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ABSTRACT
                This guide for college teachers, written from a
British perspective, focuses on economic and efficient practices for
assessing students. The guide groups various practices under 10 major
strategies: (1) decide whose interests assessment is serving; (2)
avoid over-sampling the course; (3) avoid over-questioning; (4) avoid
over-reading student work; (5) avoid over-commenting on student work;
(6) avoid over-grading work; (7) refine current policies and find
ways of using present methods better; (8) consider alternative
approaches to assessment policy and practice; (9) consult original
sources for how-to-do-it details. Each strategy is discussed in a
separate section which begins by presenting some general rules and
then suggests particular assessment tasks in light of identified key
factors. Each section also describes and explains various practices
and practical applications with citations from the literature that
describe the use or development of that practice. All the specific
practices were chosen either because the editors were personally
familiar with them or because the practices have been addressed in
the educational literature. Practices were chosen because they
potentially offer greater economy and efficiency in assessment and
because of their educational value. Contains 113 references. (JB)

# Strategies for
# Assessing Students

Edited by
Lee Andresen
Peggy Nightingale
David Boud
Douglas Magin

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SCED Paper 76

# SEDA Publications

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**Standing Conference on Educational Development**

# Strategies for Assessing Students

A guide to setting, marking, grading and giving
feedback on assignments, tests and examinations

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Lee Andresen
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# Teaching with reduced resources
# Preface to the resource guide series

The late 1980s have seen increasing pressure on institutions of higher education: decreased resources for equipment, support staff, teaching space; inflated costs of texts, serials, equipment; more students but fewer teaching staff - and so on and on...

If there was slack in the system, it has been well and truly taken up as the decade draws to an end. How will we maintain the high standards of Higher Education into the '90s?

Staff of the Professional Development Centre of the University of New South Wales (formerly the Tertiary Education Research Centre) began seriously and systematically to seek answers to that question in 1988.

A preliminary report was circulated for discussion at a meeting in the Centre. At that meeting participants from many Schools of the University were asked to identify particular areas of concern which the Centre might address by collecting and disseminating resources.

It was agreed that the Centre would produce a series of reports addressing the conflict between reduced resources and maintaining educational quality.

The goal of the series is to help academics to manage their new teaching circumstances intelligently and creatively. It collects information and advice from a wide range of sources and adopts a modestly optimistic view of our current predicaments.

The series is based on the following premises:

(1)    Some teaching methods could be made more efficient.

(2)    Recent research, leading to new insights into how students learn, may be able to help. For instance, if it could be demonstrated that some burdensome tasks, contribute little to the quality of learning outcomes, we may be happy to abandon them.

(3)   Better technologies and improved techniques may help ease some of our heaviest teaching burdens, particularly in regard to some of our most regular, tedious and mundane tasks.

(4)   Improving efficiency and cost effectiveness need not reduce the quality of student learning.

Obviously, all the ideas summarised in these documents will not apply in all teaching circumstances. However, we hope that there will be something for everyone somewhere in the series - a suggestion that triggers a line of thought which results in even a small improvement to her or his life as a teacher and also to students' lives.

*David Boud*

# Resources guide #1
# Strategies for assessing students

# Introduction

Even under the best of conditions the unending cycle of assignments, tests and examinations places very onerous demands on academics. It is easy to feel frustrated, even resentful, at the massive amount of time spent on assessing one's students.

Severely diminishing resources cast an additionally sinister shadow over the assessment picture. Growth of class sizes and reductions in ancillary and part-time staff are already placing heavier teaching loads on those who remain, with more items of student work having to be handled by fewer people.

Assessment, already a problematic part of the academic's role, is fast becoming the subject of deep scrutiny and substantial re-thinking at all levels of university life - from that of the individual academic to School and Faculty level.

The goal of this Guide is to help academics manage the assessment part of their new teaching circumstances intelligently and creatively. To achieve this, it offers information and advice drawn from the widest range of contemporary and traditional sources available.

The Guide does not presume to be an exhaustive survey of the current state of assessment theory and practice. On the contrary, it is a practical handbook for "dipping into" as the need arises. Its references are culled from the files of educational developers who have consulted with academics on assessment over many years.

Our choice of any item for inclusion indicates either that we have encountered it in person (at UNSW or elsewhere) or that it has appeared documented in educational literature.

We choose it because it *prima facie* appears to have the potential to contribute to greater economy and efficiency in assessment and because it sounds like an educationally reasonable thing to do in appropriate circumstances.

We are thus glad to share each item knowing that our readers accept responsibility for thoughtfully appraising it before "buying" it from us. And we hope that whenever any new idea is

implemented it will be - as all educational recommendations should - closely monitored to see whether it produces the desired results.

Perceptive readers will notice that a few important contemporary texts and studies on assessment are not represented in the reference list. That is because the more general surveys and compendiums on assessment are less likely to contain the detailed cases and examples typical of what we have drawn upon here.

# How to use the guide

This Guide may challenge a few of our customary assessment practices, and it will suggest ways of modifying others to make them more efficient.

It will also explain how some new thinking, together with new technologies, may help take the pain out of unavoidable assessment tasks that remain.

The ideas are grouped into ten major strategy sections, within each of which are a wide range of suggestions.

No attempt has been made to rigorously arrange these items within each section. Items are titled boldly and informatively, so you should soon be able to find the ones that interest you. Limited cross-referencing has been attempted.

After browsing through the pages and finding ideas that seem to address particular needs or concerns of your own, you may then get whatever further information you want by either:

studying the brief summary - it may be self-explanatory and all you need,

or obtaining one of the short, readable papers listed at the end of each item to explain the idea in greater detail.

# Contents

# Strategy 1
# Decide whose interests assessment is serving

First consider whether, *as a general rule*, more than one party needs, or expects, to get something out of assessment processes,

> and, if so, what each party generally needs, or expects, to get.

> Whether, for instance, students expect feedback on their learning success,

> *or* expect to have their learning improved,

> *or* expect accreditation *via* the assessment.

> *And* consider whether staff expect to get feedback on how effectively they have taught,

> *or* information about individual students and their learning difficulties,

> *or* information to help monitor the progress of the course,

> *or* information to inform future changes to the course or the teaching method.

> *And* whether the university organisation expects, at the end of the day, to get scores and grades for student records.

Then consider, in *the particular assessment task* being implemented, which of the needs and expectations mentioned above apply to it,

> particularly whether it is it being conducted for the benefit of one particular party,

> *or* for one party more than for another,

> *and,* if more than one party's interests are involved, and resources are few, which party's needs should take precedence.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

## 1.1 Assessment aims

It is wise to state the aims of assessment in each separate subject as clearly as possible. That means asking "Why are we assessing this subject?" and "What do we or our students expect to gain from the assessment?" Some assessment in our programs may be found to have no proper rationale and therefore be unjustifiable.

This involves making some important distinctions. The most crucial of these are between assessment for final grading and accreditation, assessment for feedback on student progress and assessment as a learning tool.

Very different approaches may need to be taken in each case. Time and effort are soon wasted if we start using the wrong approach.

Having made the necessary distinctions, we are in a better position to judge whether our customary assignments and examinations are, in fact, appropriate for the chosen aims or purposes of our courses. Some may be inappropriate, involving us and our students in pointless labour and waste of resources, hence should be jettisoned and replaced by others.

*Cox (1988) 144-146; Feletti (1988) 147-151; H.E.R.O. (undated) 3-4*

## 1.2 Student learning goals

Certain assessment policies may, without our being aware, actually militate against students learning in the way we hope or intend. Most academics would, for instance, value their students learning the subject through using "deep" rather than "shallow" information processing.

Research shows that some examining practices may, however, encourage and reward "shallow" processing. Boyd and Cowan argue, for instance, that only methods involving self-assessment can reliably achieve "deep" processing in university education. (See Strategy 8 below)

The resource implications are not difficult to grasp. If we were to be using an inappropriate assessment policy (*vis a vis* the type of student learning we value) then all of the time and other resources we spend on that assessment may be contributing to a learning outcome that is quite contrary to what we intend. Our assessment practice would thus be negating the value of many of the resources previously invested in designing and teaching the course itself.

*Boyd and Cowan (1985); Ramsden (1987)*

## 1.3 Communicating essay assessment criteria

Whatever the purpose of a particular piece of assessment, students need to know the criteria by which their effort will be judged. Communicating these criteria is an essential prior stage to the assessment act itself.

There are, of course, many ways of doing this communicating, most quite simple and obvious. Criteria for judging *essay work,* however, are notoriously more difficult to communicate than . or other types of task.

One effective method of communicating standards and criteria for essay assessment is the "Multiple Choice Essay". Students' essay scripts from previous examinations are kept, with permission, for use in this technique. Alternatively the teacher may write the scripts.

Five essays are chosen, to represent each of five grades or each of five levels in order of merit.

