

*Introduction to
University Teaching Series*

Assessing Student Learning

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Teaching and Learning Centre

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Other titles in the series include:

Teaching Small Groups

Postgraduate Supervision

Balancing Academic Demands on Your Time

Teaching at a Distance

Lecturing to Large Groups

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Foreword

Teaching has always been an important responsibility of university academics. In recent years, there has been a growing recognition that the ability to teach a diverse set of students in a range of teaching and learning contexts does not necessarily come automatically once an academic is appointed to a university position. Within the University of New England, there are several forms of resources and support available for newly appointed academics so that they can assume their responsibilities more easily.

This series of booklets Introduction to University Teaching prepared by Dr Izabel Soliman for the Teaching and Learning Centre covers a range of topics of vital interest to those staff who are appointed with limited teaching experience. They also fulfil an important role of providing an overview or refresher for those academics who have been teaching for some time.

With academic life becoming busier and busier, these booklets provide the means to learn about university teaching without the need to attend workshops or seminars. They also offer additional background material and resources to those who do attend the Teaching and Learning Centre workshop program. They provide a flexible approach to learning about university teaching.

I commend these booklets to you. Even those of us with wide teaching experience always find there is something new to learn when it comes to teaching.

Professor Sue Johnston
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Introduction

It has been said that assessment defines the actual curriculum in higher education and dominates the lives of students. Assessment of students' work is a critically important part of any subject particularly for students studying in the external mode whose only contact with academic staff may be in relation to assessment tasks. Most university courses include both continuous assessments and an end of semester examination to determine students' grades. One of the responsibilities of a unit coordinator is to determine the number and type of assessment tasks appropriate for the aims and objectives of a unit. In doing so, unit co-ordinators may be expected to strive to strike a balance between providing a sufficient number of assessment tasks to indicate students' abilities and understandings in relation to the subject area, without overloading them or academic staff with work. The number and kind of assessment tasks to include is discussed in this introduction to assessment, along with other related issues. First the importance and the purpose and assessment is discussed, including students' concerns about assessment. This section is followed by a consideration of changing conceptions of assessment, and what and how to assess. The interpretation of the results of assessment is also considered as well giving students feedback. The final section includes a checklist of questions to ask yourself in relation to the assessment strategies you have included in your unit.

Importance and Purpose of Assessment

If we wish to discover the truth about an educational system we must look into its assessment procedures

(Rowntree 1977, p. 1).

This quotation from Rowntree reinforces the critical function of assessment in higher education. Assessment tasks send students a message about what academic staff think is important in relation to the study of a subject, the standard of the work and the amount of work required. Students study what they think will be assessed, therefore, for them, the assessment tasks, not the lists of topics or objectives, define the content of a unit.

In UNE's Assessment Policy, an assessment task is defined as "any compulsory or optional activity or exercise where one explicit intent is to assess student progress or learning achievement in a unit of study". It is also considered "as an integral part of the teaching and learning process" (Web site: <http://www.une.edu.au/mips/policies/assessment19990514.html>).

The nature of the assessment tasks also influences students' approaches to learning. The assessment task may merely require a superficial engagement with the subject, for example to reproduce information, or the task may require greater intellectual effort to solve problems, or to critically analyse an issue. If, however, the assessment tasks in a unit fail to test understanding, then misunderstanding of a subject matter may never be revealed.

Assessment can be used to encourage students' interest in and commitment to the study of a subject. It can be used to help students develop a self-critical approach to their work. It can also provide intellectual challenge and enhance independence and responsibility for learning.

Assessment may also be used for a number of other reasons:

- to find out about the students' background knowledge at the beginning of the unit so that teaching is effectively focused on what students do not yet know;
- to find out if the learning objectives of the unit have been achieved;
- to find out what students have actually learned and failed to learn;
- to identify and compare the knowledge of the weakest with the brightest in the class;
- to diagnose students' strengths and weaknesses, misunderstandings, interests and needs;
- to screen or select students for some purpose, e.g. for entrance to university, to a specific course, or for a scholarship;
- to maintain desirable standards of achievement in the Faculty standards (however, agreement among academic staff about the desired standards may not be easy);
- provide staff with information about the effectiveness of their teaching;
- to motivate students to learn; and,
- to provide useful feedback to students.

