

Assessment workshop series - No 2

Using assessment to motivate learning

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Using assessment to motivate learning - An overview

Dr Andrew Eadie, Glasgow Caledonian University and Workshop Director

There can be little doubt that assessment motivates learning, at least for the majority of students whose aim is to successfully complete their programme of study. However, this kind of motivation, while understandable and even desirable in some senses, is not necessarily the kind of learning which is the desired outcome of higher education. The difference in the motivation we would wish to produce has been characterised by various authors as either intrinsic or extrinsic motivation (eg Morgan et al, 1980; Miller et al, 1998). Intrinsic motivation is described as when students are seeking intellectual stimulation from their studies and extrinsic motivation is when students are more concerned about their grades or marks and their future employment prospects. There is a long held perception (Paulsen, 1908; Elton, 1988) that extrinsic motivation interferes in a harmful way with intrinsic motivation. This view has seen examinations as a necessary but harmful feature of learning and recognises that extrinsic motivation is a legitimate feature of students' attitude to higher education. Recent work by Jacobs and Newstead (2000) on a cohort of 300 undergraduate students showed two distinct groups with the different types of motivation. The work also showed that motivation dipped markedly in the second year of a three-year programme but rose again in the final year. Murphy and Roopchand (2003) have shown, using a questionnaire to measure intrinsic motivation (Whitehead, 1984), that there is a strong link between self-esteem and intrinsic motivation and have also found higher levels of intrinsic motivation among female mature students.

This difference between the two types of motivation has often in the past been used to justify the gradual move away from end testing by formal examination to the many types of continuous assessment now in use (Beard and Senior, 1980). End testing provides an incentive for students to consider what they have learnt over a term or semester and can sometimes lead to students developing a holistic view of the subject which had not previously been apparent. However, the critics of this type of approach would have the view that this is not the most efficient or reliable way to produce intellectual stimulation. On the other hand, coursework, particularly if it is designed, delivered and fed back to students with continuous improvement of the student's performance in mind, develops skills and abilities which can lead incrementally to intellectual stimulation while at the same time overall producing the same evidence of attainment and standards that can be achieved by examination.

Elton (1996) has examined the balance between intrinsic and extrinsic motivation and concluded that the type of intrinsic motivation which the academic staff would wish the students to obtain might not always be possible. Elton does however point to a possible solution for the reconciliation of the two types of motivation which has been shown to be successful, namely, allowing students to negotiate their own learning objectives and to be assessed in terms of those objectives. Elton also states that changing assessment methods and abolishing the honours degree classification system could also have a positive effect.

Keller (1983) provides a detailed study of motivation and its relationship to instruction. This model can equally be applied to assessment as being a subset of the instruction process. Keller's model of motivational design includes four requirements to produce

learning which is meaningful and challenging. Firstly, it must be interesting, thus arousing the intellectual curiosity of the learner. Secondly, it must be perceived to be relevant, in that it must contribute to the learner's goals in undertaking the process. Thirdly, it must give the learner an expectation of success. Finally, it should produce satisfaction in the learner in having achieved their goals. Keller also describes a number of strategies which can lead to the four requirements including:

- guiding students into a process of inquiry
- team working
- using methods where the requirements for success are clear and under the student's control
- using appropriate and constructive feedback given at a point where it will be valuable to the student.

Boud (1995) gives an interesting set of criteria on which to critically judge assessment. A number of these criteria have a significant impact on motivation and raise the following questions.

- What is the contribution to learning made by the act of the assessment?
- To what extent does the totality of the assessment portray what is important for learning?
- What are the consequences of assessment on student learning?
- Does the assessment encourage learning?
- Are students able to shape their own assessments?
- Does the assessment lead to an outcome which properly indicates the accomplishments of the student?

Among the key reasons identified by Brown et al (1995) for undertaking assessment is to help motivate students. They specify the reasons for the choices of what and how is assessed should not include tradition, 'it is the way it has always been done'; inertia, a lack of desire to change; and control, 'students should do as they are told'.

Finally, they state that in order to assess well, the purposes of an assessment activity should be properly understood by both learners and assessors and the assessment should be designed accordingly.

Race (1995) has identified the key processes for successful learning, the following of which are directly linked to motivating students:

- learning by doing
- feedback
- digestion and reflection.

Farmer and Eastcott (1995) have discussed ways in which the three processes can be applied in practice.

- Using discussion with students about the nature of learning in relation to the subjects being studied and making assessment criteria explicit.
- Developing patterns of assessment which encourage productive learner activity and feedback; learning and feedback in groups; using portfolios to encourage learner activity and feedback.
- Using assessment strategies designed to encourage students to help each other learn.

These points are reinforced by the earlier work of Elton (1988) who suggested that intrinsic motivation can be increased by assessment strategies which:

- treat students as individuals
- expect students to show individuality, originality and creativity
- allow choices and preferences in their learning
- allow students to negotiate the means by which they are assessed.

A good example of some of the above points is a study by Mortimer (1998) who used self and peer-assessment of reflective practice as a means to increase motivation. Mortimer found that intrinsic motivation could be increased by self and peer-assessment which:

- contained reflective writing assignments
- placed emphasis on both the process and progress of learning
- made sure the students understood the purpose of the assessment
- had opportunities for group work
- provided lots of opportunity for self, tutor and peer feedback and was linked to the student's personal development.

Leach et al (1996) had similar findings from a study relating mainly to self-assessment.

A key element of using assessment to motivate learning is the effective use of innovative methods. Race (1999) has examined the rationale behind innovation in assessment. He firstly examines the failings of traditional form of assessment, in particular unseen examinations and coursework. Race then goes on to suggest that each new form of assessment should be tested against five questions.

- Can the innovation increase learning?
- Can the innovation make the assessment more valid?
- Is the new assessment method more reliable?
- Does the new method have a negative effect on the workload of staff?
- Is the new method more efficient?

If the answer to each of the questions is yes then a better learning experience will be provided with the students achieving more valid qualifications. In another article by Race et al (2000), the view is also expressed that a key element in successful motivation is to ensure that the students are not overloaded by assessment.

McDowell and Sambell (1999) have examined the student experience of innovative assessment and found strong evidence of a link between innovation and motivation but did express a note of caution in stating the link could be broken if the assessment asked too much of the student. In designing innovative assessment, McDowell and Lambert gave the following guidelines:

- consider the student workload
- maintain motivation throughout the process by taking positive steps including feedback
- introduce new forms of assessment carefully
- establish clear guidelines
- ensure the students understand the assessment criteria.

Ecclestone (2001, 2002) has studied motivation in outcome based systems and concluded that the most effective method of motivation is by increasing the amount of formative assessment. The work also highlights the need for more fundamental research in the link between motivation and assessment.

Conclusion

There is clear evidence that assessment can motivate learning in the intrinsic sense of stimulating intellectual curiosity. This kind of intrinsic motivation is undoubtedly difficult using traditional end testing examinations. Assessment which motivates students is likely to be achieved by tasks which are some form of coursework and is probably more achievable when the method of assessment is innovative and has therefore not been encountered by the students previously. Care must however be taken not produce tasks which overload the student or do not assess the learning outcomes of the programme.

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Designing assessment to enhance student learning

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(Adapted from an article, *Why fix assessment?* I wrote in 2003 for Buckinghamshire Chilterns University College, and published in their internal publication *Seminar*.)

Setting the scene

A friend recently wrote to me:

Assessment is such an immovable and institutionalised process because it is the tip of the cultural iceberg on which elitist, class-ridden societies seek to maintain the status quo. You get to the top by winning at the existing game (which in the UK includes public school exams and the Oxbridge system). At the top universities you then read for exams, and the exams prove that you can write as well. The university may be happy for people like you to challenge its teaching and learning provision - up to a point - but not its assessment provision. A third-class degree from a top university carries more cultural clout, and opens more establishment doors, than a first-class degree from most of the other universities in the UK.

I will argue in this article that assessment is indeed broken in the UK in secondary, further and higher education nowadays, and needs fixing. 'If it ain't broke, don't fix it.' 'Don't throw out the baby with the bathwater.' 'You don't fatten pigs by weighing them.' That's almost enough of clichés. These were around long before assessment became as broken as it is today. My suspicion is that the assessment problem is not just a British one. But perhaps other cultures have at least solved some parts of the problem - most other countries **don't** try to run a degree classification system, for example.

Task

Without looking at the footnote¹ on this page, can you work out a single link connecting all the following statements about separate occurrences relating to assessment?

- The denial of the possibility of re-doing an assessment because of an arbitrary limit on the number of attempts allowed.
- The learners were not in a position to learn the things the assessment procedures assessed.
- The assessment discriminated unfairly against a group to which the learner belonged.
- The assessment was not valid for the purpose for which it was being used.
- The assessment had inadequate reliability.
- Assessment rules and regulations had not been properly observed.
- The pass mark had been set inadequately.

¹ Response to task

The obvious link is that all of these are examples of poor assessment practice, but in fact the real link is that these have all been grounds of successful litigation in the USA against colleges or universities. (These examples are quoted by Wakeford in Fry H, Ketteridge S and Marshall S (1999) *A Handbook for Teaching and Learning in Higher Education: Enhancing Academic Practice*, Kogan Page, London).

In this article, I'd like to take you through some tough thinking about assessment, and encourage you to play your part in working towards making it better. I'd like to challenge the status quo of assessment in education. In other publications (please see 'further reading' at the end of this article) I have sometimes tried to do this in the conventional scholarly manner, or tried to help staff and students make the best of a bad job, but now I think it is time to appeal to hearts and minds about the action which needs to be taken, and not just to air intellectual reservations.

But we all try ever so hard!

I would like to assert at the outset that the vast majority of assessors whom I know approach assessment with commendable professionalism and bring to bear upon it all of the integrity, patience and care that they can. They spend a long time adjusting the wording of assessment tasks and designing criteria with which to measure the evidence which students deliver to them. Moreover, the decisions they make on the basis of this evidence are made carefully and painstakingly. Their good intentions are unbounded. But - the final cliché - the way to hell is paved with such intentions. Perhaps because assessors tend to grow gradually into the assessment culture surrounding us, it is not surprising that they can be unaware of some of the prevailing problems that dominate the scene. At workshops I often liken many of the stalwart efforts which go into designing and implementing assessment as 'fine-tuning the engine of a vehicle which is actually off the road, facing in the wrong direction, and has no wheels left upon it!'

