

# Flexible Assessment

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Flexible assessment is assessment that involves some kind of choice on the part on the student. Flexible assessment is not flexible delivery; they are independent of each other. In fact, many flexible delivery subjects are very inflexible in terms of assessment. This paper will examine flexibility with regard to the type of assessment, the weighting of assessment and the timing of assessment. We will discuss examinations and provide a checklist for monitoring flexibility in assessment.

## Introduction

Flexible learning, including flexible delivery, is an important learning issue for universities. Students are voting to study when and where they want. Many international students wish to study in Australia but are unable to afford the living expenses and so external study may be the only viable option. Universities are responding with a range of flexible delivery courses offered over the Internet, using e-mail, teleconferencing, block or weekend delivery and so on.

Flexible assessment is assessment that involves some kind of choice on the part of the student and is often neglected. In this paper we will concentrate on flexibility in summative assessment tasks, that is, tasks which contribute directly to the student's overall grade in the subject. Flexible assessment may occur with both flexible and conventional modes of delivery, but somewhat paradoxically, flexible delivery often has inflexible assessment requirements largely because the task of taking control of one's learning is difficult. Structure is required for students in flexible delivery subjects and often this structure is provided by the timing and nature of the assessment. There are many publications with examples of different assessment practices [1], examples of peer teaching [2],[3] and using language teaching techniques in assessment [4]. These do not directly address the issue of choice.

Many of the issues in learning are connected with the affective domain, that is, they are connected with feelings and perceptions. There has been a significant amount of research that identifies connections between success in mathematics at university and students' perceptions of mathematics together with their associated learning styles (for example, [5]). This is caused in part by fewer students attempting high levels of mathematics at school and fewer hours of the school curriculum devoted to mathematics. But the problem is deeper than that. In Australia, the analysis of Course Experience Questionnaires (CEQ), given to all students at graduation shows dissatisfaction with mathematics degree programs. Only 56% of students were satisfied with their course experience for applied mathematics degrees in Australia. While one can criticise the design of the questionnaires, this is still a poor result for mathematics. The overall percentages for good teaching in mathematics were also poor. The use of flexible assessment can be an important factor in changing a student's perception of a subject. The need for a student to take some control of their learning can be a powerful incentive for active participation in learning.

## Issues

Three issues in assessment are always mentioned. Firstly, assessment should be a reasonable reflection of a student's achievement of the objectives of the subject. Secondly, equity and fairness between students should be maintained and, finally, assessment requirements should be communicated clearly between students and lecturers.

### Students' achievement

Assessment should be a good reflection of a student's achievement of the objectives of the subject. For most undergraduate degree programs, the lecturer, department or professional body will set the objectives. In postgraduate study or in the final year of an undergraduate degree, students may be given some control of objectives. The choice of objectives is critical. If an objective includes demonstration of effective oral communication, a student should be required to make a presentation of some sort. However, if the objective was to be able to use the method of variation of parameters in second order linear differential equations, then there are many ways that students could demonstrate that they have achieved the objective [6]. Rather than being prescriptive, why not throw it back to the students and ask how they would like to demonstrate that they have achieved a particular objective?

### Equity

Informal surveys demonstrate that a significant minority of lecturers are concerned that flexible assessment will result in inequity because different students will be assessed in different ways for the same subject. For example one student may choose to write a report, another to give a talk and another to write a program. But equity does not mean that we are all the same. For example, one student may perform excellently at oral presentation but not in written examinations, while another may perform better in examinations. Both students may be able to demonstrate achievement in the course objectives, but in different ways. It is more equitable to allow choice in assessment style.

### Clarity

Communication between students and lecturers must be clear and precise, particularly when choice and negotiation are involved. Lecturers should make clear to the students the parameters that it is possible to choose. For example, students may be able to choose a topic for an assignment but not the timing or weighting. In another case, students may be able to change the weighting of assessment components but not the content, style or timing.

### Examinations and tests

Examinations form a large component of assessment in mathematics at university. One could consider that examinations do not fall easily into flexible assessment but many students perform well in examinations and would prefer to demonstrate their knowledge in this way. Giving students choice may not result in fewer examinations or less weight attached to them. Also, there are many ways to make examinations more flexible. Examination questions can be changed to include a wide range of skills [6],[7], there can be choice as to the content and style of questions and the aids allowed into the examination room. Examinations can be take-home, done in groups or not time-restricted.

### Choice of questions and style of answer

One common way to introduce some flexibility is to give choice in the questions to be done in the examination. This allows students some freedom in choosing areas of the syllabus on which to concentrate. In some examinations it may be appropriate to give students a choice as to the style of answer. For example, in a recent examination students were invited to answer the question in the style of a formal essay, as a written version of a talk to year 12 students or as a newspaper article.