Students' Concerns About Assessment

As individuals who have successfully navigated the shoals and whirlpools of assessment in tertiary education, how would you respond to the following concerns of students identified by Armstrong and Conrad (1995, p. 82)?

- *I don't really know what is expected of me.*
(Staff are not explicit about their expectations and their own ideas may not have been clearly worked out until they have marked a couple of papers.)
- *Different lecturers expect different things in an essay—I wish they could agree.*
(Assessment tends to be lecturer specific which means that students have to 'suss out' the lecturer's expectations in each unit; criteria for each assignment should be explicit.)
- *I wish they would give some examples of what they think is a good piece of work.*
(Examples of what is considered to be good work could be provided.)
- *It's unfair that different markers in the same subject have different standards.*
(The criteria to be used in marking by a team of markers need to be specified as well as the standards used in grading along the criteria.)
- *There aren't enough library resources for the number of students enrolled in the subject.*
(Dixson library provides guidelines on the number of copies of prescribed texts and reference books which should be ordered for various class sizes.)
- *Assignments have to be handed in before we have received feedback on the previous assignment so we don't know how we've done on it or whether we have interpreted the lecture's expectations correctly.*
(Keep the time between submission and return of assignments with feedback as short as possible and space assignment dates appropriately to allow sufficient time for marking.)

- *Some students benefit by being allowed to hand in assignments much later than the set submission date and rather than being penalised, they are rewarded by having access to more resources and by having more time to do the assignment.*

(It is not equitable to advantage some students over the rest in relation to meeting submission deadlines.)

- *Content of lectures, tutorials and seminars seems unrelated to what is expected in assignments and examinations.*

(Make the assessment items consistent with the content and learning activities provided in the unit.)

- *There is little co-ordination of the total assessment requirements in a course.*

(The monitoring of the total number of assessment tasks in the units in a course is an important task for course co-ordination.)

Changing Conceptions of Assessment

In the past, assessment tasks were designed to measure and demonstrate how much students had learnt of what the Faculty member decreed they should know in a unit. Assessment was also concerned with ranking and comparing students according to their achievements in quantitative terms. The judgements of assessors were assumed to be definitive statements of a student's ability.

The current focus of assessment in higher education is to link assessment tasks with anticipated learning outcomes and criteria of competence. According to Boud (in Armstrong and Conrad, 1995, pp 79-80), good assessment:

- is designed to assess a broader range of student abilities, e.g. problem solving, critical thinking, effective communication, working in groups
- along with feedback shapes learning in positive and negative ways, e.g. promotes rote learning or learning in depth
- involves students in the assessment process and develops students' capacity to monitor their own performance, e.g. by understanding the criteria used in assessment
- pays more attention to self-assessment as a result of concern for reflective and self-sustained learning
- assesses not only what students know but also what they can do
- should reflect desired learning outcomes and have a beneficial effect on the learning process
- should promote search for meaning and understanding, and self-directed and independent learning
- should provide contextualised, complex challenges, not fragmented and static bits or tasks
- should expand learning opportunities to include active collaboration with others leading to assessment of projects produced by groups of students (Mentkowski et al. 1991).

What to Assess?

Educational values drive what we choose to assess as well as how we assess. As Ramsden (1992, p. 188) explains:

Good teaching ... implies a considered selection among the content of the subject area of which aspects will be formally and informally assessed, together with explanations of their relative importance.

Aims are the long-term, aspirational statements about desirable achievements in a unit, e.g. to become an independent learner in a specific discipline, field or subject area. They serve to provide general direction for unit development but they are too general to be measurable and useful for assessment.

Learning objectives are the more specific, measurable knowledge, skills, attitudes and values which students are expected to develop and demonstrate. They may describe the changes you want to see occur in students in terms of observable behaviours or in terms of higher order thinking skills to be inferred from their performance on a required task. It is widely accepted that clearly stated educational objectives are the key to the design of good assessment tasks.