How is assessment broken?

Assessment should be valid, reliable, transparent and authentic. Anyone who cares about the quality of the assessment they design for students will say how they strive to make it so. We are also **required** to make assessment valid, reliable, transparent and authentic by the Qualifications and Curriculum Authority in secondary and further education, and by the Quality Assurance Agency for Higher Education in higher education. Most institutional teaching and learning strategies embrace these three qualities in the aspirations of colleges and universities. But hang on, why have we all got 'teaching and learning' strategies in our institutions? Why have most institutions got 'teaching and learning' committees (or indeed 'learning and teaching' committees - small difference)? Why haven't we got 'teaching, learning and assessment' strategies, or indeed 'assessment, learning and teaching' committees, which would be the way round I would name them? Because assessment is the weakest link, I suggest. It's much easier (and safer) to fiddle around with the quality of teaching or learning than to tackle the big one: assessment. It's actually quite hard to **prove** that some teaching has been unsatisfactory, but only too easy to demonstrate when something has gone wrong with assessment.

'Come on, Phil', you may argue. 'We spend half of our lives on assessment. We have assessment boards, exam boards, external examiners approving our assessment instruments and practices and moderating our implementation of assessment. We've spent ages fine-tuning the assessment regulations. We've got years of experience at making assessment better. What more could we possibly be asked to do?'

'Assessment is the engine which drives student learning' (John Cowan). 'And our feedback is the oil which can lubricate this engine' (Phil Race). But sometimes we're too busy assessing to give really useful feedback. And students are too busy getting ready for their **next** assessment to take any notice of our feedback on their **previous** one. And when we come to the most important assessments (summative exams, and so on) feedback isn't even on the agenda all too often. And what do we measure in these important assessments? 'That which we can measure' - not always what we **should** be trying to measure. It's far easier to measure students' achievement of relatively routine objectives, and much harder to measure their achievement of really important objectives. This led me to write over 10 years ago 'if you **can** measure it, it probably isn't **it**'.

'So it's still broken,' I continue to argue. I'd better explain a bit more. Let's go back to 'valid, reliable, transparent and authentic' for a while. Let's just clear up the meanings of these four words.

Validity?

Valid assessment: this is about measuring that which we should be trying to measure. But still too often, we don't succeed in this intention. We measure what we can. We measure echoes of what we're trying to measure. We measure ghosts of the manifestation of the achievement of learning outcomes by students. Whenever we're just ending up measuring what they write about what they remember about what they once thought (or what we once said to them in our classes) we're measuring ghosts. Now if we were measuring what they could now **do** with what they'd **processed** from what they thought it would be better. 'But we do measure this?' Ask students, they know better than anyone else in the picture exactly what we end up measuring. For a start, let's remind ourselves that we're very hung up on measuring what students **write**. We don't say in our learning outcomes 'when you've studied this module you'll be able to write neatly, quickly and eloquently about it so as to demonstrate to us your understanding of it'. And what do we actually measure? We measure, to at least some extent the neatness, speed and eloquence of students' writing. What about those who aren't good at writing? Or to be more critical, what about those students who have at least some measure of **disability** when it comes to writing?

In the UK, the writing is on the wall for us regarding any tendency for our assessment instruments and processes to discriminate against students with disabilities. The *Special Educational Needs Discrimination Act* (SENDA) is likely to cause us to have to make far reaching changes to our assessment just to keep it within the law. SENDA came into force in September 2002, repealing the 'education exemption' which had previously applied to the *Disabilities Discrimination Act 1995* in the UK. SENDA requires us to make 'reasonable adjustments' so that no student should be unfairly discriminated against by our education provision, not least the assessment-related aspects of this provision. SENDA also requires these reasonable adjustments to be made in an **anticipatory** manner, in other words not just dealing with instances of discrimination when it is found to have happened.

This is a tricky situation, as in one sense the purpose of assessment **is** to **discriminate** between students and to find which students have mastered the syllabus best, and

least, and so on. If we're honestly discriminating in terms of ability, that might be legal. But if we're discriminating in terms of disability it won't be legal. But aren't they the same thing? Where does ability stop and disability begin?

For a long time already, there have been those of us strongly arguing the case for diversifying assessment, so that the same students aren't discriminated against time and time again because they don't happen to be skilled at those forms of assessment which we over-use (such as, in some disciplines, tutor-marked time-constrained, unseen written examinations, tutor-marked coursework essays, and tutor-marked practical reports). We're entering an era where **inclusive** assessment will be much more firmly on the agenda than it has ever been to date.

We now know much more about the manifestations of dyslexia in assessment, and are just beginning to work out the effects of discalcula, disgraphia, dispraxia, and so on. Many of us are beginning to realise for the first time that even in that packed lecture theatre, we do indeed have students with disabilities, not just the occasional student in a wheelchair, but perhaps a quarter or a third of our students who are affected at some times in their learning by factors which we don't know about, and which many of them don't even know about themselves. So is it ever going to be possible to be satisfied with the levels of validity to which we aspire?

So we're not really in a position to be self-satisfied regarding the validity of even our most-used, and most practised assessment instruments and processes. But this isn't new, we've used them for ever it seems. That doesn't make them more valid. But we're experienced in using them? Admittedly, that makes us better able to make the best of a bad job with them. But should we not be making a better job with something else?

Reliability?

For many, this word is synonymous with 'fairness' and 'consistency'. This one is easier to put to the test. If several assessors mark the same piece of work and all agree (within reasonable error limits) about the grade or mark, we can claim we're being reliable. Not just moderation, of course. Reliability can only be tested by blind multiple marking. Double marking is about as far as we usually manage to get. And of course we agree often enough? No we don't, in many disciplines.

There are some honourable exceptions. 'Hard' subjects such as areas of maths and science lend themselves to better measures of agreement than 'softer' subjects such as literature, history, philosophy, psychology, you name it. By 'hard' and 'soft' I don't mean 'difficult' and 'easy' - far from it. 'But multiple marking just causes regression to the mean' can be the reply. 'And after all, the purpose of assessment is to sort students out - to discriminate between them - so it's no use everyone just ending up with a middle mark'. 'And besides, we spend quite long enough at the assessment grindstone; we just haven't room in our lives for more marking.'

So why is reliability so important anyhow? Not least, because assessing students' work is the single most important thing we ever do for them. Many staff in education regard themselves as **teachers**, with assessment as an additional chore (not to mention those who regard themselves as **researchers** with teaching and assessing as

additional chores). Perhaps if we were all to be called **assessors** rather than teachers it would help? And perhaps better, if we all regarded ourselves as researchers into assessment, alongside anything else we were researching into? 'Students can escape bad teaching, but they can't escape bad assessment', says David Boud. Our assessments can end up with students getting first class degrees, or thirds. This affects the rest of their lives. Now if our assessment were really fair (reliable), we could sleep easily about who got firsts or thirds. The students who worked hardest would get better degrees and the students who lazed around wouldn't. This indeed is often the case, but most of us can think of exceptions, where students got good degrees but didn't really deserve them, or students who seemed worthy of good degrees didn't come up with the goods, so we couldn't award them to them. So perhaps it's not just that our assessment isn't too reliable, it's our discrimination that's sometimes faulty too.

Transparency?

One way of putting 'transparency' is the extent to which students know where the goalposts are. The goalposts, we may argue are laid down by the intended learning outcomes, matched nicely to the assessment criteria which specify the standards to which these intended outcomes are to be demonstrated by students, and also specify the forms in which students will present evidence of their achievement of the outcomes. There's a nice sense of closure matching up assessment criteria to intended learning outcomes. It's almost a shame that there's yet another problem: some of the **real** learning outcomes go beyond the intended learning outcomes. Patrick Smith (Buckinghamshire Chilterns University College) argues that these are the **emergent** learning outcomes. Some of them are unanticipated learning outcomes. And it could be further extrapolated that there is some tendency for the 'you know it when you see it' extra qualities which get the best students the best degrees are firmly embedded in their achievement of **emergent** learning outcomes, and their evidencing of these outcomes within our assessment frameworks.

Leave aside this additional factor and go back to the links between intended outcomes and assessment criteria. How well do students themselves appreciate these links? How well, indeed, do assessors themselves consciously exercise their assessment-decision judgements to consolidate these links? Students often admit that one of their main problems is that they still don't really know where the goalposts lie, even despite our best efforts to spell out syllabus content in terms of intended learning outcomes in course handbooks, and to illustrate to students during our teaching the exact nature of the associated assessment criteria. In other words, students often find it hard to get their heads inside our assessment culture - the very culture which will determine their degree classifications.

The students who have least problems with this are often the ones who do well in assessment. Or is it that they do well in assessment **because** they have got their minds into our assessment culture? Is it that we're discriminating positively in the case of those students who manage this? Is this the ultimate assessment criterion? Is this the difference between a first and a third? And is this the **real** learning outcome, the achievement of which we're measuring? And if so, is this stated transparently in the course handbook?

So, we're not too hot on achieving transparency either. In fact, the arguments above can be taken as indicating that we rather often fail ourselves on all three - validity, reliability and transparency, when considered separately. What, then, is our probability of getting all three right at the same time? Indeed, is it even **possible** to get all three right at the same time?

Authenticity?

This one seems straightforward. It's about (on one level, at least) knowing that we're assessing the work of the candidate, not other people's work. In traditional time-constrained unseen written exams, we can be fairly sure that we are indeed assessing the work of each candidate, provided we ensure that unfair practices such as cheating or copying are prevented. But what about coursework? In the age of the internet, word processing and electronic communication, learners can download ready-made essays and incorporate elements from these into their own work. Some such practices can be detected electronically, but the most skilful plagiarists can remain one step ahead of us and make sufficient adjustments to the work they have found (or purchased) to prevent us seeing that it is not their own work.

Plagiarism is becoming one of the most significant problems which coursework assessors find themselves facing. Indeed, the difficulties associated with plagiarism are so severe that there is considerable pressure to retreat into the relative safety of traditional unseen written exams once again, and we are coming round full circle to resorting to assessment processes and instruments which can guarantee authenticity but at the expense of validity.