Students are given these to read and to rank in merit order. They submit merely their rank listing, from which a rank correlation coefficient is calculated, indicating the degree to which their ranking matches that of the teacher (or an experienced examiner).

Marking this test requires no reading whatever by the examiner. The content of the test can be varied at will by using different sets of answers. It is claimed to produce remarkable improvements in subsequent examination performance and is of particular value as a formative assessment technique.

*Fox et al (1985) 13-15; Gibbs et al (1986) 131-142*

## 1.4 Communicating MCQ assessment criteria

Criteria for assessment of subject matter by Multiple Choice (and other objective-type) Questions are conventionally communicated through statements of Learning Objectives.

In some subjects it is appropriate to use statements of desired student behaviour as these objectives.

*Davies (1976) 91-95*

# Strategy 2
# Avoid over-sampling the course

First consider whether, *as a general rule*, every assessment task you set needs to be treated in the same manner - having the same time invested in it and the same amount of attention and involvement on the part of the teacher,

> *and* whether all need to be read equally fully,

> *or* commented upon to the same degree,

> *and* whether every student's work needs to be appraised in each case,

> *and* whether grading or ranking has to be an outcome in each case,

> *and* whether every piece of work always has to contribute towards continuous assessment.

Then consider, in *the particular assessment task* being implemented,

> whether the nature and scope of the task has been pitched at a level that minimises resource demands, consistent with achieving whatever purposes you have in mind in setting it.

> For instance, whether this task could contribute to student learning if it were not graded,

> *or* not commented upon,

> *or* not even read by you,

> *and* whether you could give some useful feedback on this task without having to grade,

> *or* without studying it completely in detail,

> and whether you could get enough feedback from this piece of student work without studying in detail every student's work in the class.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

## 2.1 Assessment load on students and staff

Assessment demands have a major impact on both student work-load and on staff resources. It is often possible to reduce the number of tasks for assessment without detracting from the rigour of a course or diminishing the reliability of final assessment grades.

In a study of assessment loads at Macquarie University large variations were found from course to course, and some subjects were able to be pin-pointed as clearly being over-assessed by comparison with others.

We should try to estimate the number of hours spent by staff in setting, explaining, supervising, collecting, marking, grading, processing scores and giving feedback, all relative to the number of contact hours of the course.

A similar exercise can be carried out in regard to student loads. There we can compare the number of hours typically spent being briefed upon, carrying out, and receiving feedback on assessment tasks, relative to the total contact hours of the course.

Subjects with anomalous assessment loads on either students or staff become, by definition, cases for suitable attention.

*Macquarie University Education Committee (1984) 4-5, 19-21*

## 2.2 Predicting possible student responses

It is wise to try to anticipate where students will take the questions we set - essay questions in particular. Some instructions, some questions, may subsequently make our task as markers much more difficult than we ever intended. It is obviously best to discover this fact before students go to work on it.

This involves taking time to put ourselves in a student's position and imagine some of the possible misinterpretations of our question and what those might lead to when we finally get the piece of work back for marking. This can be difficult when it concerns questions we have ourselves set and other staff can often give the best insight into ambiguities and lack of precision in our instructions and question-wording.

*Nightingale (1986) 18-27*

## 2.3 Setting and marking group tasks in class

Provided group work is compatible with the aims of assessment in a particular case, it can often be most efficient and economic if group assessment tasks are both done and marked in class time.

A seminar group, for instance, can handle a question in class by collaboratively drafting note-form or outline answers. The result can then be appraised in class.

Either approach can lead to better discussion and clarification of writing or problem-solving strategies and marking standards.

*Gibbs et al (1986) 103-107; Nimmo (1977) 186-187*

## 2.4 Non-assessed "prior stage" tasks

These refer to any kinds of tasks that may lead up to the major one. Where prior tasks of this kind are set, it is often reasonable to grade only the last, and the earlier ones may not need to be assessed at all in the conventional way.

For examples of these prior-stage tasks, we should consider - among other more obvious types - the use of course journals, reading logs, and reflective pieces of many different kinds.

*Nightingale (1986) 10-13; Zubrick (1985); Gibbs et al (1986) 115-117*

## 2.5 Lead-up tasks that can be self-marked

Assessment that is "formative" in function - ie not required in order to give a final grade - can often be carried out on lead-up tasks, such as synopses of proposed essays.

In such instances it should be remembered that the appraisal of these does not necessarily have to be done by academic staff. Students can give each other constructive feedback and learn a lot as they do so, provided the task is designed and set with this option in mind. (See also the sections on Self and Peer Assessment in Strategy 8 below)

*Paxton (1976)*

## 2.6 Watching out for essay "overkill"

Short answers, lists, synopses and outlines can be used to replace extended essays in many cases. If we critically inspect what really needs to be assessed in our subject, this might be only a portion of what would be demonstrated in a full, completed essay.

We need to ask why, then, we should have to mark a full essay if much of what it reveals is superfluous to our present assessment needs?

## 2.7 Giving a choice among essay-type exam questions

The main arguments against giving a choice among essay-type question options in tests and exams have nothing to do with economics or efficiency in the first instance. They are that, according to research, if a paper has say 12-15 questions of which only 5 are to be chosen, the chances are that:

(i)     the different options will all vary in difficulty,
(ii)    marker subjectivity and unreliability will be greatly amplified,
(iii)   many students will choose unwisely among options, not doing themselves justice.

Hence on all empirical counts the practice of giving a choice tends to make exams unreliable and unfair. Each student in fact sits for a different paper.

On the issue of resource efficiency, commonsense indicates that we have less work to do if:

(i)     fewer questions need writing when the paper is being set
(ii)    fewer marking schemes need designing during the marking stage.

In addition, markers generally find it more efficient to mark more answers of the same question than a few answers of many different questions.

So, if you think you would find it easier to set papers comprising a set of common questions with no options, you have both research and commonsense on your side.

Students, accustomed to being given options, may resent the change as unfair, so you may need to marshal your facts and explain clearly your reasons for the new policy. It will be a fairer exam for them and the marks you award will be more reliable.

*Stanton (1981)*

# 2.8 Diversity in assessment strategies

Student surveys often come out strongly in favour of a diversity of examining methods because of the very reasonable belief that only in this way can a "fair deal" be assured.

Apart from any intrinsic value in using a diversity of assessment methods, a policy of encouraging diversity may also be consistent with gains in efficiency.

Whether this is so will depend, however, upon which particular formats are included in the package, since not all methods need be as time-consuming as others in setting and marking. For example, an economically diverse package may need to comprise only one long written task, supplemented by a variety of shorter, more easily marked tasks.

As an instance, the examination structure in one professional medical course involves:

(i)     a written paper using the modified essay question style,
(ii)    a multiple-choice test,
(iii)   a simulated diagnostic interview and
(iv)    a practical test.

*Beard (1970) 193-196*

# Stategy 3
# Avoid over-questioning

First consider, *as a general rule,*

> whether the full range of possible assessment setting economies have been considered within your School, Department or subject team,

> *and* whether the fullest and clearest communication has been achieved among staff, and between staff and students about those policies.

Then consider, in *the particular assessment task* being implemented,

> whether the scope of the course material being assessed could be limited to,

> a smaller section,

> *or* fewer topics,

> *or* restricted to a narrower range of skills or competencies that would be easier for you to handle when marking,

> *and* whether the amount of extended writing involved in the task could be limited,

> *either* by combining, or replacing, written work with short answers,

> *or else* by using note-form, frameworks or skeleton-answers,

> *and* whether this material really needs to be assessed at all.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

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# 3.1 Reasons for setting particular tasks

Instead of setting assignments merely because it is customary or expected, start to examine critically why the task is being set, what its purposes are and what both we and our students are expected to get out of all the effort of setting, writing and marking it.

While perhaps agreeing with this recommendation in principle, staff often find difficulty in finding simple, straightforward ways of carrying it out.

A simple strategy is to use an assignment scrutiny check-list. In Roe's sample check-list eighteen questions are suggested as worth asking ourselves before we go ahead with setting an assignment.

Once devised, such a check-list can be used, with perhaps small modifications, for a number of years - even for the life of a course.

*Roe (1975) 222-223*

# 3.2 Matching question styles to learning goals

The styles and formats of questions we set should be matched as closely as possible to the learning goals we expect students to be working towards. Teaching for factual recall will require very different assignments and assessment tasks than if the learning goal were, for instance, problem-solving skills.

In testing factual knowledge, short-answer, multiple-choice, or some other "objective"-type question format may be economical and appropriate. They can be marked and graded with minimal effort.

Indeed it would be wasteful to try to test factual or informational content by using longer question styles that were not only inappropriate but more time-consuming to read and mark.

It is no secret, however, that good "objective" questions do require skill and effort to set in the first instance. On the credit side they can be stored in question-banks and re-used, and this is an economy that in the long run balances the initial outlay.