A current emphasis in curriculum development and assessment is upon "outcome-based learning" (Spady, 1993), where the focus is less on educational inputs, content and time allocation, and more on desired results. The idea is to work back from desired results, in relation to a unit or subject area, to plan the experiences which will lead the learners to achieve these outcomes. The learning outcomes are then the focus of assessment. The outcomes may be set out in a sequence of increasing complexity along with specifications for what attributes need to be demonstrated, when and according to what standard.

Determining what outcomes you would like students to achieve is dependent upon various factors. Some outcomes may be associated with good practice in a profession, some with a discipline of knowledge, some with the competencies associated with being a university graduate, such as UNE's list of graduate attributes, some with the study of a certain culture, and others with meeting specific student needs

Formulating learning objectives/outcomes can be a complex and time consuming task. There are a number of classification schemes which you may find helpful. You may, for example, wish to assess knowledge, skills or attitudes or all three, depending upon your subject matter. Bloom's (1956) hierarchical taxonomy of educational objectives may be considered the prototype taxonomy among systems developed over the last 50 years. It is divided into the cognitive and the affective domains and would be useful in helping you identify the cognitive and affective processes you could build into your objectives and your assessment tasks.

At the top of Bloom's classification scheme, in the cognitive domain, is the category Evaluation of knowledge. Other categories of objectives are arranged in descending order as indicated in the following list. Each category includes a number of sub-categories in the original taxonomy which have not been included here:

- Evaluation of knowledge

Judging value for purposes

- Synthesis of knowledge
 - Putting elements into a whole
- Analysis of knowledge
 - Breaking down into parts to clarify organization
- Application of knowledge
 - Using abstractions in concrete situations
- Comprehension of knowledge
 - Understanding without relating to other situations
- Recall of knowledge
 - Remembering something previously encountered.

Another classification scheme you may wish to explore is Gagne's (1977) "learned capabilities" which includes intellectual skill, verbal information, cognitive strategy, and attitude.

Literacy and Assessment

The performance of much academic work and of assessment tasks depend on well developed writing skills. You therefore need to consider to what extent the assessment is dependent on the possession of written communication skills and how much should the weighting of the assessment be based on the content rather than on writing skills? The separation of the two is difficult as is reflected in Marshall McLuhan's phrase, "the medium is the message". Nightingale et al. (1996) describe the difficulty in the following terms: "The problem with trying to separate assessment of content from assessment of communication skills is that it fails to recognized just how deeply intertwined are the effectiveness of communication and a student's understanding of the content" (p. 207).

It is advisable to include a low weighted assessment task of a diagnostic nature, early in the study of a subject, in order to appraise students' level of literacy skills and whether or not there is a need for including specific learning activities for the further development of literacy skills. You will also need to consider how you will weight content, organization, expression, grammar, spelling etc. in each assessment task and ensure that these weightings are made known to students.

At this point you may wish to take a brake from reading by examining the educational objectives in a unit with which you are associated. If these have not yet been articulated try to list some of the key attributes you want students to possess upon completing the unit. You may also ask students, employers and fellow academics what they think are important outcomes. Try to summarize these into about five or six statements.

Review your objectives from the following perspectives:

- Are they written in a way that will enable you to assess whether or not they have been achieved?
- Do they clearly articulate the knowledge, skills and or attitudes which you want the student to achieve?

- Are they written in a way which elaborates the different levels of cognitive, affective and psychomotor abilities and skills you will want to assess?
- Consider what form of assessment tasks—e.g. essay, objective test, practical test—will best fit your purpose or require students to demonstrate the specified outcomes and allow you to discriminate between their performances.

How to Assess?

Setting appropriate assessment tasks is a principle of good teaching (Ramsden, 1992, p. 99).

There are an endless number of ways that assessment might be undertaken. They all have advantages and disadvantages, costs and benefits. Some key concepts relevant to assessment and some major assessment methods are discussed in this section but there are many available useful reviews of methods (e.g. Swanson, Case and Van der Vleuten 1991).

