The busy teacher educator's guide to assessment

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Introduction

Research and experience tell us very forcefully about the importance of assessment in higher education. It shapes the experience of students and influences their behaviour more than the teaching they receive. If we have to choose one area of our practice to concentrate on in order to improve student learning and achievement, it must be assessment; 'there is more leverage to improve teaching through changing assessment than there is in changing anything else' (Gibbs and Simpson, 2004-5:22).

This guide is designed to provide a short summary of issues to be considered in developing, implementing and managing assessment in teacher education programmes. It highlights the important matters that need to be taken into account and provides links to relevant sources of help and suggestions for further reading.

Assessment *of, for* and *as* Learning

One of the difficult aspects of assessment is that it has to fulfil different several different functions, often thought of as assessment *of* learning, assessment *for* learning and assessment *as* Learning (Earl, 2003):

Assessment *of* Learning characterises how we may traditionally view assessment. It involves making judgments about students' summative achievement for purposes of selection and certification (Qualified Teacher Status) and it also acts as a focus for institutional accountability and quality assurance, for example the number of 'good' degrees awarded is used as a key variable in university league tables.

Assessment *for* learning is formative and diagnostic. It provides information about student achievement which allows teaching and learning activities to be changed in response to the needs of the learner and recognises the huge benefit that feedback can have on learning (Black and Wiliam, 1998).

Assessment *as* learning can be defined in two interlinked ways. Firstly, at a very straightforward level, tackling assignments and revision is when higher education students *do* much of their learning. Secondly, assessment *as* learning is a subset of assessment *for* learning and sees student involvement in assessment, using feedback, participating in peer assessment, and self-monitoring of progress, as moments of learning themselves (Black and Wiliam, 1998). Students come to have a better understanding of the subject matter and their own learning through their close involvement with assessment.

Balancing the different purposes of assessment in teacher education

Each of these purposes has a part to play but one cannot expect individual modules to embrace all of them. Methods such as group, peer and self-assessment (useful for assessment *as* learning) will always provoke concerns (perhaps unjustly) about reliability and fairness. However, such approaches can promote learning which is difficult, if not impossible, by other methods. On the other hand, tutor/ mentor assessment of performance on teaching practice provides confidence that standards are being met and is thus used as assessment *of* learning. When students get feedback on early or draft assignments or when they have dialogue with their mentor during teaching practice, the focus is on assessment *for* learning. An interesting project which examined what features contributed to both summative and formative assessment on teaching practice can be found at in Kynch (2005).

The danger of a modular structure, particularly in primary teacher education with many subjects involved, is that a fragmented assessment strategy emerges. Collaborative planning needs to focus on making sure that assessment across the programme balances the different purposes. It should also consider how the strategy helps students meet the programme learning outcomes to help create a coherent programme experience. A programme approach can reduce the risk of bunching of assessment submission dates, over-reliance one or two assessment methods (for example, essays and exams) and overloading students with several major projects at the same time. See the final section of this paper on 'diversifying assessment' for more discussion of different assessment methods.

What does the research say?
The literature on assessment in higher education suggests the following factors that we should take into account in considering our assessment practice:
- Assessment strongly influences students' learning, including what they study, when they study, how much work they do and the approach they take to their learning;
- The type of assessment influences the quality and amount of learning achieved by students;
- Poorly designed assessment can lead to students developing limited conceptual understanding of the material although sometimes the assessment task masks their limited understanding;
- Well-designed assessment is likely to be intrinsically motivating for students and lead to better retention of material which the students can apply in other settings;
- Students' prior experience of learning and perceptions of assessment may override attempts by lecturers to change their approach to learning, and they should be helped to a better understanding of assessment tasks;
- Assessment tasks may not be assessing what we think they are assessing, they may be assessing lower-level understanding of the

material, and may be failing to assess the stated outcomes of a programme of study;

- Anxiety-provoking assessment is associated with a surface approach to learning by students;
- Feedback is the most important aspect of the assessment process for raising achievement yet currently students express considerable dissatisfaction with much feedback and it does not always impact on their learning;
- Self and peer assessment are crucial elements in helping students to learn from their assessment and become more autonomous learners;
- Feedback should inform tutors' teaching and support strategies as well as student activity.