However, probably too much of the energy which is being put into tackling plagiarism is devoted to detecting the symptoms and punishing those found guilty of unfairly passing off other people's work as their own. After all, where are the moral and ethical borderlines? In many parts of the world, to quote back a teacher's words in an exam answer or coursework assignment is culturally accepted as 'honouring the teacher'. When students from these cultures, who happen to be continuing their studies in the UK, find themselves accused of plagiarism, they are surprised at our attitude.

Where are the borderlines between originality and authenticity? In a sense, true originality is extremely rare. In most disciplines, it is seldom possible to write anything without having already been influenced by what has been done before, what has been read, what has been heard and so on.

We need to be much more careful to explain exactly what is acceptable, and what is not. While some students may indeed deliberately engage in plagiarism, many others find themselves in trouble because they were not fully aware of how they are expected to treat other people's work. Sometimes they simply do not fully understand how they are expected to cite others' work in their own discussions or how to follow the appropriate referencing conventions.

Why is now the time to move towards fixing assessment?

OK, there's a problem, but we've just not got enough time to fix it? Why haven't we got time to fix it? Because we're so busy doing, to the best of our ability, and with

integrity and professionalism, the work which spins off from our existing patterns of assessment, so busy indeed that we haven't left ourselves time to face up to the weaknesses of what we're doing? Or because we simply dare not face up to the possibility that we may be making such a mess of such an important area of our work? It can help to pause and reflect about just how we got into this mess in the first place.

A couple of decades ago, the proportion of the 18-21 year old population of the UK participating in higher education was in single figures, now it's over 40 per cent, and the Government waxes lyrical about increasing it to 50 per cent. When there was only five per cent, it could be argued that the average ability of those students who participated in higher education was higher, and they were better able to fend for themselves in the various assessment formats they experienced. Indeed, they usually got into higher education in the first place because they'd already shown to some extent that they'd got at least a vestigial mastery of the assessment culture. Now, there are far more students who haven't yet made it in understanding our assessment culture, let alone gearing themselves up to demonstrate their achievement within it.

At the same time, when we were busy assessing just a few per cent of the population, we had time to try to do it well, using the time-honoured traditional assessment devices at our disposal. Trying to do the same for five or 10 times as many students is just not on. We can't do it. We can't do it well enough. We're assessing far too much to do it reliably, for a start.

And what about the students? Their lives are dominated by assessment. The intelligent response to this (thank goodness our students remain intelligent) is to become strategic. In other words, if there aren't any marks associated with some learning, strategic students will skip that bit of learning. If it counts, they'll do it. It's easy to go with the flow, and make everything important 'count' so that students will try to do all of it. But in the end this just leads to surface learning, quickly forgotten as the next instalment of assessment looms up. We're in danger of using assessment to **stop** learning instead of to start learning. It's no use us bemoaning the increased extent to which students have become strategic, when our assessment is the cause of this.

Who owns the problem of fixing assessment?

We can only ever really solve problems which we own. But the assessment problem is so widely owned. It's dangerously easy to feel there's just nothing that we can do about it. It's easy enough to identify scapegoats, including:

- professional bodies, in whose name we feel we need to stick to the status quo
- pre-university education systems, which cast the die and train pupils into particular expectations of learning and assessment
- institutional, faculty and departmental assessment regulations, which limit our room for manoeuvre
- teaching and learning strategies, which are so all-encompassing that we can't suspend belief and start afresh again
- heads of department or school, who are often seen (sometimes seen wrongly) to be content with the status quo

- external examiners who would have to be convinced when radical changes may need to be made
- students themselves who could or would complain about rapid changes to the level of the playing field or the position of the goalposts (even if the whole is enveloped in thick fog at present)
- the world outside academe, where there's a view about what a graduate should be, and so on
- journalists, broadcasters and editors who would give us a hard time if anything were to be found wrong in the way we did the job we are paid to do
- politicians and policy-makers who got to where they are by succeeding in the system of assessment we already have, and dare not admit that it might have been flawed
- parents, employers, taxpayers and others who foot the bill for education.

However, if we're perfectly frank about it, each assessment judgement is almost always initially made in the mind of one assessor in the first instance. True, it may well then be tempered by comparisons with judgements made in other people's minds, but to a large extent assessment remains dominated by single acts of decision-making in single minds, just as the evidence which is assessed is usually that arising from the product of a single mind at a given time within a given brief. Living on a crowded planet may be a collaborative game, but we tend to play the assessment game in predominantly singular circumstances, and competitive ones at that.

The fact of the matter is that to fix assessment will require individuals to change what they do, but that won't be enough to change the culture. Teams of individuals with a shared realisation of the problem will need to be the first step.

How can we fix assessment?

We need to work out a strategy. But any strategy has to be made up of a suitably-chosen array of tactics. Sometimes it's easier to start thinking of the tactics first. What could be a shopping list of tactics to play with for starters in this mission. They include:

- getting students into our assessment culture, by using peer-assessment and self-assessment more, so that they are better within our culture when **we** assess them
- reducing the quantity of assessment (say by a factor of three) so that we have time to do it well, and students have time for their learning not to be completely driven by assessment
- increasing the quality of assessment, so that it is fit for purpose, and more valid, more reliable and more transparent
- increasing the diversity of assessment instruments and processes, so that student casualties (where particular students are discriminated against repeatedly by the same old assessment formats) are not so frequent
- training (yes, training, not educating) our students to be better-able to play the game of working out where the goalposts are, and practising how to demonstrate their achievement of our intended learning outcomes.

'But I'm paying you to assess me'

It's all very well hoping to gain the benefits of involving students in self and peer-assessment, but the same UK Government initiative referred to earlier in this article has as a major proposed feature making students pay more for their higher education experience. 'Top-up' fees are proposed to increase from £1,000 per year to up to £3,000 per year in higher education, to be repaid by students once successful and in employment. It would not be surprising for them to turn back on us when we try to involve them in assessment, and tell us it's our job to do it.

So what can you do to fix assessment?

Turning tactics into a strategy is a big job, and beyond the scope of a short provocative article such as this. However, that big job won't even get started unless people are convinced that it needs to be done, and that was the purpose of this article. My aim was not on this occasion to write a scholarly article repeating what wise people have already written about in the literature (for years and years now). My intention was to employ challenging language to convince you that you've got a problem. What are you going to do about it?

Acknowledgements

An earlier, shorter version of this article was published in 2002 in *Seminar*, the educational development journal of Buckinghamshire Chilterns University College. I am grateful to Professor Patrick Smith of that institution for several valuable discussions which helped my thinking as represented in this article. I am also very grateful to Professor John Cowan of Heriot-Watt University, and David Anderson of Aston University, for helping me to see more clearly the problems about assessment described in this article. Finally, I am indebted to countless participants in my workshops about assessment (assessors and students alike) for their feedback on my developing ideas in this article, and their frankness and honesty about the problems they experience on their respective sides of the teaching-learning scene.

Publications on assessment

I continue to work on both sides of the fence, helping students prepare to give assessment their best shot and helping staff to design assessment well. All of the publications below focus on assessment from one or other of these perspectives.

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Assessment driven learning

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Abstract

Now, more than ever, assessment in education governs what students learn.

Assessment driven learning is a delivery method in which the assessment is an integral part of the learning process. In the form described here it was introduced at Glasgow Caledonian University under a Scottish Higher Education Funding Council (SHEFC) initiative to improve access to higher education and involved first year mathematics modules, but the method could be applied to other disciplines. The most significant aspect of this method of delivery is the continuous quality feedback provided to both staff and students. This improves student motivation, and, as a consequence, student performance.

Background

This paper describes a means whereby assessment can be made part of the learning process. Traditionally, assessment had three main functions: feedback for students; feedback for staff; and selection for future performance. All three of these outcomes are essential but in the first two, if only end of module assessments are used, the opportunity is lost for students to make good their deficiencies and for staff to improve their delivery at least for that group of students. It would seem sensible to add three further criteria for a good assessment. It should motivate students to engage in their learning, provide feedback early enough that they can remedy their deficiencies, and help them consolidate their learning. What will be described is a system of delivery termed assessment driven learning (ADL), in which the assessment is an integral part of the learning process and not the final verdict on the student. Students are given immediate feedback on their progress and staff get feedback when they can use it. ADL was used for modules which are quantitative in nature and computer-based assessments were used, but the technique of using assessment to drive the learning is not restricted to this scenario.

The initial implementation was launched at Glasgow Caledonian University under a SHEFC initiative to widen participation in higher education. For several years the pass rate in the mathematics module taken by computing students was unacceptably low. A significant number of these students came from postcode areas which had a low participation rate in higher education so it could be argued that it was appropriate to allocate funding under the initiative to these students. Prior to session 2000-01, many avenues had been pursued to improve the pass rate in this module. The syllabus had been pared down to essentials, at risk students who were identified early enough were directed to the pre-entry summer school, and a strict system of reporting attendance had been instituted. These measures did not significantly improve the pass rate. Staff were demoralised because most felt that the students had the ability to succeed but were not motivated enough to put in sufficient effort. The opportunity to change the teaching and learning methods from the locally accepted standard of three lectures and two tutorials a week, and a 30:70 split for coursework and final examination, was presented by the SHEFC initiative. The pilot scheme was trialled with two modules; the mathematics module for computing students and an algebra module taken mainly by mathematics students. Prior to 2000-01, both modules had some staff in common and were taught in the same way, with the coursework element taking the form of three closed book assessments and the completion of selected computer-based learning lessons. However, the algebra module had an acceptable pass rate. This may have been due to the superior mathematical maturity of the algebra students who, it seemed, were better able to recover and learn from a poor result in the first piece of coursework than were the computing students. The algebra module was included in the pilot study to see what effect ADL had on the pass rate.

The reasons for the poor pass rate which prompted the move to ADL are familiar to most staff in higher education and are certainly not new. *Enquiry into student progression*, by the University Grants Committee in 1968¹, noted that large numbers of undergraduates left university after the first year and, in 1980, the lack of

¹ University Grants Committee (1968), *Enquiry into Student Progress*, HMSO

motivation among first year students was explored in detail by Beard². The problems faced by students and lecturers increased when the student grant was phased out. Most students now work to earn money to support themselves and, as a consequence, attendance at lectures and tutorials has fallen. The percentage of school leavers entering the sector has grown from six per cent to 50 per cent over the past 40 years. The resulting increased class sizes have meant that contact between lecturers and students decreased at a time when the background and skills of the student body was falling. Lectures to large groups now satisfy only a handful of these students; this may be more true in mathematics than in other subject areas. Cap this scenario with the pressure from within institutions to improve pass rates, and the scene is complete.