Formative and Summative Assessment

Formative or diagnostic assessment is the teaching aspect of assessment. Students may **seem** to understand important concepts without actually understanding them. Through formative assessment you can monitor their level of understanding and how effectively you are teaching. Simple, small-scale assessment strategies can be used to help determine what students have learned in a lecture or a class and to improve teaching.

A widely used technique is the One-Minute Paper (Angelo 1991) which asks students to respond anonymously to the following two questions at the end of a class period:

- (1) What is the most meaningful or useful thing you learned in today's session?
- (2) What question remains uppermost in your mind?

An adaptation of this strategy is the Muddiest Point technique which involves simply asking students to answer one question: "What was the muddiest point in the session today?"

Summative assessment is the use of an assessment strategy, such as an exam, at the end of a period of study, to arrive at an overall description or grade of a student's achievement.

Formative and summative assessments are often combined as continuous assessment when you want students to learn from doing assignments or tests as well as assigning a grade to their performance. In continuous assessment you can include a number of different or similar assessment tasks at different points throughout a unit, related to major sections of unit content. The number and timing of assessment tasks should be spread out sufficiently to enable marking and provision of feedback to students on the first assignment before the second one is due. An assignment set for submission early in the unit provides an early opportunity for formative assessment and interaction.

Criterion and Norm-referenced Assessment

Criterion-referenced assessment involves establishing criteria or dimensions along which to judge how well a student has carried out an assessment task. For example, if the assessment task is the writing of an essay, the criteria could include the quality of the argument, the appropriateness of the literature cited, the quality of expression. The assessor will judge how poorly or how well (or to what standard) the essay was written, in terms of each of these criteria.

When giving students an assessment task to complete, you should also give them the criteria you will use to judge their attempts and the relative importance or weighting of each criterion (e.g. in the essay, the criterion of the quality of the argument may be judged equally important with the criterion of appropriate literature cited). It is also important that students understand each of the criteria to be used.

Making the criteria by which a piece of work is assessed explicit and out in the open is advantageous for a number of reasons (Brown and Knight, 1994):

- it avoids trying to guess what is in the mind of the marker,
- it avoids students wasting time and energy on things they are not required to do, and
- students tend to achieve the required outcomes more effectively.

The problem is to determine what criteria are to count the most for a high standard of achievement in relation to a task. In UNE's assessment policy, for example, the following criteria are associated with a grade of High Distinction (85% and above) in an assessment task:

- excellent performance indicating complete and comprehensive understanding and/or application of the subject matter;
- achieves all basic and higher-order intended goals for the assessment tasks;
- minimal or no errors of fact, omission and/or application present;
- clear and unambiguous evidence of possession of a very high level of required skills;
- demonstrated very high level of interpretive and/or analytic ability and intellectual initiative;
- very high level of competence (p. 3).

To arrive at a grade for a student's performance by explicitly comparing it with the norm established by the performance of others is called norm-referenced assessment. The level of performance of the group is used to set standards for specific grades or for passing or failing. The normal distribution is by standardization of marks in a population or by using the "bell curve" which is an example of norm referencing. Institutions use norm referencing if they set expectations that a certain percentage of students will get passes, credits, distinctions and high distinctions. At UNE, the Assessment Policy stipulates that "There will be no pre-determined distribution of grade allocation applied to assessments in University units" (p. 3).

Connect Assessment Tasks with Learning Objectives

One of the first questions to ask when considering which assessment method to select is what knowledge and skills do you expect a successful student to have acquired as a result of studying your unit. These should be included in your list of unit objectives. As a general principle, and according to UNE's

Assessment Policy, the type of assessment tasks selected “should connect clearly with the goals and objectives of the unit” (p. 2).

You will need to monitor the effectiveness of the assessment strategies in helping students to learn. In selecting an assessment strategy, bear in mind the Assessment Policy which states that “Assessment tasks designed for completion under non-examination conditions ... provide maximal flexibility for student assessment” (p. 2). Also, “assessment solely by examination gives students insufficient opportunity to demonstrate their learning outside the constraints of a formal examination setting” (p. 2). If, however, you do plan to use an examination, note that a “final examination cannot be weighted more than 75% in the aggregate mark of any student” (p. 2).