### Examination aids: open book, restricted open book, calculators and computers

Open book examinations in mathematics are rare at Australian universities. More common is the use of restricted open book, particularly where students are invited to take one A4 sheet of handwritten notes into the examination. Open book and restricted open book have significant psychological effects, especially reducing panic and examination anxiety. Important learning is derived from compiling summaries of the subject. We have been collecting one-page summaries from students for the last few years and have been impressed with the clarity that some students are able to achieve. Students also tailor their summaries to their own needs. If they know a section very well, it is omitted from the summary, while sections with which they have difficulty are given prominence. Because text editors and computer algebra systems are available on calculators and computers, many universities ban calculators in examinations or restrict their use to those supplied by the university during the examination. This is less of an issue with open book examinations, though there may still be problems with calculators that can transmit between students. Generally it is not practical for students to sit examinations under different conditions so the use of different tools would need to be negotiated with the whole student group taking the subject.

### Calculating the amount of flexibility

It is useful to have a tool to calculate the amount of flexibility of assessment in subjects or even in the degree program itself. We have devised the following table which enables the overall amount of flexibility to easily assessed by circling and adding the appropriate numbers.

Assessment parameters	Student chosen	25% student chosen	Approximately half chosen by student	25% assigned	Lecturer assigned
Components	1	②	3	4	5
Timing	1	2	③	4	5
Style	1	2	③	4	5
Tools	1	②	3	4	5
Grouping	①	2	3	4	5
Weighting	1	2	③	4	5
Content	1	2	3	4	⑤
Marking	1	2	3	4	⑤
Feedback	1	2	③	4	5

Table 1: Calculation of degree of flexibility in assessment.

Low totals indicate a large amount of student choice and high totals indicate little student choice. Terms used are explained in the text below.

### Assessment parameters

There are a number of parameters that occur in any assessment scheme and it is the amount of choice that a student has in setting these parameters, which contributes to the overall flexibility of the scheme. The parameters which we consider to be the most important are those in Table 1. These are described below.

**Components:** Assessment is made up of a number of components. These could include; class tests, assignments, projects and an examination. The lecturer may insist that the total assessment consists of a certain minimum number of components.

**Timing:** Students may be able to negotiate the timing of submission of assignments or tests within a semester or, occasionally, over a longer period of time. Generally assessment schemes that involve a final examination will have constraints on the timing of the final examination.

**Style:** Students may be able to choose the style or format of their assessment. They may be able to write a report, write an essay, give a talk, produce a video or construct a poster presentation.

**Tools:** Students may be able to choose which tools they are able to use to complete an assessment task. This can include computer tools such as *Mathematica*, *Maple*, *Minitab*, *SPSS*, *Excel*, or library resources or Internet sites. Examinations and tests may be open book, restricted open book, with or without calculator and so on. Practical considerations come into play here. It may be impractical to have some students choosing open book and others choosing closed book examinations.

**Grouping:** Students may work in groups. There are many possibilities here. There can be student choice as to the number of people in a group, who is in the group and what roles each person takes in a group. Students may be able to work alone if they prefer, or the lecturer may insist on a minimum group size.

**Weighting:** There are many different ways of choosing the weight to give to each component of assessment. Students may be given complete freedom to vary weight of various components between 0% and 100%. Most lecturers would probably feel that this is too flexible. There would almost certainly be some components of the assessment that a lecturer feels are essential to meet the objectives of the subject, in which case some restrictions would be imposed to ensure that these are adequately represented.

**Content:** Students may be given a choice of topics for projects, assignments and examinations. Students may be able to choose from a range of topics or suggest a topic themselves. Again a lecturer may choose to impose restrictions on the choice if he or she feels that certain topics are essential.

**Marking:** This is possibly the most controversial. Students can be given a choice of who marks their work; their peers, self-marking, lecturer or a mixture of these modes. Again it may be necessary to have the whole subject group decide on the marking mode and the lecturer may impose restrictions.

**Feedback:** Students may choose the form of feedback. Some may prefer written solutions, others may prefer a 10-minute interview with the lecturer. Student feedback was one of the areas that mathematics performed badly on in the CEQ data. With our limited resources, we need to look at effective ways of giving feedback on work and this may be different for different students.

## Conclusion

Giving students choice in their assessment requires maturity and self-knowledge of learning style. As students progress through their degree programs, greater flexibility in assessment can be implemented. Initially, students require some support to assist their transition to university. Too much choice at the early stages can be difficult to communicate. Large classes are often the norm in first year which can be a problem with discussion and negotiation. However limited choice can be communicated in large classes if the lecturer is well organised. An example is a first-year lecturer who gives the students a choice of 1, 2 or 3 assignments worth 20% each and an examination with 4 questions worth 20% each. Students could do 3 assignments and 2 examination questions, 2 assignments and 3 examination questions or 1 assignment and 4 examination questions. This was a class of 500 students and the requirements were clearly communicated to the students. Students had to decide and submit a form by week 4 to inform the lecturer of their choice otherwise they were assigned a default position of 2 assignments and 3 examination questions. This is a clever use of choice as the students felt that they were being consulted and given some say in their learning but in reality most chose the default position. It also made them more comfortable with choice in later subjects when we are looking for students to take more control of their own learning.

Flexible assessment is not an excuse for a free-for-all where everyone passes. It is an opportunity to develop maturity and self-knowledge in our students. It is an opportunity to encourage students to participate actively in their learning. But it must be introduced with planning, organisation and careful consideration of the objectives of the learning. Comparisons of the degree of flexibility can be measured using the table provided. This is a useful tool to monitor the change in flexibility of assessment as students progress through their degrees.

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