On the other hand, problem-solving or other higher intellectual skills almost always demand question formats that take longer for markers to read and appraise. It is possible that in trying to economise through converting to objective question formats we may seriously risk abandoning the learning goals we claim to have set. With such learning goals as these, if economies are to be found, they will generally lie in other directions, and some of these are discussed in items that follow (eg 3.9, 3.10).

*Heywood (1977) Chap. 10; Thomas & Bain (1984); Ebel (1972) 144; Hall & Cannon (1975); Clift & Imrie (1981) 69-88*

## 3.3 Marking advantages of objective tests

When considering whether or not to economise by changing all or part of a subject's assessment to an objective question format, it is important to make this decision in terms of the appropriateness of that format to the particular subject matter and the student learning goals of the course. Well-designed objective tests have been shown in many studies to be at least as valid as other types of question formats provided what we are measuring is:

    (i)    factual recall,
    (ii)   the application of principles (rules, procedures or formulae),
    (iii)  the interpretation of data (exercising judgement).

If we are confident that they are appropriate for use, their main economic advantage is the saving of time at the marking stage. Several fast marking alternatives are available. With computer facilities 100% accuracy and high speed are available. On tue other hand, carefully drawn manual scoring sheets can be used at a speed determined solely by the speed a marker can add a column of ticks. Finally, students can - if it suits your course aims - easily and reliably mark their own tests.

Whether or not this marking economy warrants the considerable investment in test development depends upon their scale of use.

One user has calculated that, taking into account normal design and validation time, over 50 students per year over at least 3 years are needed to recoup the initial investment on a test.

*Bell (1985)*

## 3.4 Communicating assessment requirements

When students seriously misinterpret what is being expected or intended in an essay, extended-type test or assignment, their own time is being wasted in doing the task, and staff time is wasted reading and attempting to mark the material.

Studies show, however, that the essay - and assignment-writing strategies which students devise in isolation may not at all necessarily correspond to what is intended or desired by staff.

Staff should, therefore, adopt - from Day 1 of a course - a general policy of more open and explicit communication with students about all aspects of assessment, and not only about the criteria for judgement as recommended earlier.

We need to communicate especially clearly the precise requirements of the Department and the range of different approaches that can be taken in order to satisfy those requirements, while at the same time accommodating particular styles preferred by individual students.

*Hounsell (1982);*
*Branthwaite et al (1980) 105-107*

## 3.5 Achieving a coherent assessment policy

Developing a fully coherent and comprehensive statement of faculty, school or departmental policy on assessment is a substantial undertaking, and may require considerable initial investment of resources.

Once such a policy statement is achieved, however, a great amount of the wrangling, uncertainty and going over old ground that takes place at examination meetings can be eliminated completely.

What such a policy might look like is best indicated by examples, and the University of Newcastle's Medical Faculty policy is worthy of close inspection as a model.

It is noteworthy that special care has been taken in that policy to "promote the educational merit of assessment".

*Engel, Feletti & Leeder (1980); Feletti & Colditz (1979)*

## 3.6 Reducing the number of major assessment tasks

Instead of a number of substantial pieces of writing in a subject one may decide, for economy, to set only one major work. But in this case we should design a sequence of prior tasks which will help students to produce that one major work, eg annotated bibliography, preview.

These prior tasks may be assessed if it is wished, but in any event won't take as long to deal with as extended pieces. It often makes sense for the first piece submitted to be purely a learning exercise and therefore not assessed at all.

*Nightingale (1986) 7-9; Bamford (1978) 95; Ebel (1972) 186*

## 3.7 Note-form essays

The economy gained in reading-time if students write note answers is obvious enough. The less obvious matter is choosing under which conditions a note-form essay or answer may be educationally valid.

Note-form essays can comprise legitimate and defensible assignment or assessment tasks, provided the main learning goal is recall of information, or simple understanding of concepts, or recognition of what is significant about a topic.

They are not necessarily inappropriate when other learning goals are involved, but in those cases the implications of their use should be studied carefully before implementation.

*Gibbs et al (1986) 23-24*

## 3.8 Outline answers

A variation on the note-form essay is the outline answer. Outline answers can also be quite sufficient to show how a problem has been solved, particularly if part of a larger paper containing a comprehensive range of questions has been set covering the field of the course.

Outline answers are much more easily marked than extended or full answers, and provided broad coverage has been ensured, they can be a better indicator of overall subject proficiency than a single extended task on a narrower topic.

## 3.9 Shorter-answer formats in problem-based learning

Performance in problem-based courses can also be assessed using short-answer or mini-essay formats, instead of large pieces of extended writing.

The shorter written questions most appropriate in such courses often have as their goal:

> interpretation of evidence,
> constructing a design, or
> generating a hypothesis.

*Gibbs et al (1986) 19-22, 25*

## 3.10 Modified essay questions (MEQs)

A specially developed shorter written form is the Modified Essay Question (MEQ). This style provides a means for specifically appraising problem-solving skills without having to read and mark extended written work. The Faculty of Medicine at the University of Newcastle has investigated how MEQs can best be developed and used.

The MEQ format first involves the presentation of a body of information which defines a particular "problem" to be solved or decision to be reached by the student. This is followed by a range of possible questions to be answered before the problem can be solved or the decision made. These may require the student, for example to:

> generate a hypothesis,
> list further information needed before making a decision, or
> outline practical steps or further investigations to be taken.

Numerical data, pictures, graphs, etc or else "realia" (pictures, charts, x-rays, models, maps, printouts etc) are provided in the examination room, enabling the MEQ format to be used to test students' discrimination skills and analytic abilities. Knowledge and understanding are then

drawn upon to provide an answer that is concise and focused, hence quicker to read and more reliable to mark than the open-form essay answer.

*Knox (1975); Hodgkin & Knox (1975); Feletti et al (1980); Feletti & Smith (1986)*
*Feletti & Engel (1982)*

## 3.11 Variations on the standard essay

Role-play essays and structured essay questions are variations on the standard essay which may more efficiently address the particular learning expectations of some courses. They generally allow sharper focusing on the specific intellectual and communicative skills students are expected to have developed.

A question of this sort may, for instance, place students in an imaginary situation and ask for discussion of how some decision would be made, or invite them to write a particular letter, draft a journal article, prepare a ministerial reply for question-time, interpret a body of evidence, or design some artefact.

Experience shows that it is often possible to design a question along these lines that substantially reduces the marking time compared with a more diffuse open-ended essay question.

*Gibbs et al (1986) 11-18*

## 3.12 Scaled-down laboratory reports

"Instant" reports can be written during a Science or Engineering laboratory session and handed in immediately for checking. This tends to keep them brief, concise and concentrated on the essentials.

If it is felt that quality of presentation suffers because of lack of time, uncompleted handouts can be used for the reports, in which case the final report simply consists of the handout fully completed.

*Gibbs et al (1986) 123-124*

## 3.13 Pencil-and-paper tests in laboratories

These include virtually any of the long- or short- answer types of questions discussed earlier, applied to laboratory work. Such tests, in addition to having the highest reliability, are reported to be more economical than their competitors such as extended written reports, practical tests, observations or interviews.

Although the construction of a good test is initially time-consuming, its ease of administration and marking plus its re-usability make it a cheap form of laboratory assessment.

*Boud, Dunn & Hegarty-Hazel (1986) Ch 4*

## 3.14 Shortened examination papers

Shorter exams, containing fewer questions, are a plausible and attractive solution to the reduced resources problem. Teachers should, however, be aware that simply shortening an examination may by-pass the important question of what is the intention of the examination.

If that intention is to adequately sample the course content, there may be lower validity associated with lesser sampling, as the number of questions is reduced. Whether the shorter exam is then justified is a question that can only be answered by referring to the overall aims of the assessment program (see Strategy 1 above for discussion of this issue).

*Hill (1978)*

## 3.15 Multiple-choice plus machine-marking

We may always set Multiple Choice Questions (MCQ) where "objective" testing is appropriate (eg factual recall and conceptual understanding). An MCQ comprises a stem and four or five options, all but one being incorrect answers (distracters).

MCQs are always best designed by panels and should accurately reflect the specific objectives of a course. Guidelines for construction must be adhered to and these are readily available.

Whenever used, MCQs should be monitored for discriminating power and difficulty, as described in Dunstan's booklet.

*Bandaranayake & Cox (1988) 152-156; Cox (1988ᵃ) 157-160; Cox (1988ᵇ) 101-165; Dunstan (1980ᵇ) 4-6.*

## 3.16 Saving tutorial time with MCQs

A useful variant on the regular use of MCQs can lead to saving tutorial time at the stage of giving students feedback on their work.

This is done by linking "wrong" choices (distracters) on such tests to particular page references in a set text. Students can then consult the text and find out for themselves why it was wrong to choose that option.

