimportant to me.
- After getting assignments back I would rather start on the next thing to be learned than spend time going over assignments in tutorials.
- There have been times when I haven’t collected my assignments.
- The written comments aren’t much use to me because I have already been marked on the assignment.

Frequency of ongoing feedback: Cronbach alpha coefficient of 0.76.
- Solutions/answers provided as feedback after examinations
- Ongoing feedback given about laboratory or tutorial tasks or small tests
- Ongoing feedback about work in progress
- Oral feedback in lectures after assignments have been handed back
- Discussion in tutorials/laboratories after assignments have been handed back
- A sheet given to all students providing overall feedback on an assignment or an exam.

Effectiveness of ongoing feedback: Cronbach alpha coefficient of 0.77.
- Solutions/answers provided as feedback after examinations
- Ongoing feedback given about laboratory or tutorial tasks or small tests
- Ongoing feedback about work in progress
- Oral feedback in lectures after assignments have been handed back
- Discussion in tutorials/laboratories after assignments have been handed back
- A sheet given to all students providing overall feedback on an assignment or an exam.

Frequency of personally oriented feedback: Cronbach alpha coefficient of 0.62.
- Discussion in tutorials/laboratories after assignments have been handed back
- Written comments on your assignments
- Individual meeting with the marker of the assignment
- Combined feedback from teacher and other students as part of peer assessment methods

Effectiveness of personally oriented feedback: Cronbach alpha coefficient of 0.62.
- Discussion in tutorials/laboratories after assignments have been handed back
- Written comments on your assignments
- Individual meeting with the marker of the assignment
- Combined feedback from teacher and other students as part of peer assessment methods.
Motivation

Intrinsic motivation: Cronbach alpha coefficient of 0.78.
- Gaining a full understanding of the subject.
- Establishing a solid foundation for my career.
- Doing well at something once I start it.
- Needing to achieve my goals.
- Proving to myself that I can do it.

Extrinsic motivation: Cronbach alpha coefficient of 0.67.
- Doing as well as my friends in the course.
- Doing well to ensure a well-paid job.
- Being seen as successful.
- Pleasing my parents/family.
- Getting good marks to increase my employment prospects.

Needs achievement: Cronbach alpha coefficient of 0.74.
- Being seen as successful.
- Doing well at something once I start it.
- Needing to achieve my goals.
- Proving to myself that I can do it.

Learning for understanding: Cronbach alpha coefficient 0.71.
- My motivation is to gain a full understanding of the subject.
- My motivation is to establish a solid foundation for my career.
- Most assignments provide me with the opportunity to learn something in depth.
- I try to learn as much as I possibly can when I’m doing assignments.

Minimalist learning: Cronbach alpha coefficient 0.64.
- My motivation is to pass without having to do too much work.
- My motivation is getting it over and done with.
- I usually do my assignments a night or two before they’re due.
- When preparing for exams, I study a few topics will and hope they will be in the exam paper.

Instrumental motivation: Cronbach alpha coefficient of 0.75.
- Doing well to ensure a well-paid job.
- Getting good marks to increase my employment prospects.

Cheating: Cronbach alpha coefficient of 0.92.
- It’s OK to cheat if the pressure of work gets too much.
- It’s OK to cheat if you think you deserve to pass anyway.
APPENDIX 14

LETTER TO FACULTIES SEEKING PERMISSION TO SURVEY THEIR STUDENTS

1 October, 1996

Dear Professor Cameron-Traub,

I am a lecturer at the University of Sydney in the Faculty of Health Sciences. I am currently on leave to enable me to complete my doctoral studies at the University of Western Sydney, Nepean where my supervisor is Professor Neil Baumgart. I am investigating the impact of assessment practices on the way undergraduate students approach their learning. The final phase of my study involves the administration of a 15 minute questionnaire to final year students in a range of professions. The instrument has been developed from findings of indepth interviews of 53 students.

The instrument has been trialled on a group of 60 students from the School of Occupational Therapy at the University of Sydney who found it most relevant to their experiences. To date I have agreement from the following faculties/schools to administer the questionnaire to their final year students:

* Faculty of Engineering, University of Technology, Sydney;
* Faculty of Engineering, University of Western Sydney, Nepean;
* School of Teacher Education, University of Technology, Sydney;
* Faculty of Education, University of Western Sydney, Nepean.