For the subject area of mathematics, there are other factors. Because syllabuses have been pared down to essentials, it is now not acceptable for students to aim at achieving a pass by getting mark of 40 per cent in the examination by concentrating on the easy topics of the syllabus. A quick calculation shows that if they are required to choose five questions from eight on the examination paper, a 40 per cent pass indicates that they may only be familiar with 25 per cent of the syllabus, slightly less for a three from five question paper. Mathematics is, in the main, a linearly ordered subject. If students are required to continue their study in mathematics, a good working knowledge of first year material is essential for success in later modules. For those students taking first year modules as a service subjects, a similar argument applies. The syllabus content, be it logic, matrices and probability for computing students or statistics for biologists, provides essential background for later study in the degree programme.

Operation

Assessment driven learning involved changing both delivery and assessment. In the first semester of the 2001-02 session, lecture hours were reduced from three to two, and the lecture material was arranged in learning plans which contained notes, references to computer aided learning (CAL) material and computer-delivered tutorial questions. Tutor groups were restricted to 20 or 24, the size of the computer laboratories, and every attempt was made to limit the number of tutors who were involved in a module. The timetables were reorganised so the lectures were delivered early in the week and all tutorial groups were scheduled to have one of their tutorials on Thursday afternoon or Friday. Computer-based assessments were held in this end-of-week tutorial session in 10 of the 12 weeks of the semester. Each assessment was worth eight marks and completion of the CAL material was worth 20 marks. All assessments had to be taken and all CAL material attempted. A carrot was dangled. Exemption from the final examination was granted for a mark of 70 per cent or above. In this case, the mark achieved was the final mark for the module. Students who did not gain an exemption took a final, worth 50 per cent of the final grade; the other 50 per cent was half the mark achieved on the assessments and CAL completion.

² Beard R M and Senior J (1980) *Motivating Students*, Routledge and Kegan Paul

CALMAT Courseware³

The software used is CALMAT, which was developed at Glasgow Caledonian University. It consists of learning material in the form of lessons, each with tutorials and assessments. There is also a bank of questions, all with random parameters which can be accessed singly or assembled into tests. The management system allows tutors to create learning plans so that they can customise the material to the needs of particular students. They can monitor both the progress of students on the learning material and their performance on tests. Students can buy the system on a CD and use it at home and then merge their records with those on the university system.

Results

At the end of the first semester in session 2001-02, staff and student satisfaction was sufficient to justify the conversion of a third module for delivery in semester two of that academic year. In the data displayed in the following tables, the modules are named A, B and C. A is the module offered to the computing students, B is the algebra module and C is the second semester module which was quickly converted when the success of the pilot scheme was realised. The results obtained for the two sessions 2001-02 and 2002-03 are shown in Table 1, along with the pass rates for the previous two years for comparison. The second column gives the number of students who enrolled in the module and the third gives the revised number, where those students who did not do any of the assessments have been excluded. The next three columns show the number of exemptions and the numbers passing the first and second diet examinations. The next column shows the percentage gaining an exemption and the last two columns show the cumulative percentages of students who had passed the modules after the first and second diet. In all cases, the pass rate after the first diet was at least as good as the second diet pass rate in the two years prior to the introduction of ADL.

One of the benefits of ADL is the quality and frequency of the feedback to both staff and students. At any time during the semester, the student has access to his score and full details of work still to be completed. At the end of each assessment, the score is displayed and the student can then access the solutions to the questions they failed to answer correctly. At this point, they are encouraged to discuss with their tutor any misunderstandings they may have. Weekly information on student progress was available and students experiencing difficulties were identified early in the semester so that tutors were able to target help where it was needed.

³ CALMAT webpage www.calmat.gcal.ac.uk

Module	Session	Start roll	Revised roll	Exempt	Pass diet 1	Pass diet 2	% exempt	% pass diet 1	% pass diet 2
A	1999-2000	107	96		66	5		69	74
A	2000-01	148	125		74	14		59	71
A	2001-02	133	117	97	5	0	83	87	87
A	2002-03	143	128	109	0	4	85	85	88
B	1999-2000	50	47		37	4		79	87
B	2000-01	40	37		29	4		78	89
B	2001-02	59	57	42	11	0	74	93	93
B	2002-03	38	34	24	5	0	71	85	85
C	1999-2000		79		48	3		61	65
C	2000-01		78		54	10		69	82
C	2001-02	151	141	95	21	3	67	82	84
C	2002-03	108	100	91	2	1	91	93	94

Table 1 Comparison of pass rates for three modules with ADL implemented in 2001-02 and 2002-03

The effect of not having to resit a mathematics module would, no doubt, contribute to improving the progression rates for the programmes as a whole. It is hard to quantify just how many students would have failed without ADL, but it is worth noting that the fee income of every home student who progresses is £2,850 per year.

A saving which is easier to quantify is the time that is saved because of the reduced number of first and second diet papers which staff had to mark. Table 2 shows the estimates of the number of papers in the three modules in the first two years of implementation and in Table 3 there is an estimate of the staff time saved and cash equivalent, using a conservative estimate of a marking time of 30 minutes per paper.

Module	Number of students	Number of exemptions	Number passing after first diet (including exempted students)	Estimated number sitting second diet*	Actual number sitting second diet	Exam papers not marked*
A	117	94	101	49	16	94+33=127
B	57	42	53	15	4	42+11=53
C	141	95	116	50	29	95+19=114
Total in 2001-02		231	271	114	51	295
A	128	109	109	54	9	109+45=154
B	34	24	29	25	5	24+20=44
C	100	91	93	15	7	91+8=99
Total in 2002-03		224	231	94	21	297

*Assuming 2001-02 and 2002-03 numbers and 2000-01 first diet pass rates

Table 2 Number of exam papers which did not need marking in 2001-02 and 2002-03

Module	Total number of unmarked exam papers*	Estimated total staff time saved (hours) at 30 minutes per	Estimated £ saved at £30 script per hour
A	127	63.5	
B	53	26.5	
C	114	67	
Total in 2001-02		147	£4,410
A	154	77	
B	44	22	
C	99	49.5	
Total in 2002-03		148.5	£4,455

*Assuming 2001-02 and 2002-03 numbers and 2000-01 first diet pass rates

Table 3 Saved staff time due to CALMAT assisted ADL delivery in 2001-02 and 2002-03

Conclusions

At the end of each semester, students involved with ADL have completed a questionnaire. The results have been overwhelmingly positive. Many of the computing students, who were the main target, asked their parent department to consider using this method for other modules. As expected, they noted that the exemption provided the motivation. Interestingly, they felt that they did not need the lectures, however, the staff were not so sure. The staff were also enthusiastic, despite the fact that the delivery of ADL was hard work. They appreciated the reduced amount of marking and felt the usual lecturer satisfaction when their students did well.

In general, second diet pass rates were achieved at the first diet and the effect of not having to resit a mathematics module no doubt contributed to improving the progression rates of the programme as a whole. Students were enthusiastic, staff felt satisfaction to see the increased pass rates and the service departments were impressed.

References

- Beard R M and Senior J (1980) *Motivating Students*, Routledge and Kegan Paul, London
- University Grants Committee (1968) *Enquiry into Student Progress*, HMSO, London
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Assessment strategies - a case in law

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Context

As law becomes more complex, as resources dwindle and as the profession places increasing demands on academics to deliver on 'graduateness'¹ mechanisms must be found to cover the syllabus, embed skills and inspire the students.

The academic must also find time to keep up with developments in their specialist field, while juggling, of course, an increasing administrative workload.

The problems with law teaching are not unique to the study of law and the case study is, hopefully, relevant to study of what used to be described as the humanities, and, perhaps, beyond even if only to provoke a chain of thought.

Giving students autonomy in choice of assessment topic in a coursework only format cannot be 'one size fits all' and, for many lecturers, end testing remains the mechanism of choice as the clearest demonstration of academic ability. One must also concede that for some professional purposes end testing remains *de rigeur*, but the case study approach is an attempt to explore alternative mechanisms for assessment in the context of student centred learning.

So far as law is concerned, preparation is all and accuracy is everything. After over 20 years in practice, the presenter recalls no occasion when he did not appear with the case prepared and with fully annotated notes spread out on the agent's table. Feats of short term memory are, for the practitioner, mere party tricks. So why do we assess students in a way which benefits the short term memory of the 'crammer'?

Modern educational techniques and their efficacy have been, and continue to be, explored in an attempt to maintain a quality educational provision within a Wider Access Framework, and contemporary thinking has been greatly influenced by the published research.² The message appears to be that law teaching must be practice-based and workplace relevant - an innovation, for such it is in law, to be admired if the graduates are then better equipped to do a job of work at the end of the day.

The inevitable conclusion must be that the methodology adopted must embed skills, must stimulate student interest, must relate to the real world of practice and, preferably, should give the under-resourced and underpaid academic something approaching the will to continue academic life.

¹ This peculiar word appears to have surfaced of late and further details can be obtained from the UK Centre for Legal Education website. It appears to mean the skills which academics are supposed to embed so as to satisfy the demands of professional employers.

² For example, see Brayne, Duncan and Grimes (1998) *Clinical Legal Education: Active Learning in Your Law School*, Blackstone Press; Burrige, Hinett, Paliwala and Varnava (2002) *Effective Learning and Teaching in Law*, Kogan Page; Duncan (1997) On Your Feet in the Industrial Tribunal - a Live Clinical Course for a Referral Profession, *Journal of Professional Legal Education*.

Resource issues

One possible approach is to take learning into the workplace and the presenter has also explored this elsewhere in a paper on Lecturing in a Live Environment presented at the sixth annual Learning in Law Initiative at the University of Warwick in 2004 suggesting that students can be given live case studies as project work.³ That paper is, however, very specifically orientated towards legal practice. To anticipate the bottom line, students can be assessed on coursework alone and select the actual topic of assessment within strict guidelines - designed to eliminate the risk of plagiarism insofar as possible - but it might be useful to address the backdrop against which this innovation is proposed.