Alternatively, written solutions to test problems can be published in a handout and given to students when they submit their test to be studied in their own time.

*Hudson & Hudson (1981); Rees (1986)*

## 3.17 Recycling MCQs through "banks"

It is well known that substantial time and effort are required to develop a good collection or "bank" of reasonably valid and reliable objective tests.

The purpose of such a bank is to provide different sets of questions around particular syllabus topics for use in successive administrations of a particular examination.

The resource investment in an item bank is, however, likely to be worth all the trouble, mainly because of the efficiency with which questions can then selected and used on demand.

*Bandaranayake (1988) 166-169*

## 3.18 MCQ marking methods

One great economic virtue of using MCQs is that they may be quickly and accurately marked by non-subject-experts or by machines.

For a short, clear explanation of the technology of computer analysis of objective tests, see Patrick Squires' paper.

*Dunstan (1980[a,b]); Squires (1975)*

## 3.19 Variants on standard MCQ formats

There are numerous variants on the conventional MCQ not always mentioned in the standard texts on this method. These include multiple-completion, assertion/reason and best-answer types.

By using a *composite* question mode we may be able to combine some of the benefits of easily-marked "objective" testing while avoiding some of the limitations of the conventional MCQ format - yet still saving reading time compared with an essay.

*Gibbs et al (1986) 41-47; Bandaranayake & Cox (1982); Cox (1982[a]); Cox (1982[b]); Litster (1987)*

## 3.20 Saving test development time with short-answer items

It may be useful to try some of the wide range of easily marked objective test formats other than MCQ and its variants. These are readily available and include right/wrong, short answer, completion, true/false, matching, and best-answer types. These question types are often appropriate for most of the uses to which Multiple Choice Questions are put, but have the advantage of requiring generally much less time and effort in development.

*Gibbs et al (1986) 27-40*

## 3.21 The possibility of re-using tests

The re-use of tests is particularly appropriate in "mastery learning" courses where fairly specific learning objectives are set and students are expected to work towards a particular degree of mastery of each part of the course before receiving credit and perhaps before moving to the next part.

Some teachers stop using mid-term and final examinations in these courses in favour of shorter, more frequently administered tests. Evidence suggests that such testing strategies lead to greater retention of the material studied.

While there is not necessarily any overall economic or efficiency gain in such policies, a possible advantage can enter if the same tests can be re-used by the same group of students.

Though evidence is somewhat unclear, reports suggest that test *re-use* can have both cognitive and attitudinal benefits for students. Its implementation, assumed to be economically advantageous, may therefore also be educationally justifiable.

*Cates (1982)*

## 3.22 Question-generating computer software

Some subjects lend themselves to the computer generation of test papers - both "objective" and problem types, whose main economic advantage is that they can be entirely self-administered and self-marked.

A common type of program takes a single question and substitutes an endless range of different values for variables, permitting each student to receive a unique version of the question, thus also helping ensure each student's work is authentic.

Software of this kind is already in circulation, or available commercially, for some subjects. Staff with programming expertise or access to authoring programs often write their own. Once installed, this software can supply endlessly varied questions for periodic class tests, or for individualised self-testing by students.

The best software of this sort also keeps records of each student's progress through different levels of difficulty. This approach is popular for providing self-evaluation revision tests. Students find such tests particularly "non-threatening" provided the results are *not* used to contribute to final grades.

*Osborne & Potter (1979); Gibbs et al (1986) 71-75; Andresen (1979) Item 2.1/3;*
*Machin & Murray (1985); Turner (1985)*

## 3.23  Machine-marking MCQs using microcomputers

Although on some campuses (such as UNSW) a service exists for computer-marking of MCQs provided machine-readable answer sheets are used, it may sometimes be advantageous for tests to be marked using microcomputers.

An optical card reader was originally developed for use with the Apple-II system, and cost less than $1500.

Advantages of such systems are that:

(i)     the user can program unlimited variations on the marking and feedback systems, such as awarding bonus marks and taking guess factors into account,

(ii)    item difficulty and discrimination measures, most important for test development, can be built in at will, and

(iii)   full personalising and tailoring of printed feedback to students is a simple matter.

*Priestland (1985)*

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# Strategy 4
# Avoid over-reading student work

First consider, *as a general rule,*

> whether staff who teach a course must always be the ones who read students' tests and assignments,

> *and* whether, when student work is read, every part of each assignment needs reading at the same detailed level,

> *and* whether all tasks in a course need to be read as analytically as one another,

> *and* whether each student's work needs to be read each time a task is set.

Then consider, in *the particular assessment task* being implemented,

> whether reading selected parts of this piece of work might be enough,

> *or* whether reading work from part of the class, instead of every student, might suffice,

> *or* whether you might read this piece for impression, rather than analysis,

> *or* whether on this occasion students could read each other's work
> (if you arranged things appropriately),

> *or* whether they could read their own work
> (if you arranged things appropriately).

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

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# 4.1 Reducing double-marking

An instance of inadvertent waste of marking time and effort occurs when normal policy dictates "double marking" of essays or assignments. This is often done when work counts towards important final grades or prizes.

Unless the two markings are entirely independent, the second marker having no knowledge whatever of the first marker's responses, double marking contributes little at all towards reliability and discrimination. In such cases the double-marking policy can be abandoned without loss.

If mandatory double-marking must be retained, it can be made more efficient while economising on resources if it is restricted only to pass-fail cases or those that are "borderline" in some respect. These are those where high reliability has its greatest practical importance.

Whatever the case, the use of a "second marker's sheet" is recommended. This serves the purpose of easily and quickly transmitting necessary *contextual* information about the student from the first marker (normally the student's teacher) to the second (normally an outsider).

The effect of this is to ease the second marker's burden and help avoid unnecessary disagreements between markers which otherwise waste time in resolving.

*Cockburn & Ross (1978) 39; Hill (1977) 101-102; Murphy (1979) 77; Gibbs et al (1986) 109-111*

# 4.2 Formative assessment via computer

One of the most significant developments involving the use of computers in assessment has been through the design of software that enables students to more successfully and satisfyingly complete coursework assignments in technical subjects such as engineering.

In those subjects the very complex problems needing to be solved are typically accompanied by a severe computational burden. The computer programs in use are those that apply numerical modelling techniques to complex structural problems.

When computer software is adapted to such coursework assignments, experience shows that students can become better motivated to tackle tasks individually rather than copying from better students' work.

Moreover, staff are spared the burden of laboriously checking computations in order to locate numerical and logical errors and appraise their significance in terms of student learning. Provided a full range of software is acquired initially, the supervision required from staff can subsequently be minimal.

*Brohn (1986)*

## 4.3 Self-assessment questions (SAQs)

Teachers do not need to be involved at all in some assessment tasks. Self-assessment questions (SAQ) of the sort used by the Open University in their printed materials are compelling evidence of this. Such questions are not limited to teaching at a distance. On the contrary, SAQs can be valuable economic adjuncts to on-campus assessment.

In a face-to-face teaching environment, the SAQs would normally be supplied via handouts or in course notes which students would take home to work on independently, marking themselves after completing the task.

Evidence on the use of SAQs indicates that they encourage students to actively ar. thoughtfully reflect on what has been studied. Answers - or instructions for how to easily find them - must of course be provided for all questions, together with remedial advice for those students who may need it.

This is best done through supplying check-lists, model answers and explanatory discussions. However, these all require time and resources for initial development.

Nevertheless, as in the case of MCQs, a "bank" of SAQs can be gradually developed over time and re-used whenever the course is run. The more often such a bank is then used, the greater the return on the original investment.

There is no need to imagine using SAQs for all courses at the start. Try developing them just for one course first, or maybe just one section of a course, whatever present resources will permit.

*Gibbs et al (1986) 167-168*

## 4.4 Guidelines and check-lists

Whatever the subject, it is important to supply clear written guidelines on how to write essays or perform assignment tasks in that particular subject. As well as their direct educational benefits, such guidelines help reduce the time-wasting incidence of students unwittingly doing a task in a completely inappropriate way.

Each piece of student work that misses the point nevertheless requires reading. Hence if we can reduce the incidence of gross question-misinterpretation this will eliminate some of the time otherwise wasted during marking.

Guidelines also help reduce the incidence of major style or format errors, enabling marker time to be more profitably concentrated on content appraisal.

Guidelines can cover:

> what is expected,
> style of answer,
> errors and pitfalls to avoid,
> how to approach the task,
> levels of restriction, and
> degrees of freedom available.

Examples showing how guidelines may be constructed are readily available in the literature.

*Clanchy (1985); Clanchy and Ballard (1981); Nightingale (1986) 23-7; UTRC (undated) 3.3-3.4; Martin (1979) 54-55; Bamford (1978)*

## 4.5 Marking in laboratories

In the appraisal of laboratory records two conditions can ease the marking burden. These are:

(i)     stating clear criteria concerning what is required and how it is to be recorded
(ii)    delivering explicit training in how scientists keep laboratory notes.