Influencing student learning

Students adopt a ***surface approach*** to learning when their intention is to cope with the requirements of the task but with little personal engagement or aim to understand the material. They tend to focus on the detail of the knowledge, memorising the information or procedures, for example rote learning for an examination. As a result, students do not grasp the overall meaning of their studies, develop limited conceptual understanding of the material and have poor quality learning outcomes (Entwistle, 1997).

In contrast, students who adopt a ***deep approach*** aim to understand ideas and are intrinsically interested in their studies. The learning strategies they use include relating information and ideas together and to their own experience and looking for patterns, principles and meaning in the texts. This approach leads to higher quality learning outcomes for the student.

An approach to learning is not a fixed characteristic of an individual but is influenced by their perception of the learning environment, most particularly the assessment task (Morgan and Beatty, 1997; Biggs, 2003). Appropriate assessment can encourage students to adopt a deep approach to learning and the contrary is true for poorly-designed assessment. If students perceive that a task requires memorisation and reproduction of facts, then that is what they will do. The research evidence suggests that if the nature of the learning context is changed, and assessment is the most influential element of that context (Elton and Johnston, 2002), there is a likelihood that students' approach will change (Prosser and Trigwell, 1999).

It is not just the nature of the assignment that makes a difference. Students' perception of the 'what the assessment requires' affects the approach they take (Prosser and Trigwell, 1999). Students behave differently because they perceive tasks differently. Changing the assessment may change the approach of some students who perceive the new requirements appropriately, but will not necessarily change every student's approach to learning. Students bring their history of learning with them and these habitual tendencies (Ramsden, 2003) may work against students engaging in effective learning in higher education. This has important implications for preparing students for

assessment, particularly those home and international students who cannot draw on family and personal networks to help them understand the demands of UK higher education. Successful efforts to help students understand what is expected of them include:

- Providing clear guidance and assessment criteria;
- Students' marking exemplar assignments against the assessment criteria in order to better understand them;
- Practising and getting feedback on unfamiliar assessment tasks in low stakes situations – for example presentations;
- Grading their own and each others' draft assignments;
- Activities designed to clarify plagiarism (see www.jiscpas.ac.uk for advice, information and ideas on plagiarism prevention).

Gibbs and Simpson (2004-5) show that more frequent assessment tasks are associated with greater time allocated to study and there is evidence that students will work hard in preparation for some modes of assessment in comparison with others, for example students prepare less well for multiple choice tests compared with assignments where they have to create rather than choose the answer (Traub and MacRury, 1990). In addition to assessment influencing the amount of time spent studying, it can also affect when students study, for example, infrequent examinations and coursework tasks encourage students to bunch all their **learning hours** together in the time immediately preceding the examination or submission date and they do less work overall (Gibbs and Simpson, 2004-5). Overloading of students through excessive amounts of content is also associated with a surface approach to learning (Ramsden, 2003).

There is a range of **effective ways to increase student activity through assessment** without incurring extra marking workload:

- On-line tests which provide automated, immediate feedback;
- Peer marking of assignments in class;
- Submission of weekly short assignments of which the tutor randomly selects a small proportion for summative marking and feedback;
- Submission of a log book indicating work undertaken during the module.

If it is a programme leading to a professional qualification, some learning outcomes might be assessed during a placement or practicum

What are you assessing?

A 'valid' assessment is one which assesses the stated learning outcomes. Prosser and Trigwell (1999) point out that assessment doesn't always test what we think it does. For example, Entwistle and Entwistle (1997) show that where students are able to reproduce in their examination answer the structure of the topic as given by the tutor, they can give the impression of well structured understanding. Similarly Knight (2000) found that if a student has been given considerable support and direction, they may produce an assignment of similar quality to one produced in another context where the questions are not closely aligned to the teaching and the student has to work

unsupported. Although the products look the same, they do not represent the same achievement.

Anderson and Krathwohl's (2001) taxonomy
This is useful in discriminating between different stages of achievement. It suggests two dimensions, the *knowledge* **dimension** and the *cognitive process* **dimension**.

The *cognitive process* **dimension** enables the tutor to identify an appropriate verb which should be used to express the learning outcome. The other dimension determines what knowledge (the noun) the verb is describing, and delineates between the facts a student needs in order to be familiar with the discipline; conceptual knowledge such as knowledge of classifications, principles, theories, models and structures; procedural knowledge, that is knowing how to do something including techniques, skills and methods of enquiry, and metacognitive knowledge, knowledge of self and cognitive tasks and methods of learning and organising ideas (Anderson, 2003).