Today we have larger classes than could have been contemplated, say, 40 years ago⁴ allied to a massive increase in the body of relevant substantive law.

Textbooks were familiar friends and principles were pretty well established. The growth in statute law can be measured with a tape measure. Consider, for example, the raft of significant legislation in the late 1940s and look at the thickness of, say, Current Law Statutes for 1946 as compared with the width of the tomes for 2003.

How is one to cover this vast body of law, even with the support of the giant computer databases now on-stream in every law school?

Given the complexity of modern law, the teaching of legal principle has never been more important, but to cover this within very real time constraints requires a little bit more than 'chalk and talk'.

Identification of coursework subject areas

The specific module which has been selected is only one of several but is offered on a 'flip flop' basis whereby every second year the module runs for both third and fourth year students.

The students are, in essence, environmental engineers who have had only the most basic exposure to legal principle and, yet, the substantive law is both complex and highly technical.

The first task, accordingly, is to identify the need to know which, on analysis, is no different to that required of a legal practitioner.

- Know what to look up.
- Know where to find it.
- Be able to understand it when you do find it.
- Be able to use what is found effectively.

If the law cannot be communicated, then the knowledge is a wasted asset, so at what level must one communicate? In broad terms, it is suggested that this will require to be communication:

³ www.ukcle.ac.uk/lili/2004

⁴ The very first intake of the new full-time LLB into the University of Edinburgh in 1961, as the author remembers only too well, was a mere 40 individuals with a massive preponderance of men over women and a very high proportion of students from fee paying schools.

- to an audience of lay-persons who need to be aware of the central issues
- to a client or employer who needs a comprehensive overview in context - a macro analysis
- to a formal hearing on very fine points of detailed law - a microanalysis.

The medium for communication may, of course, be oral, written or graphic, or a combination but, in the real world, will never be in the form of an essay. It may be in the form of a report or an article for a professional journal or a written submission to Court or the giving (or leading) of evidence. In short, the so-called personal transferable skills have to be applied.

In no case should the instrument lack intellectual rigour and even where a poster presentation is used the academic criteria must be spelled out.⁵

Instruments of assessment

If each student has to self select a topic then mechanisms such as end testing and multiple choice are self evidently not available.

Essay writing may be the main stand-by assessment of choice for many lecturers and, although one should not quarrel with a tried and tested mechanism which has, historically, served academe well, it is, bluntly, not a skill per se which is applied in the workplace. In any event, it is not an attractive option if the only possible title is in the nature of 'All I know about...', which would be the case with a diversity of topics. Alternatively, the lecturer could supply titles for the chosen project, but with a largish class this would be too tall an order for even the most imaginative and widely read scholar.

So what instrument should be adopted for each of the three levels?

Raising awareness

For raising awareness the instrument adopted in the module in point is a poster presentation.

In other modules, Microsoft PowerPoint presentations are used and are combined with peer group assessment but, in a large class, this is inordinately time consuming, valuable and interesting though this approach can be for the whole class. The scenario here is that the student prepares a poster, a mere hook upon which a presentation can be based. Images and graphics are actually secondary to the text, to which the student must be able to speak authoritatively. Ideally, the posters are hung in the examination room where they are examined by the assessment panel. The criteria are actually set out in the module handbook. Each student then has a slot

⁵ A paper on poster presentations specifically was delivered to a recent BEST workshop in Glasgow and may be obtained from p.scott@gcal.ac.uk. Short and sweet but hopefully to the point.

when they have to speak to the subject matter. Time consuming? How long would it take to mark an individual project? In fact, the assessment is an allocation of marks to a sliding scale and is pretty straightforward.

Most modest sized classrooms can take around 80 plus posters especially if central display boards supplement wall space. Lecturers may suffer from information overload but the assessment does not all need to happen on the one day.

Actually, with strictly enforced time limits, the time devoted to assessment is arguably less than for the marking of conventional end tests and 'frabjous day' evenings and weekends are not lost to the chore of marking exam scripts.

However, this is more than mere assessment as not only are the posters there for all students to look at but they may even form part of a permanent display for future students, with a long term benefit for future teaching.

The overview

For the macro-analysis, this is presented in report format. The report must be concise but comprehensive and requires the ability to present in lay terms a clear exposition of the law which would satisfy a workplace need to know.

This takes the place of the essay so there is no downside from the perspective of assessment time.

The advantage, however, is that each project is individual and makes for better reading than the sixtieth essay on an identical topic.

Better still, the individual nature of the project within explicit guidelines means that the risk of plagiarism is greatly reduced. Here, the project has to cover the implications for land, air and water pollution and the research has to be fairly wide but almost any topic could be prescribed as having to stretch over several aspects and the poor student is then forced into referring to multiple sources for the material.

Best of all, the individual projects are likely to produce a data base for the lecturer who now has a whole class of active researchers, not a few of whom are likely to come across sources new to the lecturer.

In-depth research

The microanalysis has to be in the form of an article, written to publishable standard and which homes in on one particular aspect where the boundaries of understanding can be pushed back. This tests the ability to research in depth.

In this module, it would have to be admitted that much of the material issued in class represents a composite of the best student work over the years. If attribution is given, the students become an ongoing learning resource for lecturer and students alike. The practice of a class test has become redundant. Using this mechanism, each piece

of work, accompanied by the sort of diagnostic feedback beloved of external examiners, informs the individual student of their progress and enables each student to work towards a steady improvement.

The research element will normally be the last to be submitted - and should attract the highest proportion of the marks - and if the occasional student wishes to 'free-wheel' on the basis of marks already in the bank then so be it. In fact, most students are highly competitive and the standard is usually pretty high.

All three mechanisms are workplace relevant skills and, to return to the concept of 'graduateness', establish that the student will be able to explain the impact of the law in broad terms to a client, to prepare a detailed brief and to research fine points of law. The presentation is also, of course, a standard practice in commerce/industry as well as in continuing professional development.

Criteria in self-selection

Each subject will be different.

The module dealt with here is on environmental law but the presenter has other modules⁶ where a similar approach would work remarkably well. It does not adopt this methodology but only because changes to assessment would require validation and the module concerned has a limited shelf life.

Demonstration by example is perhaps the best way forward at this juncture.

Each student has to produce an abstract indicating the chosen topic. The topic is to be assessed at the three levels already indicated but must also incorporate international law, European law and UK law. The combination of the three topics must also be seen rigorously to look for cross contamination of other environmental mediums, ie the interplay among land, air and water.

It is for the student to decide which of the three legal jurisdictions (international, European and UK law) will be the focus for which instrument of assessment.

Let us take the not entirely hypothetical example where a student is interested in pollution of waterways, perhaps they enjoy fishing or live beside a river, but it matters not so long as this is the subject closest to the heart of the student. In workshops, this topic is discussed with subtle guidance from the facilitator (the lecturer) and all are agreed that pollution of international waterways raises specific trans-border problems.

In the event, it might be felt that international law could be the subject of a broad-brush presentation which dealt with the significance of river basin management⁷ and related topics which would bring in the significance of land misuse.

The significance here is that the students as a group became actively involved in a discussion as to how this topic could be handled to best advantage and, usually, several students will be able to link this project with their own work with clear advantages for peer group research support.

⁶ One module on Construction Law, for example, has elements of Delict/Tort, Employment Law and Health & Safety Law.

⁷ *The Wetlands Convention Cm 6464 [1971]* etc.

Dealing with European law, one is spoiled for choice and the group might agree that perhaps a micro report on European policy would enable reference to air pollution and the impact of acid rain on waterways and conservation of species.⁸

The advantage for the facilitator is that this leaves the UK perspective as having to deal with the recent adoption in Scotland of the Framework Directive⁹. This is a very complex body of law with very detailed provisions to be brought in over an extended period and which will look at water use rather than water discharge control as the principal focus. In this context students are a learning resource and a detailed analysis of the provisions of the Act represents, effectively, the services of a researcher to analyse an issue which will become increasingly significant.

The bottom line is that the topic is covered at all levels - and the student will be able to demonstrate the key workplace skills - including grasp of legal principle, communication skills, analytical ability and significant research skills. The group discussion element, since it involves students in meaningful dialogue, is likely to promote deep learning among the group on the view that there is a very clear point to the exercise and the subject is actually interesting. Law was being introduced, and of which the students were previously unaware, in a practical context.

In a large class, the workshop replaces the seminar so there will always be a discussion forum for manageable class sizes and where, in addition, one can deal with specific points of law where the solution may depend on fine interpretation of detail. Very often the research will produce quite surprising results and sometimes the data can even produce proof positive that the received wisdom is actually quite wrong. Everyone knows, for example, that oil spill is a major source of marine pollution, but everyone is wrong as, in truth, well over 70 per cent of oil pollution in the North Sea comes from land run off.

Learning and assessment

It is suggested that assessment should not be viewed merely as a mechanism for testing what has been learned but should, actually, be integral to the learning process.

Students must learn how to investigate and by selecting a topic which tests the research capability, the student not only acquires that workplace relevant skill but can, in effect, be adding to the store of knowledge. The class, as a whole, are informed as is the lecturer. From the perspective of the individual, the knowledge thereby gained should be much more securely embedded than would be the case with rote learning for end testing.

In fine, the learning activity becomes student-centred and the actual mechanism for assessment can be part of the instruction process.

⁸ *Water Framework Directive [200/60/EC], Urban Waste Water Treatment Directive [91/271/EEC], Nitrates Directive [91/676/EEC] etc.*

⁹ *Water Environment & Water Services (Scotland) 2003.*

Results

Results have always been good with this approach.

It cannot be appropriate in all cases and may even be part of an assessment regime which includes some end testing where, say, a professional body requires such.

In looking at a module where the sole mechanism has been this approach over a 10 year period, the progression rates for the module have been a consistent 100 per cent after the second diet (averaging 90 per cent after the first diet and always because of delay in submission). This compares with progression for the year as a whole of 85 per cent on average for third year students and 100 per cent for fourth year students.

In other words, it is good for progression.

Marks tend to be consistent with marks for conventionally taught modules on the same programme at the upper end of the marking scale and significantly improved at the lower end of the marking scale, even if it is only the difference between a marginal pass and a clear fail.