If these conditions are met, the first economy arises because the resultant better quality of notes makes for easier teacher-marking.

A second economy is available if notes are then shared and discussed in small student groups during the last ten minutes of a laboratory class.

*Gibbs et al (1986) 125-127*

## 4.6 Computer analysis of laboratory data

In technical courses where items of assessed coursework require the analysis of laboratory data, the limited time available in the laboratory often means the data are incomplete or cannot be completely analysed before the student has to leave. This situation is uneconomic and unsatisfactory.

Things can be improved substantially by the use of computer programs that require each student to enter and check experimental data themselves before leaving the laboratory.

The same software can also contain a range of test items on the topic being studied, to which completed solutions are supplied, with brief explanations, and an individual score printed out for the test.

*Brohn (1986)*

# Strategy 5
# Avoid over-commenting on student work

First consider, *as a general rule*,

> whether particular kinds of comment might be called for by different kinds of assignment and examination tasks,

> *and* whether there may be an optimal amount of comment that will serve each different purpose of assessment best,

> *and* whether it is possible to clarify the purpose of comments in each different case,

> *and* whether everything that *could* be commented upon in a piece of work necessarily deserves comment on each occasion,

> *and* whether the achievement of economies in commenting is a goal worth aiming at in your subject.

Then consider, in *the particular assessment task* being implemented,

> whether summary comments only, delivered orally to the class, might suffice,

> *or* whether taped comments, rather than written, might do the job as well, or even better,

> *or* whether structured feedback sheets might do the job, needing only to be ticked by you,

> *and* whether there is any role students might play that will reduce the amount of commenting you will need to make.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

## 5.1 Using students as proof-readers

In a growing number of subjects, student writing is being taken seriously and incorporated into the total teaching program of the discipline.

Experience shows that this process of integration is enhanced if students are taught to check and proof-read their own work before they ever submit it. In this way students come to accept responsibility for their own grammatical problems.

Proof-reading check-lists are an appropriate technique for doing this and examples of check-lists are readily available. After an exam has been completed some teachers give extra time for students to apply the check-list before submitting their work.

*Hunt (1981)*

## 5.2 Assignment attachments

Structured assignment attachments can speed up the marking process considerably. All these require is for a box to be ticked, though additional comments can be written if desired. The time-wasting repetition of standard common comments can thus be completely avoided.

Attachments can also achieve other useful goals. They help achieve consistency among multiple markers and, if distributed when the assignment is set, they help students understand the criteria for assessment. If accumulated over time they can then enable students to better monitor their own progress.

Examples of attachments are available and should be carefully inspected. They demonstrate the variety of attachment styles available and the many useful purposes they can serve.

Examples include:

> science excursion reports,
> sociology book reviews,
> politics and history essays,
> biology and geography assignments.

*McDonald & Sansom (1979) 45-55; Nightingale (1986) 33-37; Gardner & Abraham (1978);*
*Murdoch University/ESTR (undated) Assignment Attachments;*
*YEAST (Macquarie University) #3,#6*

## 5.3  Feedback guidelines

Explicit guidelines for giving feedback comment can cover whatever strategies a School or Department believes will contribute to efficient and fair marking in that subject.

Feedback guidelines may include, for example:

>    recommending that we restrict comments to two or three major errors at most, rather than overwhelming students with complete catalogues of shortcomings;

>    recommending that we avoid "catch-all" comments that waste time and communicate nothing;

>    a policy for how errors of form (spelling, grammar, bibliographic referencing, etc) will be dealt with;

>    a statement about the relative importance of errors of form compared with errors or deficiencies of content.

If used, however, it is essential that the guidelines be followed by *all* markers, without exception.

*Bartley/Stanton (1982)*

## 5.5  Focused feedback

At the point when work is being submitted for assessment, students can be asked to write a note at the end of their work indicating which particular aspects of the work *they* would like feedback on.  This practice helps focus the marker's written comments and makes it more likely that the comments will be addressed to real concerns of the student.

*Stanton (1988); Oxford Polytechnic (1987) 11-13*

## 5.6  Student hand-back

Staff can often feel they are wasting time when, after writing constructive feedback comments on a test or exercise, they discover that these are neither read nor attended to by students.

Therefore, if we regard feedback as important, any strategy that gets students to attend to it will contribute, not only to their learning, but to the resource economics of our teaching task.

One solution to the problem is for students to work in pairs in a tutorial class.  Marked work being returned with comments on it should then be given, not to the student who wrote the work but to their partner in the pair.

Then each student, in turn, reads aloud the comments on his/her partner and gives the other a peer-tutorial based on the lecturer's feedback comments.

*Stanton (1988); Oxford Polytechnic (1987) 11-13*

## 5.7  Audio-taped feedback

Tape-recorded assignment comments are a proven and efficient means of giving feedback and their use enhances the likelihood of students attending to and responding to the feedback.

Students hand in a blank (re-usable) audio-cassette with their assignment and this cassette is returned with the graded work.

Whilst marking, most academics find it quicker, as well as far more personal, to *speak* their comments on students' work rather than to write them on paper. Spoken comments are also likely to be more spontaneous in tone and focused more directly on the student as an individual learner.

*Siegel (1985); Cryer & Kaikumba (1987); Nightingale (1986) 38-39*

## 5.8  MCQ computer-generated feedback

Program-generated computer feedback can be supplied to students, but generally from MCQs only. The TIPS (Teaching Information Processing System) is one such system developed at Duke University and adapted for use in several UK universities.

In TIPS the test item writers also design tutorial comments which provide the basis for answering the item correctly. The computer program then selects and issues to students appropriate feedback statements from this "comments item bank".

The Educational Testing Centre on the UNSW campus operates another system by which feedback letters can be sent to students whose tests have been computer-marked. Such a letter would typically contain the mark gained in relation to other students, plus performance on the test in terms of topics, with appropriate references for remedial work.

*Gibbs et al (1986) 77-78; Ruddick (1985); Dunstan (1980ª)*

## 5.9  Assignment feedback via computer

Report-generating computer programs are available which give computer assisted feedback on suitably structured assignments.

These comprise a simple "expert" system enabling the teacher to provide two typed pages of individualised feedback on each student assignment or report.

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# Avoid over-commenting on student work

Such programs are objective in the methodical assessment of each report according to a consistent set of programmed criteria. Nevertheless they allow individual markers to supply their own comments at will. This results in more consistent marking and delivers extensive feedback to students despite minimal time being spent by teachers in writing and composing. An example of such software is a package developed by Marshall.

In Marshall's system some feedback statements are created in advance and stored in a data bank; they include fixed explanations to common errors. Other explanatory and remedial statements can be typed in by the tutor at the keyboard.

Explanation lists are created by the program in advance according to whether things have been left out of students' answers, included in them correctly, or included but need improving. Finally, standard qualitative judgements and textual connectives are supplied by the program in the final feedback report.

*Marshall (1986/1987)*

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# Strategy 6
# Avoid over-grading student work

First consider, *as a general rule*,

> whether there might be occasions when rough grades, rather than precise, would be sufficient and acceptable,

> *or* whether rank order might on occasions do instead of individual grades,

> *and* whether analytic marking is always appropriate or necessary in the case of every assignment,

> *and* whether the marking criteria can be made more public,

> *and* by what means this can be done, in different parts of the course

> *and* on different occasions of assessment,

> *and* what might be gained or lost if more than one marker did the job.

Then consider, in the *particular assessment task* being implemented,

> whether pass/fail, rank order, or grade clusters, might be possible,

> *or* whether a grade, rank or mark is really needed after all,

> *and* whether students know the marking criteria to be used,

> *and*, if not, whether they should,

> *and* whether anyone else is available for you to share the marking with.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

## 6.1 Making marking criteria public

There is evidence that, in assessing written work, marker efficiency can be improved if both students and staff are aware of clear, explicit criteria, whatever the type of writing task.

General criteria for what is acceptable and unacceptable in written work can be drawn up either on a School, Departmental, group or individual basis.

Once drawn up, it must be contained in public documents distributed to students at the start of a course.

## 6.2 Minimal marking

Minimal marking is an economic approach for marking written work. It simply tells students there is an error in a certain passage or line and then requires *them* to identify and correct it. The teacher then comes in to assist only if students are unable to do this correcting.

Minimal marking deals with "surface" writing faults only. It manages to refrain from marking these faults in the text itself, by using a simple, standardised code placed in the margin. The code draws students' attention to the number and type of faults in a particular line.

When papers are later returned in class, students are given time to search for, circle and correct the errors before then handing the scripts back again. Only when this is done are grades finally recorded.