Figure 1: The Taxonomy Table (Anderson and Krathwohl, 2001)

The Knowledge Dimension	The cognitive Process Dimension					
	1. Remember	2. Understand	3. Apply	4. Analyse	5. Evaluate	6. Create
A. Factual	X				Z	
B. Conceptual		X			Z	
C. Procedural			Y			
D. Metacognitive						

 (Adapted from Anderson, 2003:29)

Anderson (2003) argues that this taxonomy table helps teachers design appropriate assessment because it enables them to work out prototypical ways of assessing objectives that fall within the relevant cells. For example, it is easy to see that a multiple choice exam could assess memory of factual knowledge or possibly understanding of conceptual knowledge (the cells marked X in figure 1). However, application of procedural knowledge (cells marked Y) will need an assessment task, for example problem solving or case study analysis, which requires students to demonstrate not just that they can remember or understand something, but that they can use it.

Such a taxonomy is helpful in thinking about what different assessment tasks are testing. Here are two education essays:

'Outline one aspect of the National Literacy Strategy and explain why it is important for the teaching of reading' (Year 1)

'Critically assess the claim that streaming and setting do more harm than good' (Year 3)

The first example appears to demand recall of factual information and understanding of conceptual knowledge, again in the cells marked X in figure 1. The second essay appears to be demanding 'evaluation', the cells marked Z in figure 1, a relatively high level cognitive skill requiring good command of the subject matter. Unfortunately, the questions alone are insufficient to determine whether they measure qualitatively different achievements. For example, if the issues in the level 3 question have been carefully rehearsed in a lecture, the student may be largely engaged in reproducing the tutor's notes; a low level skill. Likewise, if the level 1 question topic has not been 'taught', the process of researching the answer may be at least, if not more, demanding. This discussion alerts us to the potential limitations of what may appear to be demanding assessment tasks.

Feedback for learning

The most important aspect of the assessment process in raising achievement is the provision of feedback (Black and Wiliam, 1998; Gibbs and Simpson, 2004-5). Entwistle et al. (1989) studying engineering students showed that early failure was related to students gaining no feedback at all in their first term.

Feedback has little value unless it is timely, students pay attention to it, understand it, and act on it (Gibbs and Simpson, 2004-5) and various studies suggest or investigate practical activities to help students engage with feedback (Nicol and Macfarlane-Dick, 2006[1]). Black and Wiliam (1998) in an extensive review of literature on formative assessment concluded that feedback as comments can have a significantly greater effect on future improvement compared with feedback that is limited to a grade or mark. Knight and Yorke (2003) argue that feedback is mostly likely to be useful to learners if students are willing and able to expose their areas of weakness and confusion with a topic. This is supported by Black et al.'s (2003) work on formative assessment with school teachers where students found that revealing their problems was worthwhile and led to gaining help. Reflective assignments such as learning journals attempt to tackle this dilemma by providing students with an opportunity to reflect on their strengths and weaknesses as learners without losing marks but these provide their own problems for assessment (Gibbs, 1995).

Recent studies have placed greater importance on the notion of '**feed forward**' (Hounsell, 2006; Torrance, 1993) which focuses on what a student

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[1] As well as the full document in the references to this paper, the 7 principles can be accessed at:
http://www.heacademy.ac.uk/ourwork/learning/assessment/senlef/principles (Accessed 29.10.07)

should pay attention to in future assessment tasks. For example, it may be more useful to students to state three clear ways in which they can improve future assignments rather than provide copious detail on the specific assignment you are marking.

Using feedback to adjust teaching

It is not just students who need to act on feedback. For assessment to function in a formative way that supports students' future learning, the findings have to be used to adjust teaching (Black and Wiliam, 1998; Prosser and Trigwell, 1999; Nicol and Macfarlane-Dick, 2006). Difficulties with a particular concept or problem may signal that further or different tuition is needed. Angelo and Cross (1993) and Nicol and MacFarlane-Dick (2006)[1] provide a range of 'classroom assessment techniques' designed to assist staff in gaining immediate feedback from students which can be used to revise teaching strategies. See McNair (2000) for an example of using these techniques in a teacher education setting. However, course structures with short modules can make it difficult for individual tutors to respond to the information about student learning emerging from summative assessment.