A second module on an LLM programme has been an unsurprising 100 per cent progression. Over four years, marks tend to be slightly above the average for conventionally taught modules.

Where marked differences also occur is where students who have been able to self select a topic for assessment are compared with students who have never had that option. Honours dissertation marks tend to be significantly above the class average, hopefully making the point that improved research potential is carried forward to other subjects.

The bottom line is that progression rates are improved, weak students achieve slightly better grades and strong students will tend to fulfil their potential across the board to better effect.

Conclusions

The methodology whereby students are given a degree of autonomy seems to improve progression without significant impact on marks at the upper end of the ability scale but does improve marks at the lower end.

Progression rates are greatly assisted and not only does the quality of work attract favourable comment from external examiners but the exercise of personal transferable skills is significantly improved.

Plagiarism is the bane of coursework, of course, but a highly individualised project must surely reduce the possibility, especially if the module leader has the ability to direct the main thrust as part of a pattern of consultation and discussion within a workshop format.

The debate on the value of end testing is fairly well rehearsed, but can we continue with end testing in the face of increasing demands for integration of workplace relevant skills into law teaching?

Further, given the higher percentage of the population entering further education - currently 50 per cent of school leavers in Scotland - there is likely to be a broader spread of student ability and it becomes increasingly important to look for mechanisms whereby weaker students will be motivated and encouraged to give of their best.

Quality demands that we look at innovation and here, at least, is an innovation, with a 10 year history, and one which seems to work!

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Motivating students through group project and open-notes examination

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Abstract

The case study is based on learning, teaching and assessment (LTA) practice developed over the last few years at both undergraduate and postgraduate levels. Reference will be made to empirical data gleaned from examination boards and student feedback from the module review process.

The paper will discuss a level 7 module, Object-Oriented Multimedia Design & Development and a level 4 module, Advanced Digital Media. The LTA approach integrates assessment and feedback into the overall learning experience. Formative feedback on the group project assessment is provided on a weekly basis, with the summative feedback incorporated into the examination preparation. The open-notes/open-book examination is based on topics of directed study introduced through the lecture series and supported through a virtual learning environment.

The LTA approach has been demonstrated to have a positive impact on student engagement and individual achievement.

Background and context

In 2000, it was noted that a high percentage of the students studying the MSc in Multimedia and Interactive Systems programme offered by the School of Computing at Napier University were having difficulty with software engineering modules.

The programme is unique within the School of Computing in that it attracts a majority of students whose first degree is BA, rather than BSc or BEng. Our experience within the School of Computing, and that of other institutions¹, is that in general students from liberal arts backgrounds have difficulty in learning software engineering. This was a concern with respect to engagement and student achievement.

In June 2001, as part of a major revision of the MSc Multimedia & Interactive Systems programme a new module Object-Oriented Multimedia Design & Development (OOMDD) was conceived to address the issues.

Object-Oriented Multimedia Design and Development

The module endeavours to provide an enhanced learning experience to encourage students to take responsibility for their own learning; engage in active learning and student interaction; and develop as autonomous learners².

Rationale

The module has been designed to provide an enhanced learning experience that develops knowledge, skills and attitudes with respect to the development of interactive multimedia applications through a culture that values enquiry, investigation, research and reflection.

The learning and assessment engenders key employability skills.

- A project coursework provides students with the opportunity to design and implement an interactive multimedia application to their own specification that develops employability skills: creative problem solving, design, planning, organisation, and time management.
- A critical report develops employability skills: communication, organisational, and presentation.
- Group work develops employability skills: teamwork, leadership, negotiation, communication and management.

Delivery

The module utilises a traditional lecture/tutorial/practical format supplemented with web-based resources. In addition students are expected to do further reading, both directed and independent. The required text *Using UML: Software Engineering with Objects and Components*³ is available for reference during the open-book exam at the end of the module.

¹ Anderson P, Bennedsen J, Brandorff S, Caspersen M E and Mosegaard J (2003) Teaching Programming to Liberal Arts Students - a Narrative Media Approach, *IT/CSE 2003 conference (Thessaloniki, Greece, University of Macedonia) ACM Special Interest Group in Computer Science Education (SIGCSE)*.

² Little D (1991) *Learner Autonomy, 1: Definitions, Issues and Problems*, Authentik, Dublin

³ Stevens P (2001) *Using UML: Software Engineering with Objects and Components*, Addison-Wesley

Learning support and feedback

Each week the students have the opportunity of attending a supervised one-hour tutorial session where the module tutor and experienced demonstrators are in attendance to provide technical support and answer queries.

Group work

The students form themselves into groups of three in week 1. The module tutor meets each student group for 15 minutes every two weeks to provide formative feedback on the progress of their projects. The meetings are scheduled to meet the needs of the students and a record is kept with counselling given to any group that fails to attend. Small group activity brings the students together, encouraging peer support and engendering engagement. On completion of their projects, feedback on the coursework is provided via a feedback sheet and discussed during individual group conferences timetabled to facilitate exam preparation.

Learning resources

All of the required teaching materials can be accessed from the virtual learning environment. This also includes links to websites of interest, electronic copies of the module organiser, handouts, coursework specifications and additional materials.

Additional resources are available from the Multimedia & Interactive Systems Resource Centre developed by the author, with specific pages dealing with object-oriented analysis and design⁴.

Assessment

Biggs⁵ proposed that the assessment must align with the learning objectives of a course to encourage deeper learning. The module descriptor establishes a direct mapping of the module learning outcomes to the assessment strategy.

The assessment for the module comprises both a coursework and an examination. The coursework assessment is developed as a group project and as a consequence produces homogeneous results; therefore an examination is included to allow the student to demonstrate individual learning.

Coursework

As a member of a group, the students are tasked to develop a game or an interactive simulation to their own design and specification suitable for implementation on the internet. The students are supplied with materials on game design. Each group is required to produce a detailed object-oriented design model from a requirements specification, using object-oriented analysis and design methods; develop a prototype from the object-oriented design model, using Macromedia Flash MX; and provide a critical evaluation of the object-oriented design incorporating reference to additional reading, and alternative methods and solutions.

⁴ Multimedia & Interactive Systems Resource Centre www.dcs.napier.ac.uk/~mm/ooa.htm

⁵ Biggs J (1999) *Teaching for Quality Learning at University*, Open University Press

The students determining and managing their own projects encourage ownership of the assessment and learning process.

Group projects enhance employability skills^{6 7} such as teamwork, leadership, creative problem solving, design, communication and management. Deep learning is encouraged, as the student is required to engage in active learning and student interaction in addition to taking responsibility for their own learning and assessment. However, group work can allow students to be awarded marks based on the work of others if appropriate measures are not introduced. Therefore, procedures were introduced to allow individual submission in the event of a complete breakdown of a group.

Essay-based coursework further develops employability skills^{6 7} such as communication, organisational and presentation. Deep learning is encouraged, as the student is required to demonstrate a range of higher cognitive abilities in developing the critical report that in turn encourages the student to become a reflective practitioner.

Open-book examination

As the coursework assessment is a group project it produces homogeneous results; to balance this, an examination is included to allow the student to demonstrate individual learning.

Supervised assessments^{6 7} are a secure method that minimise cheating and open book examinations assess critical thinking as opposed to memory. Deep Learning is encouraged, as the student is required to demonstrate a range of higher cognitive abilities. Many students perceive examinations as stressful, therefore appropriate preparation is provided via a two hour exam briefing and access to previous papers with worked solutions. A number of students ran out of time on the first delivery this was rectified by extending the exam from two to three hours to ensure that adequate time is available.

Discussion

The OOMDDM has been delivered for two academic years and has been given positive criticism by both students, by way of the module feedback questionnaires, and external examiners at module boards.

In academic year 2001-02, semester 2 with 77 students, the overall pass rate was 83 per cent; the mean was 58; the standard deviation was 9.7; the Dbar⁸ was -0.8; and six students (8%) gained distinctions (=75%). Analysis indicated that individual student achievement correlated with their performance in the other modules studied during the same period. The LTA approach in relation to the module outcomes proved to be effective. However, the lecture sequence was changed to enhance learning and additional teaching and support materials were developed.

In academic year 2002-03, semester 2 with 45 students, the overall pass rate was 78 per cent; the mean was 59; the standard deviation was 14.8; the Dbar was -0.5; and seven students (15%) gained distinctions (=75%). Initial analysis indicated a positive correlation with individual student performance on other modules studied during the same period.

⁶ Freeman R and Lewis R (1998) *Planning and Implementing Assessment*, Kogan Page

⁷ Brown S and Knight P (1998) *Assessing Learners in Higher Education*, Kogan Page

⁸ A method of comparing individual student results across modules to establish whether consistency occurs, 0 is ideal and within ± 4 is considered good.

The LTA strategy for the module has proven to be successful but appeared to be no more than that of other modules studied by the students. Analysis of the exam results with another exam sat by the students during the same period indicated a positive correlation ($r = 0.7$) with no significant difference in the means.

A comparison of the performance of students with that of another software engineering module again indicated a positive correlation ($r=0.5$) with no significant difference in the means. Though the approach is innovative and promotes student engagement, no indication of improved student performance seemed to be apparent.

However, further scrutiny of overall student achievement highlights significant differences between the modules taken by the 41 full-time students during the academic year 2002-03 as shown in Table 1.

Though individual student performance was comparable, the number of students submitting assessments varied dramatically across the modules. The students were more likely to submit assessments for the multimedia and interactive systems design (MISD) modules (95 per cent) than the software engineering (SE) modules (73 per cent). With respect to the percentage of students that passed the assessment once submitted, there is little difference across the teaching groups (MISD: 83 per cent, SE: 79.5 per cent). Consequently, students were more likely to successfully complete MISD modules (79 per cent) rather than SE modules (57 per cent) at the first attempt. These findings are consistent with the postulation that students from liberal arts backgrounds continue to have difficulty with software engineering and suggests that students only submitted if they anticipated passing. The validation of this theory could be reinforced through a similar study of students with a science or engineering background.