Minimal marking is claimed to help "shorten, gladden and improve" the otherwise thankless task of marking written papers.

*Haswell (1983)*

## 6.3 Team marking

Marking by team or panel can be more efficient than using a single marker. And provided evaluation criteria are carefully spelled out in advance, it can be very reliable.

Efficiencies arise mainly through task-sharing and specialisation. To achieve this, a marking team divides examination questions among themselves, each person concentrating on only one or two across the whole class. They then develop greater speed, reliability, and a clearer sense of relative values of answers than if one person had to mark a number of different questions alone.

It is both feasible and legitimate for marking panels to include people who have *not* been involved in teaching the course. However in such cases explicit criteria sheets (such as assignment attachments, Item 5.2) are obligatory.

Criteria sheets help ensure more accurate and efficient marking by the "outside" staff, who may often be graduate students. The critena statements also greatly facilitate the often time-consuming task of re-marking and going back to check on disputed marks.

*Gardner & Abraham (1978)*

## 6.4 Re-worked coursework

Students can be given a chance to re-work coursework before it gets issued a final grade. That means giving students a second-chance and awarding grades on the final, rather than the first-submitted, version of a paper. This policy need not involve teachers themselves devoting more resources to marking.

Economy is achieved when student peer-appraisal based on seminar groups is used at all stages prior to the last, when the final product is submitted (see Strategy 8 below for examples of peer-assessment).

*Cowan (1980)*

## 6.5 Machine-readable answer sheets

Computer marking is the most efficient method for use with MCQs and other objective test formats where the answer can be chosen on a limited scale such as A-E.

Computer marking requires that a machine-readable answer form be used.

*Gibbs et al (1986) 67-69; Sommerfeld (1981) 88*

## 6.6 Computer-marking in laboratories

Computer-marked laboratory practicals are possible in some instances. The goal of this strategy is to provide the most precise measures of accuracy in science and technology laboratory work. However their use has obvious benefits in economy of staff marking and grading time.

Students enter their results at the keyboard and test their own answers against the programmed criteria, getting immediate feedback without staff time being used up (see also Items under Strategy 4 above).

*Gibbs et al (1986) 87-89; Grebenik (1985)*

## 6.7 Pass/fail grading - for and against

The most widespread, conventional grading system in universities is norm-referenced (sometimes called "grading on the curve"). In this approach grades refer to the performance of candidates *relative* to others in the group.

Under such systems it has been suggested that economies in marking and scoring could be achieved if, instead of awarding percentage scores or a range of separate grades such as A, B, C, D, etc, papers might simply be marked as "pass" or "fail".

How well is this proposal supported educationally? The educational arguments advanced in its *favour* include:

(i)     the irrelevance of precise grades outside the classroom context,
(ii)    the empirical fact that precise grades are very poor predictors of future success,
(iii)   the meaningless of fine grade divisions owing to poor marking practices,
(iv)    the fact that pressure to get higher and higher grades often forces students into bad, superficial study habits and into examination cheating.

*Against* pass-fail grading, however, it is argued that:

(i)     motivation to effort and achieving excellence can suffer,
(ii)    the student has an incomplete record of achievement at the end,
(iii)   and students themselves frequently resist implementation of pass-fail approaches.

The issue is clearly unresolved. Markers seeking greater efficiency by this means must accordingly make their choice on the relevance of these arguments to their particular case.

*Ebel (1972) 188-190*

# Strategy 7
# Refine current policies and find ways of using present methods better

First consider, as a *general rule,*

> whether you (and your colleagues) are aware of the origins of and justification for the full range of assessment policies in current use in your Department or School,

> *and* whether these policies might, at least in part, benefit from a re-thinking, leading to revision or refinement,

> *and* whether there exists any policy regarding how staff time spent in implementing assessment can be credited appropriately in relation to time spent in class,

> *and* whether some time devoted to critically discussing the policies and considering alternatives might achieve economies in the long run, at either a School, Departmental or Course level.

Then consider, in the *particular assessment task* being implemented,

> whether your specific assessment policy could be sharpened, refined or redesigned to make it more economical,

> whether there may be ways of arranging this task so that the time you spend on it can get more of the credit it deserves,

> and whether the Department or School is providing you with the opportunities and resources you need to critically examine all assessment policies that need to be implemented from time to time.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

## 7.1  Improving traditional marking methods

When essay papers are to be marked, the choice is normally between "sorting" and "point-score" methods.  When being "sorted", essays are judged holistically rather than analytically, read as quickly as possible and sorted on first reading into broad categories.

A second, more careful reading is then given to every paper, pile by pile, to confirm that each does belong in that category.  This reading concentrates attention on papers noted as problematic.  Letter grades are finally assigned on the basis of the sorting categories.

When many papers are to be read in a short time, the "sorting" method is generally regarded as more efficient and less tedious than the alternative "point-score" method, though not necessarily inferior to it.

In the familiar "point score" or analytic method, each answer is analytically checked against a list of points that represent the contents of an ideal answer, and a total score calculated by adding together these points or partial scores.

There is also, however, a third method which is often found useful for dealing with very large essay numbers.  This involves the use of model answers whose function is to illustrate grade point "thresholds".

Markers read each essay quickly and gain an overall impression in relation to the several models (commonly three), then assign a grade solely on that impression.

*Green (1975); White (1985) 114-120; Cockburn & Ross (1978) 35; Heywood (1988) 39-40*

## 7.2  Improving content-marking schemes

If it is decided to employ analytic marking of either essay or extended-answer questions, success will depend upon construction of an appropriate, detailed marking scheme.  Such a scheme would normally specify:

> which particular course content is being looked for,

> and how many marks each item carries.

These point-score marking schemes should, if possible, be made available to students.  If this is not possible, some alternative means should be used for communicating explicit criteria concerning what is expected of students in the task (see Items in Strategy 1 above).

*UTRC (undated) 3.3-3.4; Bamford (1978); Gibbs et al (1986) 143-146*

## 7.3 Developing samples and model answers

When essay questions are used for assessment, a range of sample or model essay/assignment answers can be supplied to students in advance. A varied stock of such models takes time but can be built up over a couple of years by keeping (with permission) photocopies of the best work each Session.

The marks of authorship are removed and the models filed permanently in an accessible place such as a Departmental library.

Those who use this approach claim that nothing is better able to illustrate "this is how you do it" than these examples of actual work that have gained good marks or are exemplary in some manner.

*Nimmo (1977) 186; Bamford (1978)*

## 7.4 Rules to deal with plagiarism

The marker who encounters substantial plagiarism in students' work can find, quite apart from problems raised by ethical issues, that such encounters tend to be very time-wasting.

Resolving a single suspicion of plagiarism can involve much reading to distinguish between copied and original sections of work, plus perhaps library searches to find evidence for the borrowing of sources.

But since plagiarism is a predictable problem in many courses, it comprises one more of the things that, for both economy and consistency, we should be armed and ready for at the start of the course.

The best approach seems to be to develop very explicit, departmentally-supported rules regarding how plagiarism and regurgitating will be dealt with. These are supplemented with clear guidelines for how to avoid it and how to move towards independent thought as a student.

Examples of such rules in particular disciplines are available from the UNSW campus and elsewhere.

*Hill (1979); Andresen & Boud (1978) 98-101*

## 7.5 Better analytic grading

It is generally believed that analytic grading tends to be more time-consuming than holistic grading. (see above, Item 7.1)

It need not necessarily be so, however. Some economies are available when using the analytic grading approach, provided strategies are adopted which do not sacrifice validity and reliability.

One economic technique is for ideas expressed in the essay to be separately graded with positive or negative scores which represent either their sophistication or the magnitude of the error they contain.

To do this, however, a suitable schema must be drawn up beforehand and followed scrupulously.

*Cockburn & Ross (1978) 36; Brindley (1978); White (1985); Ebel (1972) 179-185*

## 7.6 Handling scores with spreadsheets

Spreadsheet software can be used for efficiently storing and manipulating scores and is believed to lead to good economies of time once a system is in operation.

The simplest and least expensive public-domain or shareware software may be adequate for this, though more sophisticated programs are necessary if complex statistical analysis is to be undertaken.

The spreadsheet is the electronic equivalent of a sheet of paper ruled into columns and rows. It can contain names, subjects and scores, and it is a simple matter to program it to automatically calculate and enter totals, aggregates, means, standard deviations, rank order and scaled scores. Graphs can often be plotted directly using an associated "graphics program".

*Camden (1987)*

## 7.7 Recognition for assessment time

If assessment really matters towards encouraging student learning, there is one associated goal that staff should work towards. That goal is to have Schools and Departments *recognise* the time staff spend in certain aspects of assessment.

The most reasonable way of affording this recognition is by classing and counting it as part of timetabled work-load.

Would this be a step towards economy? It may, and the argument for economy draws upon student learning benefits that derive from these assessment activities (see Strategy 1 above).