Use a Variety of Assessment Methods

There will rarely be one assessment method which satisfies all educational objectives. If you think of assessment as a means of providing opportunities for students to demonstrate how much they understand, this will lead you to use a greater variety of methods and afford more opportunities for students to display their knowledge.

As Ramsden, (1992 p. 191) states:

Uniformity of methods makes comparisons superficially easy but forces students into a situation where they may not be able to display what they have learned and where there are often hidden rewards for conformity rather than originality.

On the other hand, the use of a variety of assessment methods makes it more difficult to combine the results than to do so using one method, e.g. essay writing. Students perform inconsistently on different tasks. It is not unusual that marks on practical assignments, project reports, and examination results correlate poorly.

Three of the more common assessment strategies are the traditional exam, the essay and the multiple-choice test.

Traditional Exam Under Controlled Conditions

Exams continue to be used because of their utility and cost effectiveness, however, like any other assessment strategy, they may be criticised for not testing conceptual understanding adequately, or for emphasising quantity rather than quality and rote learning.

Essays

Assessment by means of an essay assumes that students know how to write a good essay. If so, it can be used to assess a range of abilities such as:

- explaining cause and effect relationship,
- describing application of principles,
- presenting arguments and hypotheses,
- explaining methods and procedures, and
- evaluating ideas.

Clear guidelines and training on how to write good essays is essential. The texts by Price (1985) and Cutler-Stuart (1985) are useful. Students can also be referred for assistance provided by the Academic Skills Office.

Essays of two to three thousand words are time consuming to mark. A variation on the essay which is easier to mark is the “part-essay” or the “constrained format” essay, suggested by Brown and Knight (1994). This is the type of essay found in leader articles in a good newspaper or in a book review. It may consist of a 300 word introduction; an outline of the content of the essay in heading form; at least two linking paragraphs amounting to 100 words each in the previous section; and a 500 word conclusion.

Multiple- Choice Tests

Multiple-choice tests which can be machine marked are a way of reducing marking load. The construction of a test that measures more than recall of information requires a good deal of skill. Refer to Isaacs (1994).

Assessing Critical Reflective Thought

Refer to Nightingale *et al.* (1996) for examples of assessment tasks for a variety of learning outcomes. For the assessment of critical and reflective thinking they suggest the following:

- use of an interview in relation to a critical incident (which has an impact on the student), drawing on student's experience in the workplace;
- use of written description, analysis and reflection on critical incident;
- critical evaluation of research literature;
- critique of a topic of current debate and/or community interest; and
- reflective journal writing.

For solving problems and planning subsequent actions, they suggest:

- use of essay question,
- simulated interview with a client,
- social history report, and
- research poster exercise.

Peer Assessment

Research evidence about subjective marking suggests that peer assessment by students is about as reliable as that carried out by lecturers (Armstrong and Conrad 1995). This implies that it may be reasonable to use this strategy for some of the time, for a number of reasons. Peer assessment helps students understand the subject and the criteria for high achievement. It also gives them access to a variety of approaches to tackling assignments, to differences in content and conceptualization, presentation and overall standard of work.

Access to examples of student produced work, and to the standard of excellence required can also be provided so that student have a better idea of what is expected.

Given, however, that the academic unit coordinator is ultimately responsible for marking, consider whether peer marks should be included in a final grade? If so, what percentage would be appropriate?

Portfolio Assessment

A portfolio “is a collection of a student's work from designated sources over a designated time for a designated purpose” (Belanoff in Armstrong and Conrad 1995, p. 84). It is a form of assessment now being widely used for a number of reasons (Armstrong and Conrad 1995, p. 8~85):

- it encourages students to engage in self assessment and critically reflect on their own learning and performance, e.g. in selecting their best work for inclusion in the portfolio;
- demonstrates development over time, e.g. by cumulative track record rather than the 'sudden death play-off' of an examination;
- negotiation between teacher and student on the form and content of the portfolio encourages integration of assessment and learning; and
- multiple skills can be assessed, e.g. writing, critical thinking, and research skills.