Module	Semester	Teaching group	Assessment submissions	Total passed	% submissions that passed	% of total passes
SD1	1	Software engineering	30 (73.2%)	22	73.3%	53.7%
DMIA	1	Multimedia and interactive systems design	38 (92.7%)	36	94.7%	87.8%
PMDM	1	Multimedia and interactive systems design	40 (97.6%)	37	92.5%	90.2%
ISD	1	Multimedia and interactive systems design	41 (100%)	34	82.9%	82.9%
SD2	2	Software engineering	19 (46.4%)	17	89.4%	41.5%
OOMDD	2	Software engineering	41 (100%)	31	75.6%	75.6%
GP	2	Project	40 (97.6%)	36	90.0%	87.8%
AISD	2	Multimedia and interactive systems design	37 (90.2%)	23	62.2%	56.1%

Table 1 Achievement of 41 full-time students on MSc Multimedia and Interactive Systems

The OOMDD module, with a 100 per cent submission contrasts favourably with the other software engineering modules, SD1 (73.2 per cent) and SD2 (46.4 per cent). OOMDD and SD2 are delivered concurrently thus allowing direct comparison. The performance of those students who submitted the assessments for both modules shows a positive correlation ($r = 0.5$) without any significant difference in means. Due to the lower level of submissions in SD2 only 41.5 per cent of students passed, compared to a pass rate of 75.6 per cent in OOMDD (Figure 1).

The decision whether or not to submit was taken by both weak and strong students (Figure 1), and was independent of subject matter, teaching materials and lecturers. The only identifiable difference is the approach to LTA, specifically the enhanced learning experience.

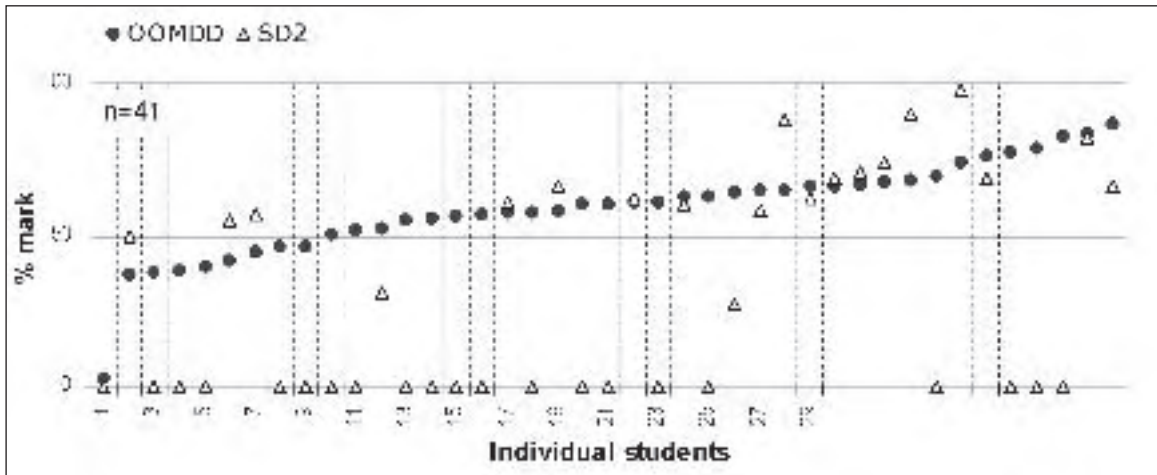


Figure 1 Comparison of individual student achievement in second semester software engineering modules (academic year 2002-03)

There is no evidence that individual student performance was improved overall. However, the cohort under study demonstrated a higher pass rate when compared to similar modules. This can be attributed to a caring and supportive environment, developed to nurture and encourage achievement.

Advanced Digital Media (ADM)

In June 2003, the LTA approach was integrated into a new level 4 module, ADM. As previously implemented with OOMDD, the module utilises a traditional lecture/tutorial/practical format supplemented with web-based resources. In addition, students are expected to do further reading, both directed and independent.

Assessment

The assessment for the module comprises both a coursework and an examination. The coursework assessment is developed as a group project and as a consequence produces homogeneous results; therefore an examination is included to allow the student to demonstrate individual learning as individual grades from the module are used to determine final degree classification.

Coursework

The coursework is considered by both external examiner and students as challenging and is soundly underpinned by prior learning. The students are tasked to develop an interactive DVD for the movie *Living Dead in the School of Computing* and an associated website featuring the flash-based game *Zombie Resurrection: The Curse of the Computing Centre*. Each group is required to storyboard and shoot a five minute movie; determine an appropriate requirements specification for both DVD and game; produce a detailed design model from the requirements specification, using a range of analysis and design methods; develop a prototype DVD from the design model; develop a prototype game from the design model; and provide a critical evaluation of the design and development process.

Open-notes examination

The open-notes examination, comprising three compulsory questions, is solely based on six topics of directed study that are introduced through the lecture series and supported through a virtual learning environment. The move towards open-notes was taken to encourage the students to better prepare for the examination by utilising techniques such as essay plans and mind maps. Analysis of the exam scripts confirmed that the students who developed and adhered to essay plans achieved the higher grades.

Discussion

The ADM module was introduced for the first time in October 2003 to the BEng Multimedia Systems and BSc Multimedia Technology programmes, and was very highly ranked across all criteria in the student feedback survey (Table 2). It was perceived to be an enhanced learning experience and second only to the honours project for personal contribution.

Module ranking (n=45)				
	Advanced Digital Media	Media Computing	Interactive Application Development*	Computing & Society**
Content	6	21	32	31
Administration	5	33	28	13
Learning	6	43	24	25
Feedback	4	1	33	38
Student contribution	2	27	32	25

*BEng only **BSc only

Source: Student Feedback Survey, All School of Computing Modules, Semester 1 2003-04

Table 2 Ranking of modules studied by subject group in first semester

In academic year 2003-04, semester 1 with 27 students, the overall pass rate was 93 per cent; the mean was 57; the standard deviation was 10.5; the Dbar was 3.9; and seven students (26%) gained merits (=65%). Analysis indicated that individual student achievement correlated with their performance in the other modules studied during the same period.

A comparison of student performance in similar examination assessments during the first semester of ADM indicated a positive correlation ($r = 0.59$) with no significant difference in the means.

A comparison of student performance in the similar Media Computing module (examination 50 per cent, coursework 50 per cent) also indicated a positive correlation ($r=0.5$).

However, further analysis determined a difference in cohort achievement of nearly five percentage points (Table 3). Both modules had very similar results with comparable numbers achieving merit passes. The key difference was a lower number of fails in ADM (one student) in comparison to Media Computing (three students).

	ADM	Media Computing
Mean	57.3	52.6
Fails (overall < 40)	1	3 (11%)
Qualified fail (failed one component)	1* (3.7%)	1
Pass (overall \geq 40)	18	17
Merit (overall \geq 40)	7	6

* Student had an appeal for mitigating circumstances upheld at the Board of Examiners.

Table 3 Comparison of cohort performance in similar first semester modules (academic year 2003-04)

The cohort under study comprised 27 students including significant numbers of other nationalities (26 per cent: two Chinese, five French) and special learning needs students (11 per cent: two Dyslexia, one Asperger's syndrome). All seven other nationals passed ADM but three (one Chinese, two French) failed Media Computing. The individual special learning needs had similar performances on both modules. The student who failed ADM gained a marginal pass in Media Computing.

There is insufficient data to make any conclusive judgement but futures studies should further investigate the relationship between the LTA approach and the learning experience of students with English as a foreign language.

Conclusions

This paper has demonstrated that an enhanced learning experience can encourage students to take responsibility for their own learning and develop as autonomous learners. Student engagement was encouraged through active learning and collaborative learning.

Regular feedback allows students to measure their progress, and the tutor to identify gaps in their knowledge. Student disengagement can be readily identified and prompt remedial action can be taken, ensuring that the focus of the module is relevant to the students engenders engagement. The process of collaborative learning and peer support encourages the students to assist and take care of each other.

This paper has described computing modules but the approach would be appropriate for any discipline, at both undergraduate and postgraduate level, where students are experiencing difficulties with subject matter and are disengaging from the learning process.

Future research will investigate the relationship between the LTA approach and the learning experience of students with language and cultural difficulties.

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Using assessment to motivate learning - Post-workshop report

Dr Andrew Eadie, Glasgow Caledonian University and Workshop Director

The one-day workshop 'Using assessment to motivate learning' took place at the Hilton Glasgow Grosvenor Hotel on 5 February 2004. The workshop consisted of keynote addresses from Professor Craig McInnis, University of Melbourne and Professor Phil Race, University of Leeds; case studies from Dr Jean Cook, Glasgow Caledonian University, Ian Smith, Napier University and Peter Scott, Glasgow Caledonian University; two breakout sessions; and a plenary session to give an opportunity for the delegates to participate.

The talks and case studies

Professor McInnis gave an interesting and thought provoking talk on 'Repositioning assessment to enhance learning outcomes'. The talk contained much practical advice on achieving quality in student assessment particularly in the context of large class sizes and the need to provide high quality feedback to students. He finished by providing a checklist of sixteen indicators of quality in student assessment. His talk also contained valuable pointers to online resources.

Professor Race gave a very entertaining and engaging talk entitled 'Designing assessment to enhance student learning'. He began by asking the audience to share their personal worst assessment nightmare with their neighbours and then with the rest of the audience. He then examined why we assess, what is wrong with assessment currently and finally, what should be done to correct the problems.

Peter Scott gave a humorous talk on his work teaching law to environment students entitled 'Contextualised assessment strategies'. His work showed that by contextualising the assessment, making the assessment relevant to the students and also making the assessment part of the learning experience a module on fairly complex legal issues could be successfully delivered to non law students.

Dr Jean Cook showed in her talk, Assessment driven learning, how assessment can be used to motivate students undertaking mathematics. Assessment driven learning was described as a process where lecture time is reduced, tutorial time increased and computer-based assessment with almost immediate feedback is part of the teaching process. Part of the student motivation in this process is because successful completion of the computer-based assessment results in exemption from end of module examinations. This process has result in greatly increased pass rates for the module concerned.

Ian Smith gave an enthusiastic talk on 'Motivating students through group project and open-notes examinations'. His starting point was that all aspects of learning, teaching and assessment are interrelated and should not be considered in isolation. His aim was to enthuse, engage with and support the students. His results showed that the combination of group project work and open-notes examinations was well liked by the students. However, it was too early to say if there had been a significant effect on the student's results.