Students as assessors

Recent work in the field of feedback is focusing on the importance of student as self-assessor; someone who is able to provide their own feedback because they understand the standard they are aiming for and can judge and change their own performance in relation to that standard, that is self-regulation (Nicol and Macfarlane-Dick, 2006). This is assessment *as* learning (Klenowski & Elwood, 2002; Earl, 2003) and is firmly located in Sadler's (1989) view that improvement involves three key elements:

- students must know what the standard or goal is that they are trying to achieve (assessment guidance);

- they should know how their current achievement compares to those goals (feedback)

- they must take action to reduce the gap between the first two (applying feedback to future assignments).

As Black and Wiliam assert (1998), 'self assessment is a sine qua non for effective learning' (p15) and certainly systematic reviews of research (Black and Wiliam 1998, Falchikov 2005) indicate strong positive benefits to students of being involved in their own assessment.

If students are to become effective teachers, they need to develop the capacity to judge the quality of teaching. Involving students in assessment provides an authentic opportunity for them to learn what 'quality' is and to apply that judgement to their own work (Black et al., 2003). The context might be classroom practice, designing a scheme of work or writing an essay. Thereby the student becomes aware of what the goals or standards of teaching are (Earl, 2003) a precondition of taking responsibility for their work (Swann and Ecclestone, 1999). Feedback allows the student to see their performance against those goals. This view is supported by Black et al.

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[1] http://www.heacademy.ac.uk/ourwork/learning/assessment/senlef/principles

(1998) when they stress that peer and self assessment are the key to learning from formative assessment. It is not enough for a tutor to tell a student what they need to do to improve ('Your writing is too descriptive', 'you need to pay greater attention to pupil differentiation in your planning') if the student does not understand what these comments mean. They cannot take action to do anything about it until they begin to share the tutor's conception of the subject (Sadler, 1989).

It is argued that assessment and feedback activity of this nature does not just contribute to learning at university but develops learning and evaluative skills essential for employment and lifelong learning (Boud and Falchikov, 2006).

Tackling the problems with feedback

Yet there are many difficulties with current feedback practice in higher education
- It is sometimes hard to read;
- It is hard for students to interpret (language, terminology);
- It comes too late to be useful for other assignments/ exams in a module;
- Students don't see it as useful;
- Students don't pay attention to it or act on it;
- It can be expensive to produce (staff time).

Student perception and mediation of written feedback is an under-researched area but Weaver (2006) found that students identified negative and over-general feedback as unhelpful. Feedback needs to provide specific and sufficient comment and suggestions on strengths, areas for development and strategies for improvement. General praise is not useful, whereas comment on a specific strength acts as advice for the future because it is telling the student to use that particular strategy in future assessments. Likewise general or obscure criticisms will not be useful and if comments are too grounded in the specific assignment, then students may find it difficult to generalise from them (Carless et al., 2006).

Many of the problems with feedback are related to how it is written and how students are helped to engage with it and the following list provides suggestions for improvement:
- Schedule an assignment early in a module so students get formative feedback, perhaps using pass / fail to take the pressure off detailed marking procedures;
- Word-processing of feedback means that comments can be emailed to students which can save time. It also allows the use of comment banks which can create the core of effective feedback quickly and allow more time for individualised comment;
- Feedback grids can also speed up the provision of feedback, especially when they are tailored to the assignment;
- It is important not to overload the student with too much detailed information and certainly not to over-correct written work. Consider writing just three or four comments that would be most helpful to the

student in understanding the grade awarded and in improving their future work. At least part of the feedback should build on a positive aspect of the assessed work;

- Care should be taken to align the language of feedback to the mark, avoiding mismatches such as '65%, excellent';
- Northedge (2003) argues convincingly that tutors and tutor teams need to take care to ensure that the subject discipline language used in assessment documents and in feedback is realistic about how much understanding the students have developed. Helping students to understand terminology and feedback is therefore important;
- Use peer and self-assessment with marking schemes to help students understand the criteria that they are being assessed against and reduce staff marking workloads. Research show that peer assessment can help students understand the standards of their discipline better than anything else (Black et al. 2003) so it is worth explaining this to students and persevering with it;
- Use classroom or on-line activities to help students decipher the feedback they receive and work out what they need to do on future assignments;
- Integrate feedback into your students' learning record (progress file) by asking them to reflect on feedback as part of an assignment or discuss it with their personal tutor.