Group Assessment

This involves assessing the work of a small group of students in a way that all students in the group receive the same grade despite differences in contribution. There are possible inequities in group assessment and you will need to consider ways of overcoming them.

How Much Assessment?

Perceptions of what is the appropriate amount of assessment for a specific unit may vary with different disciplines and theories of teaching. However, UNE's Assessment Policy requires that in every unit, there should be “at least one non-examination assessment task if a formal final examination is planned”

(p. 2). It is also specified that assessment should be linked to the credit point value of unit. A 6 credit point unit should involve about 150 hours of work by students.

Too many assessment tasks may lead to superficial approaches in dealing with the learning content. Students need clear indication of priorities for learning in the subject matter of your unit and their importance in relation to assessment.

Over assessment is a common student complaint and can arise from:

- a belief that multiple assessment tasks will produce a more valid result (i.e. a better measurement of important aspects of a unit) and
- too many learning objectives in a unit each of which must be assessed.

Interpreting the Results of Assessment

What does a number, e.g. 50% tell us about a student's performance ?

- that she performed acceptably in 50% of the objectives tested?
- that the state of her knowledge in the subject is halfway between ignorance and mastery?
- that she shows competence in 50% of the criteria?
- that she is more proficient than someone receiving 49%?

At UNE, the policy is that the minimum pass mark for an aggregate mark in any unit is 50%. Additionally, for grading purposes five levels of performance are distinguished and certain criteria are linked to each level of performance.

HD or High Distinction	-	85 - 100%
D or Distinction	-	75 - 84%
C or Credit	-	65 - 74%
P or Pass	-	50 - 64%
N	-	below 50%

The criteria linked to each of these levels are clearly spelled out on p. 3 of the Assessment Policy.

By converting a percentage into a letter grade a certain precision is lost; e.g. two students who each receive 70% are more equal than two who receive a Credit.

Neither numbers or letter grades indicate the kind of knowledge and understanding that characterizes the different positions in the range of percentages and letters. Numbers and letters need to be linked to the qualities valued in different types of academic work and made explicit to the students.

Giving Feedback

Learning theory suggests that learning is reinforced by prompt feedback and knowledge of results. Feedback is also important in relation to motivation. Some students begin their studies with doubts about their capacity to achieve good results. A poor grade on the first assignment may lead them to decide to drop out. On the other hand, the motivation to continue can be strengthened by achieving good results on assignments and by receiving encouraging comments from the teacher.

Feedback also needs to:

- be prompt—the faster the rate of return the more helpful the feedback is (Roberts, 1996);
- make criteria explicit when setting the task and relate comments to the criteria;
- be sufficient, positive and in time to help students improve;
- explain and justify the grade awarded;
- be constructive, i.e. suggest ways of improving;
- balance negative with positive comments; the lower the grade the more important the comments;
- provide a model of what an appropriate answer consists of;

- include mark related comments, cueing students on what they need to do to get better marks;
- encourage to build confidence; and,
- identify typical misunderstandings, list these errors together with brief explanations and recommended further reading on a feedback sheet.

Questions to Ask Yourself About Assessment in Your Unit

- Are the assessment requirements clearly stated at the outset?
- Have you spelled out the criteria by which the assessment tasks will be judged?
- Do your assessment methods enhance and support learning?
- Are the assessment methods consistent with the objectives of the unit?
- Do they act to encourage quality learning throughout the study of a subject (e.g. concerned with meaning and understanding) and discourage shallow approaches to learning (such as short-term memorizing for tests)?
- Do they focus on key concepts and ideas that students should be able to deal with?
- Do they promote self-directed and independent learning?
- Do they positively reinforce learning rather than result in negative attitudes to learning?
- Do they provide complex challenges not fragmented and static tasks?
- Do the assessment items adequately sample the content of the subject?
- Is the total assessment load reasonable?
- Is the weighting of the various assessment items appropriate?
- When more than one marker is involved, are adequate steps taken to ensure consistency of standards amongst the markers?
- Finally, is assessment in the unit consistent with the University's Assessment Policy?

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