I am seeking your approval for me to administer the questionnaire to your final year nursing students. I expect to complete my studies by the end of this year and will be in a position to provide feedback to you that may be of particular benefit to your staff in devising their assessment strategies.

I have attached a copy of the Ethics approval and the questionnaire for your information. I appreciate that the semester is quickly drawing to a close and would value anything you can do to enable me to administer the questionnaire before students finish the semester.

Yours sincerely,

Gabrielle Koop

PS. I can be contacted on the following numbers: (02) 9437 3344 (H); (047) 360 937 (W) or a message can be left on (047) 360 263.
### ANOVAs Based on Frequency of Provision of Each Individual Item in Forms of Feedback by Program

#### Reported Frequency of Provision of Forms of Feedback - Comparison of Means x Programs

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<tr>
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<td>3.21</td>
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ASSESSMENT AND UNDERGRADUATE LEARNING

Gabrielle A. Koop  BA MA (Macq.)

A thesis submitted in partial fulfilment of the requirements for the degree
Doctor of Philosophy at the University of Western Sydney (Nepean)

March, 1998
PLEASE NOTE

The greatest amount of care has been taken while scanning this thesis,

and the best possible result has been obtained.
I hereby certify that this work has not been submitted for a higher degree to any other university or institution.

[Signature]
Dedicated to
Anthony Koop
and
Camille, Louise and Amy Anselin
ACKNOWLEDGEMENTS

I have many people to thank - my family, my supervisor, my friends. Now that my thesis is completed I can look back and say thank you.

Particular thanks goes to my supervisor from the University of Western Sydney (Nepean), Professor Neil Baumgart. Neil has provided me with his expertise, advice, support, time and energy over the last three years. As my supervisor, Neil has always been patient, tactful and ready to help. He has taught me much about research design, data analysis (especially of quantitative data), about writing, and thinking analytically. Thanks, Neil.

My husband, Tony, has been at my side all the way with his kindness and support. He has helped me enter data, wrestled with the computer when it has misbehaved, and put up with many weekends lost to his rival, “the thesis”.

For women whose careers are in the worlds of computing, horticulture and business, my daughters know a lot about assessment of university students. They have cheerfully lived in a house littered with books and articles, survived an increasing number of take-away meals, and have come to the conclusion that life as an academic is not for them.

My mother, Heather, has supported me throughout my studies. She has not rung me for the last three weeks - she doesn’t want to interrupt my work - a ‘significant’ gesture from someone who loves to chat on the telephone.

I also wish to extend my appreciation to the students who participated in the study and to the academics who smoothed the way.
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ABSTRACT

This study is an investigation of the relationship between assessment, teaching and learning from the perspective of undergraduate students. It was prompted by concerns about students graduating without the necessary skills to effectively carry out their professional duties and by the dearth of studies based on students' perceptions of assessment and learning. It consisted of three stages which were developmental in nature with each stage informing the next and providing overall focus and direction. Students participating had completed at least five semesters of their undergraduate program.

Stage One, a small-scale interview study involving 10 undergraduate students, was designed to isolate areas related to students' perceptions of assessment and learning which, in conjunction with findings reported in the literature, might form the balance of the study. In Stage Two, 42 students from three faculties at the University of Western Sydney (Nepean), Sydney, Australia, were interviewed about their perceptions of learning and its relationship to assessment. In Stage Three, 418 students enrolled in engineering, nursing, occupational therapy and teacher education at three Sydney-based universities were surveyed. This survey focused on students' perceptions about assessment strategies used in undergraduate programs, feedback from assessment, and motivation for learning.

Findings from the literature, the interviews and the survey confirmed the central role the assessment process plays in shaping student learning. A model of assessment was developed to illustrate the dynamic, interactive nature of the three processes - assessment, teaching, and learning. Ways feedback was used to inform learning as well as the types of assessment strategies employed emerged as key factors associated with students' motivations to learn. Nine practice related recommendations are made and four issues requiring further research are identified.