Breakout groups¹

Issues identified

(main issues highlighted in bold)

- The need for rapidly delivered feedback on formative assessments.
- Gradation of assessment methods is required when you consider the development of a degree and the students studying it ie methods/approaches should change as course progresses.
- Assessing how and why, not just what?
- Time is required by staff and students to do this properly.
- How do we get students interested in/motivated for computer assisted learning (CAL)?
- There should be further focus on 'diagnostic' assessment, particularly as a tool for feedback (at a time when time for feedback is being reduced).
- Be more analytical of existing assessment types ie determine what we have in common and develop existing practice.
- Be explicit in indicating expectations to students and using assessment to shape their learning.
- How to cover the class where there is a wide spectrum of student abilities? The assessment often does not reflect this scope (unless it is failure rate and quite significant)?
- Exploit CAL and computer assisted assessment to lighten assessment burden.

Ensuring students read and take notice of feedback

- Provide qualitative commentary on assignments without adding a grade or mark and ensure that students don't get a mark until they have read and understood the feedback.
- Incorporate a reward in the next assignment for positively addressing the issues (including a reflective analysis) raised by the feedback on a previous assignment (work that ignores this may receive a lower grade or mark for not taking this criterion into account).
- Develop progressively weighted coursework assignments (eg 5 per cent, 10 per cent, 15 per cent instead of 10 per cent, 10 per cent, 10 per cent or some other combination) so that there are higher rewards for improving based upon feedback given on earlier pieces of work.
- Involve students in giving feedback to others on their work.

Creating more opportunities for using formative assessment (not hybrid with summative) to demonstrate their learning (not for marks)

- Provide only qualitative comments even if these become linked in some way to standardised 'grades' of work. Avoid grades and marks altogether.
- Use class responses to questions during teaching to identify areas of major (or critical) misunderstanding. This may be automated using electronic 'voting'

¹ Thanks are due to colleagues who led the discussions at the five breakout groups and to those colleagues who acted as scribes.

systems' or free space for writing qualitative answers which are then visible to the whole class for comment (by them as well as the teacher). The system adopted should be designed for student anonymity (though teacher may be aware of who is answering questions in particular ways).

- Asking a student to summarise the session/lesson with others asking questions.

Fears about using group-based assessment where peer assessment is involved

- Make all ground rules known to students about their responsibilities and how the reward system will work, including penalties for not pulling weight, contributing, absence (and how this will be dealt with) etc.
- Ensure authentic opportunities for students to record their contributions to group work, eg have scheduled meetings for review of progress where minutes, attendance etc are kept; these together with logs and diaries are all submitted with the final group assignment.
- Provide training in working in groups as well as involving students in creating and implementing the peer assessment procedure for their assignment or project.
- Specifically award grades or marks to the group process as well as to the work (or products) of the group for assignments.
- Provide a formative-only assignment involving groups and peer assessment before embarking on a summative assignment.
- Start as early as possible in first year developing group-based work and peer involvement in assessment (gently and not too high risk at first!).
- Draw attention to use of peer assessment in other real world activities, eg peer review (publications, books research grants, teaching review and quality assessment) in academia; 360 degree feedback, appraisal etc in industry and commerce as well as academia.

Reducing the impact of summative assignments on learning and attendance (timing)

- Closer coordination of module programmes within a department where possible.
- Staggered dates for assignments across clusters of modules.
- Free time at key points in the semester to permit students to take time off to study, write or perform for their assignments without jeopardising their other studies (mid-semester breaks, class tests etc?).

Providing diversity in assessment (eg avoiding traditional examinations)

- Provide options for students to choose from to undertake assignments to demonstrate their own achievement of the specified learning outcomes (avoid students repeating playing to their strengths, however).
- Provide seen exams, eg a question (on the exam paper) is provided up to two weeks in advance and students can thoroughly research it in advance, but must write their answer under exam conditions. Often such assignments are problem-based and it is important to provide appropriate attainable resources, references etc.

- Encourage all staff to 'dip' into the Generic Centre handbooks on assessment as well as the Assessment Strategies in Scottish Higher Education project for inspiration and tried and trusted methods in use elsewhere - in addition to considering the case studies presented in this series of workshops.

Assessment of 'skills' and surrogate measures

A written report (often) is used to assess laboratory skills in sciences but may overestimate the skills (reflected by a good score in the written report) or may reflect a poor estimate because the skills are highly developed but a student may lack report-writing skills.

- Develop appropriate, relevant assessment (ie high validity and authenticity) adequately supported by additional tutors if necessary, eg checklists and careful observation for laboratory skills, debating skills for lawyers, presentations skills in all subjects.
- Don't measure the same sets of skills with all assignments (inadvertently or otherwise).
- Provide training in developing particular assessment format skills - whether these are exam writing technique, report writing, laboratory skills, eg operating microscopes etc - Provide training, eg video, animations etc to assist students develop skills.
- Provide specific tutoring in academic writing skills - preferably in context, though this may be supplemented by central university generic provision in skills for academic effectiveness (study skills, personal skills etc).
- How can we diversify the means of assessment and issues of learning cultures because undergraduate students expect to be 'fed and supported' rather than engage in thinking?
- How can we reserve grades to award students who do more than we can - we do it in professional life?
- How can we change our assessment when we are trained by professional bodies?
- How can we be creative in assessment in a rapidly changing professional field like those involved in the NHS?
- How can we take advantage of what further education has to offer without making them more conservative when they join higher education (we have the same funding council!)?
- How can we encourage flexibility in assessment within structures and cultures of institutions and what structures might we find helpful? eg setting a maximum of 50 per cent by exams?
- What can we do to motivate lecturers to adopt different strategies in assessment?
- How can we encourage more feedback to students as this is what enhances learning? - It also informs the teaching.
- How do we cope with the 'conservatisation' of assessment to offset student appeals?
- How much support do academics require to engage in online assessment? And how might you make a case for applying for extra funding?

- Enormous benefits for departments of having a uniform policy on assessment so that students can have a lot of practice at different assessment types - and they need training in **how** to do this assessment.
- Summative assessment takes place in a module rather than a course, so it can be difficult to design coherent assessment strategies - this may be dealt with through the progress file approach with self-assessment so students write about the building of skills like group work slides.
- Dependence on reliability rather than validity, with summative assessment being increasingly high stakes summative assessment, including A levels.
- There needs to be a variety of assessments - in some places this means re-introducing exams.
- There are tensions between being predictable and being fixed by structures.
- Assessment to motivate learning.
- Formative approaches.
- Critique - small groups - especially in fine art/arts.
- Discipline-based - gives students an opportunity to interact with tutor.
- Fear - motivates students to 'work'.
- 'Uncertainty' group work - peer pressure to perform using group work important but assessing difficult.
- Teaching 'communication' for presentations.
- Assessing content not presentation but provide feedback on presentation.
- Presentations get better grades - is this an issue in regards quality? Or perceived less value to other options - such as exams? Is there a 'misgiving' about reliability of alternatives to traditional models of assessment?
- Do your students understand weighting?
- Anxiety a real issue.
- Peer assessment.
- Less threatening - not always contribute to grade.
- Formative peer input - grade presence devalues formative feedback.
- Grading scheme - qualitative schemes?
- Presentations - marking seen by all - transparency and how/what is expected.
- Peer assessment for grades - no one in-group has tried it yet. One person will be trying soon. Napier University 100 per cent per assessment - quality check - done by three students on a panel - **need for careful monitoring**.
- Uniformity - word counts?
 - i clearer explanations to students about how assessment contributes to learning and how you are teaching
 - ii course teams should look at assessment timetables/loading/workload/volume
 - iii meta level of student understanding

- a perhaps an induction into requirements
- b students? Where is/are study skills included?
- c clarify with students
- d guinea pigs being upfront about innovation and requirements
- iv move away from academic to applied/vocational ??so?? reports softening or assessment?
- v Motivation/enthusiasm
- vi authentic assessment - reflective cycles can contribute to 'how students know'. Issue associated with 'in situ' vs 'academic' context.

Motivation

- Importance of design of assessment into totality of teaching and learning.
- Peer formative assessment (free from need to give mark) can be effective way of providing formative feedback.
- Peer and self-assessment feeding into the final summative assessment made by the lecturer.
- Reflection - ubiquitous but very often misapplied - need to find 'good assessment tasks.
- The need for student involvement in self and peer-assessment from as early stage as possible so that they developing a real understanding of what independent learning outcomes mean and also that the criteria used for assessment are understood.
- The need for formative assessment to help students learn, rather than just summative assessment to make decisions.
- An observation that much of discussion about assessment in higher education is echoed in what is currently being discussed in the primary and secondary sector.
- The need to remember that some students like lots of assessment - it spreads risk and also tells them how they are doing.
- Students like feedback on traditional examinations.

Questions emerging from the breakout groups

- For a 'traditional' department with primarily exam-based assessments, what are the best first steps, which could be taken to move towards processes which promote deeper learning and give good feedback?
- Can we tailor individual assessment to individual learning styles?
- How can we get the colleagues who aren't here to engage with the issues we have discussed?
- How do we free up the structures to allow us to assess effectively, reflectively and validly within different disciplines?
- How do we get an efficient and effective assessment system that drives quality student learning?
- Are these methods of assessment that should never be used?

- Is gender an issue in assessment and if yes what can we do to minimise any adverse effects?

Many of the participants were concerned that their voices, initiatives and desires for change at every level are not recognised or supported in their institutions. The thorny issue of priorities, especially the Research Assessment Exercise and culture of research rewards, mitigated against staff committing themselves to change in teaching whether or not it was recognised as benefiting students, their learning or improving fairness, validity and reliability in assessment!

Conclusions and issues for the future

The following common themes emerged from the breakout groups as being important in motivating students.

- 1 The quantity and quality of feedback on assessment.
- 2 The time commitment required for both staff and students.
- 3 The use of group work.
- 4 The impact of large classes.
- 5 The increased use of information technology in assessment.
- 6 The increased use of formative assessment.
- 7 The relevance of assessment methods.
- 8 Coherent assessment strategies for programmes.
- 9 Innovation in assessment.
- 10 Ensuring students are aware and understand assessment criteria.

The questions arising from the breakout groups point in conjunction with the issues above point to areas for enhancement by institutions and the Scottish higher education sector.