There are two conspicuous instances where the case for this recognition is particularly compelling:

(i)   discussion of individual essays with students, after they have been marked by staff;

(ii)  interview-marking, in which each script is marked in conference with the student who wrote it.

These each clearly deserve a modest re-allocation of teaching time. Each is a strategy by which assessment is able to be turned into a powerful teaching tool, with benefits in the quality of learning.

Such approaches to assessment justify reallocating time resources which would otherwise be spent in kinds of teaching activities that may, on the evidence, be far less productive of high quality student learning - such as some types of lecturing.

*Nimmo (1977) 185; Good (1978)*

# 7.8  Assessment workshops for staff

Since assessment policy generally involves all members of a Department or School, it follows that all staff should be involved in a coordinated plan of periodically scrutinizing and considering proposals for change.

Efficiency can be often improved when staff *as a whole* better understand what should be done, why it should be done, what can be done and how it can be done best.

It is generally necessary to update all these issues on an annual basis, as staff, subjects and conditions change. The basic structure of a sound assessment policy may, once settled, nevertheless be able to operate for the life of a course.

Upgrading staff on assessment policy and practice is probably best achieved by spending a day or two in an intensive workshop. The basic agenda may include discussions at a general level exemplified by the suggestions above.

The workshop agenda should also give staff themselves a chance to share their own useful "tricks of the trade" for saving time - tricks that have come from their own experience and which they know work.

Among ideas already in use by staff and able to be shared by them if given the opportunity, may be found:

> assignment attachments,
> taped commentary,
> fast grading strategies,
> providing model answers.

Many of these are covered later in this document. (See Strategy 8 below)

It is especially important for tutors and other staff at *all* levels of appointment to be present at such meetings. The one qualification for participation should be that a person has a share in setting, marking, grading or discussing students' work.

# Refine current policies and find ways of using present methods better

Experience shows that meetings of this kind generally benefit from having a facilitator or chairperson from outside the specific subject discipline.

*Graff (1982); UTRC (undated) 3.1-3.4; Edwards (1979); Bligh et al (1975) 29-55; Cockburn & Ross (undated) 1-17; Gibbs et al (1986) 147-149; Kent (1989)*

# Strategy 8
# Consider alternative approaches to assessment policy and practice

First consider, as a *general rule,*

>   whether an adequately wide range of economic assessment alternatives is available or can be made publicly available for all staff in your Department or School to consider whenever they need to know about them,

>   *and* whether staff are encouraged and given opportunity and time to consider, plus freedom to implement, economical assessment alternatives.

Then consider, in *the particular assessment task* being implemented,

>   whether it is one that could benefit from an alternative approach,

>   *and,* if so, whether it might be worthwhile looking for an economical alternative in this Guide,

>   *and* whether, if this Guide should contain nothing that appears to help, there might be anywhere else you could look to find the kind of alternatives that would suit you, your subject and your students.

After these considerations, the items that follow may provide a source of ideas for you to use in starting to develop a more economical assessment system.

## 8.1 Thesis and dissertation alternatives

Increasing numbers of academics are considering and promoting alternatives to the extended Honours or Postgraduate Thesis/Dissertation. It is argued that the traditional forms may have outlived their usefulness in some subjects.

Some alternatives have been proposed in recent literature. These should be examined to see whether, as they claim, they may be able to:

more fairly indicate the ability and potential of an Honours or graduate student,

be more relevant to the sorts of tasks that will be done in subsequent employment,

permit more efficient and economic supervision and marking practices.

*Stanton (1979); Reid (1978)*

## 8.2  Group-work alternatives

Group Projects leading to a collaborative report can contribute to a particularly efficient use of limited marking time.

There are, of course, problems associated with the awarding and distribution of group marks. Approaches have been developed for achieving fairness while rewarding individual excellence, particularly in subjects where practical tasks require team-work.

One strategy used at the UNSW involves a collaborative group report being written by each laboratory syndicate. Each individual also submits a critical note indicating his or her degree of consent to (or dissent from) that report, with justifying reasons.

Individual student grades comprise the group mark plus an appraisal of the quality of that extra note. Marking time is reduced substantially because only one report per group has to be assessed and the individual notes are relatively short.

*Ross (1978) 68; Gibbs et al (1986) 103-108; Andresen (1979, 1982) Items on "Group Assessment" ; Magin (1982); Black et al (1977)*

## 8.3  Self-assessment alternatives

There is good evidence that students gain from learning to evaluate their own progress. Self-assessment in one form or another has been shown capable of either supplementing or completely replacing teacher assessment.

Students can in the first instance be involved in generating criteria upon which their work is to be assessed. Next they learn how to use these criteria to assign grades to both themselves and their peers.

Like other skills self-assessment needs to be practised, however, in order to be developed. It should never be used as a "once-off" thing, in isolation. It needs always to be embedded in a coherent training or induction program for students that forms an integral part of the academic course of study itself.

*Boud (1986); Stanton (1978); Boud & Lublin (1983) 93-122*

## 8.4 Self-assessment in problem-based learning

An example demonstrating how self-assessment may be carried out in respect of clinical reasoning or diagnostic skills in Medicine is given in detail in Barrows and Tamblyn.

The system involves a simulated diagnostic setting. Skills being performed by trainees are video-taped, and students write up a report of the diagnostic procedure and their conclusions in a prepared format. They next sit for a bank of multiple-choice test items that are self-marked.

Students then study a diagnostic assessment prepared by an expert physician for the same simulated patient, and compare it with their own account. Next they watch a video-tape of the experienced physician diagnosing the simulated patient.

Finally students are shown a structured report on their own work filled in by the simulated patient, and view the video-tape of their own interaction with that patient. A standardised clinical skills evaluation form is then used to score all aspects of this complete test.

This all takes about 1.5 hours. After it a student would review all the results and identify personal strengths and weaknesses. This then leads to the determination of what further information or skills need to be mastered.

This fully-developed self-assessment model can serve as a very useful guide for staff unfamiliar with this approach. They could use it to develop their own self-assessment strategies in whatever problem-based disciplines they may work.

*Barrows & Tamblyn (undated) 41-44*

## 8.5 Self-assessment attachment sheets

A simple way of introducing self-assessment at a modest level is to have a self-assessment sheet attached to work handed in for marking.

The sheet will contain answers to a set of questions previously discussed, such as:

*"The good points about this piece of work are ..."*,

*"The main weaknesses in this work are ..."*,

*"What I would need to do to make it better is ..."*,

*"This work deserves a mark of ... because ..."*,

... and so on.

The technique contributes to student learning by encouraging students to be more self-critical of their own work.

Other contributions to efficiency and economy can be got from these completed self-assessment attachments sheets, such as:

> the marker to more directly and immediately enter into the mind of the student submitting the work,
> focus stronger attention on the work's strengths and weaknesses,
> address feedback comments that are meaningful and likely to be attended to.

*Stanton (1988); Oxford Polytechnic (1987)*

## 8.6  MCQ self-assessment with computer scoring

Informal, optional, multiple-choice tests that are computer-marked are a means by which students can periodically assess their own progress through a course.  Some departments offer facilities for this on, say, a fortnightly basis.

Schemes of this kind can replace other periodic class-testing schemes, with substantial savings in staff time.  Multiple-choice formats recommend themselves especially to mathematical and technical courses, but are often adaptable to other types of subject matter.

For learning purposes it is not sufficient for students merely to discover whether or not they have selected the right option in an MCQ.

A computer-based scheme can, however, supply them with all they need for a self-administered system:

> their answer(s) can be automatically checked, and
> a report sheet printed containing remedial advice on incorrectly answered questions.

*Jeffcoat & Yoong (1979)*

## 8.7  Peer-assessment alternatives

Under appropriate circumstances, marks given by other students can be just as accurate and reliable as those given by lecturers.

It is important, however, for the class group to generate marking criteria themselves and this can generally be done during tutorial time.

In situations when lecturers are under pressure to evaluate student papers or assignments more quickly and superficially than they feel is desirable, a good case can often be made for "getting assistance" from students.

This step has the even more interesting implication of signalling a different relationship between lecturers and students in regard to assessment. It both presumes and contributes to a partnership or collaborative role rather than an adversary one.

Peer assessment may also be used as a check of self-assessment. Staff mark only when needed to resolve discrepancies, or else make random checks to monitor the overall process.

At the University of Newcastle peer-assessment takes place in a tutorial period after examinations. It is moderated by staff who are able to clarify the responses given in marking guides. Some limited amount of cross-marking is also possible here.

*Orpen (1982); Engel et al (1980); Feletti et al (1979)*

## 8.8 Peer-assessment of group work

One model for alternative assessment in many disciplines is provided by a scheme for combining staff- and peer-assessment of students who have been undertaking team work. In this model, assessment is divided into two parts.