There are many other ways of improving the delivery and use of feedback: For example, the companion 'The Busy teacher educator's guide to developing assessment feedback' add link by Alison Hramiak continues this discussion with many practical ideas for increasing learning from feedback.

Information from the SENLEF Project: Student Enhanced Learning through Effective Feedback can be found at: http://www.heacademy.ac.uk/senlef.htm. A really good short publication by Juwah et al. (2004) combines theoretical information with practical strategies and case studies and can be found at: http://www.heacademy.ac.uk/resources.asp?id=353&process=full_record&section=generic

Diversifying assessment

There are convincing arguments for extending the range of assessment methods used on teacher education programmes.

Firstly conventional assessment methods struggle to assess more than a limited range of skills (Brown et al., 1994). Examinations can encourage inappropriate and last-minute learning and assess low level skills (e.g. memorisation) if they are not carefully planned.

Traditional essays are an accepted method of communication and development of ideas in academia, but we are not preparing people for academia. Assessment of teaching practice is, of course, very well aligned with programme outcomes and there is some value in considering whether

'authentic' assessment could be used more widely in teacher education programmes.

For example, an 'interactive examination' (Jonsson and Baartman, 2006) attempts to improve the professional validity of an examination. Using a computer, students view 3 short films showing different classroom contexts. They can also access background information and transcripts of the dialogue. They are asked to describe and analyse the situations and recommend how the teachers should act. Once the students have submitted this first stage, they are presented with 'expert' solutions. They then have a week to compare their own responses against the 'expert' approach, comment on the differences and use that to identify any future learning needs that have emerged from the exercise.

Secondly, a range of assessment provides the opportunity for learning which enhances student employability. Whilst 'qualified teacher status' is a necessary condition of employment in teaching, it is not sufficient condition. Research suggests that employers see professional and academic qualifications 'as the first tick in the box' (Knight & Yorke, 2003). They are more interested in what are called 'soft skills' - Can candidates manage their own workload, communicate well, learn new things independently, solve problems, instigate change if needed and work effectively with the rest of the team. We need to consider how well our assessments develop and test such attributes.

Different styles and formats of assessment advantage some students in relation to others and therefore providing a range of assessment methods, or a choice of alternatives for a given assignment, can be seen as an inclusive approach to assessment design.

Finally, Struyven et al. (2002:4-5) reported that students are generally positive about 'alternative' assessments. That is where assessment was integrated with the teaching, where tasks were authentic and meaningful and where students were 'involved as active and informed participants'.

Examples of innovative assessment in teacher education

An interesting and reflective account of using a simulation, teaching scenarios and peer assessment by Hildebrand (2004) includes exact details of all the assessment tasks and marking schemes.

Fung (2006) describes and evaluates the use of portfolio assessments in in-service teacher education. The article provides a useful list of other references concerned with portfolio assessment in teacher education.

Doig and Groves (2004) discuss an excellent innovation in the assessment of students learning to teach primary mathematics. The assessment regime used team and individual work to focus students on the integration of theory with classroom practice and to promote deep understanding of children's ways of understanding mathematics. It involved students in interviewing pupils and planning tasks aimed at meeting the 'mathematical needs' of virtual children.

http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000
019b/80/1b/bc/c2.pdf

Links to examples and further advice:

There are many sources of information on planning good assessment and
specific types of assessment. For further information, try:

Contacting the Education Subject Centre, ESCalate www.escalate.ac.uk or
searching their website.

The Higher Education Academy publishes 'Assessment: a guide for lecturers'
which includes a useful list of different assessment methods and what sort of
outcomes they can assess. Go to:
http://www.heacademy.ac.uk/resources.asp?process=full_record&section=ge
neric&id=3

The Higher Education Academy also produces many resources on
assessment. Go to www.heacademy.ac.uk and use their search engine to get
to the assessment topics that you are interested in.

There is also a book available which covers all stages in the assessment
cycle from assessment design to examination board. It includes reviews of the
evidence coupled with practical advice for staff teaching in higher education:
Bloxham, S & Boyd, P (2007) *Developing effective assessment in higher
education: a practical guide* Milton Keynes: Open University Press.

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