First, a base mark is awarded by staff to all members of the team equally, based on the quality of the collaborative or joint product.

To this is added an equally-weighted peer mark, acquired when each member of the team appraises each other's effort (but not his/her own). Specific guidelines and criteria are used for issuing this mark, which is then averaged for each team member.

This assessment model has been used successfully both for oral presentations and for written reports. In addition to modelling the collaborative environment in which students will eventually have to work professionally, the approach carries evident marking economies for staff and has been recommended for other types of course (eg group design projects).

*Earl (1986); Fox (1985)*

## 8.9 Peer-assessment "pass the problem" strategy

"Pass the problem" is a strategy especially applicable to a class comprising a small (tutorial size) group.

A test paper is set containing the same number of problems or exercises as there are students in the group. Student 1 does problem 1 and passes it to student 2, who meanwhile has done problem 2 and passed it to student 3, and so on. Everyone has a chance to undertake one problem.

They then have it marked by the student to whom it is passed and from whom they then get feedback on that problem. They also receive a problem worked by someone else, which they mark and to whom they give feedback.

*Stanton (1988); Oxford Polytechnic (1989)*

## 8.10 Combined self- and peer-assessment

If an assessment system enables students to assess both their own and each others' work this increases the amount of feedback they get on their own work while decreasing faculty work-loads . at examination time. There are many possible strategies for arranging this.

Under one scheme, examination papers have students' names removed immediately on collection, and are given a code number. Students mark one another's papers, anonymously, at home, using model solutions and marking guides, entering marks on a separate sheet (not the paper itself).

Papers are redistributed to their authors (using the code) for self-marking, and this mark is kept on a separate sheet. Papers and mark sheets are next sent back to the lecturer who inspects them and allocates a final mark.

Students receive their own mark if the two marks differ by not more than 10% from one another or from the lecturer's mark. The student finally receives the work back, with mark sheets, and all identifications and codes removed.

Such schemes require more preparation than usual before an examination and added clerical work (though a computer can help here). For small classes the net faculty load may be higher than otherwise. Trials show that the load becomes less, however, and the system more economical, as class size increases.

*Boud & Holmes (1981)*

## 8.11 Student-set questions and "learning teams"

There is plenty of evidence that students are capable of writing usable exam questions themselves. This is a strategy offering obvious opportunities for economies of staff time.

One model that gets them to do this is the "learning teams" approach. Learning teams are groups of students who meet - in or out of class time - to study together and test each other on course content.

Once such teams are operating they compose examination questions, pool them and sit for practice tests based on these questions. This leads to more lively discussion of subject matter outside class time, gives feedback on student progress and encourages more active learning.

Questions generated in this way can later form the basis of an item pool for "real" examinations that are set and marked by staff and used for final grades and credentialing.

*Instructional Development at Waterloo (1987)*

## 8.12 "Teach-testing"

It is not always necessary for staff to spend time taking tests home or marking them outside class. A model that circumvents this is the "Teach-Test" technique.

Teach-testing involves a weekly class test being given routinely, during which the teacher tours the class, observing work and giving support and advice on request. Impromptu remedial explanations are given on the spot.

The technique is most suitable for courses where clear objectives are specified and continuous assessment is not being used (Item 1 above). Its advocates claim, among its advantages, that it very effectively prepares students for final exams.

*Gibbs et al (1986) 165-166; Vickers (1984)*

## 8.13 Concept-mapping

"Concept maps" have been reported to have been used successfully for a variety of purposes related to student learning, including assessment.

A concept map is a device used to obtain a visualisation of the conceptual organisation the learner establishes for a given piece of knowledge. It is essentially qualitative, but could be adapted if desired to obtain a quantitative score relative to some standard.

After a period of study, each student is asked to draw a concept map involving a set of ideas considered by the teacher to be key or constitutive of the section being studied. After drawing the map each student is briefly interviewed, during which he/she justifies the way the map has been organised and clarifies the meaning of the relationships established in it.

The approach has been used for a variety of subjects, including "hard" sciences and technologies as well as English literature. Users of concept maps for evaluation of learning often recommend them as far superior to any other method of providing evidence of a student's understanding of subject matter.

Once the basic techniques for drawing the maps have been taught, the economics of their use are very favourable. "Marking" time need involve only the short interview period during class time. Maps handed in can, however, provide a wealth of additional diagnostic information for the teacher.

*Moreira (1985)*

## 8.14 Grade-contracting by students

The standards of the teacher as to what signifies "excellent" performance are among the most significant means by which teachers shape the academic values of the university.

# Consider alternative approaches to assessment policy and practice

'Contract Teaching' has become a generic name for arrangements whereby levels of performance are set at the beginning of a course and work is completed when these standards have been met. This "mastery learning" approach is embodied in some well-known instructional systems eg Keller Plan, PSI, Audio-Tutorials.

This means the teacher decides in advance what standards are appropriate for the grades of A, B, C etc, often in terms of certain options, eg test scores, written papers, projects, final exams. Within these limits students, at the start of term, propose their own patterns of work in the form of a written contract. Tests and assignments are, within limits, able to be repeated until the agreed performance standards are met.

It is, however, generally admitted that this grading "by contract" can place a considerable extra load on the teacher, since clear course goals have to be stated, sequences and topics devised for attaining them, etc. Performance criteria consistent with course aims have also to be designated. Finally, at the assessment stage, considerable time has to be spent in discussion between lecturer/tutor and student.

At face, none of this sounds like a recipe for economies. What is ignored by this criticism is, however, that mastery of learning systems such as this normally involve much *independent* student work with savings in the time staff would otherwise spend addressing classes. Lectures may be abandoned, for instance.

Hence the additional time spent in having individual discussions with students needs to be seen as replacing, at least in part, time otherwise spent in preparing and delivering lectures, group tutorials, and other conventional 'teaching' events.

It is possible that grade contracting, as part of a commitment to student independence, may, therefore, on balance represent a gain in efficiency for the teacher. Those interested should consult the companion volume to this Guide (#2 *Strategies for Increasing Students' Independence*), SCED Paper 77.

*Eriksen (1976); Todays Education (1977)*

# Strategy 9
# Consult original sources for how-to-do-it details

First consider, as a *general rule*,

whether copies of some of the papers referred to in this Guide are available in your School or Department as resources for staff to refer to,

*and* whether there are particular assessment issues or concerns which the selected papers might need to address, taking into account the assessment problems peculiar to your School, Department or subject team.

Then consider, in the *particular assessment task* being implemented,

whether one or more of these papers might give you the detailed information you need to study an alternative assessment suggestion further,

*or* tell you about ways to implement an alternative strategy or policy,

*and* whether you ought, therefore, to call or phone your Professional Development Centre to get the information or advice you need.

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# About SEDA (formerly SCED)

## The Organisation:

SEDA, the Staff and Educational Development Association, is the principal organisation in Britain for the encouragement of innovation and good practice in teaching and learning in Higher Education. SEDA is essentially a co-operative network of colleagues working with the following broad aims:

- to lead and support effective improvements in the quality of students' educational experiences
- to provide a forum for discussion and for collaboration on creative ideas for learning development
- to assist the personal development of lecturers and educational developers
- to encourage greater understanding of the nature of student learning
- to offer support to new entrants to the profession
- to enable the exchange of information and dissemination of good practice

The organisation has grown from a loosely knit informal network of practitioners to its current status as a focus of activity in the field of educational development in Higher Education. This makes the administration more efficient and enables the exchange of information, dissemination of good practice and effective interaction of supportive colleagues, and recognises especially the need for universities and colleges to co-operate more closely.

## Conferences/Workshops:

SEDA is highly regarded for its varied programme of events, designed to bring together practitioners of excellence in Higher Education for the interchange of ideas and ways of working. It holds at least two national conferences each year, together with regional conferences, workshops and special events.

## Consultancies:

A major strength of the organisation is the number of highly experienced practitioners from universities and colleges who are able to initiate and run short courses, consultancies and workshops in a wide variety of fields such as initial training for new lecturers, gaming and simulations, group work, and all kinds of alternative approaches to teaching, learning and assessment. There is a register of SEDA members who can be contacted for these purposes.

## Local Networks:

As the organisation has grown, local groups of SEDA practitioners have been meeting to arrange regional events, and in some parts of the country these have developed into organised local networks: there already exist effective local networks in the South-east, the North-east, the M1/M69 East Midlands group and in Scotland. Other groups are currently being set up in the West Midlands and Central England, and in the North-west and North Wales.

## Membership:

There are three categories of membership: Associate, Individual and Corporate.

## Information:

For further information about membership, or any other aspect of SEDA, contact SEDA's Administrator: Jill Brookes, Gala House, 3 Raglan Road, Edgbaston, Birmingham B5 7RA Tel: 021 446 6166 Fax: 021 446 5991