
Teaching, Learning and Assessment

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Earlier this summer I gave a talk with the above title to the Mathematics in Education and Industry (MEI) conference. It was not a seriously researched talk, more a before dinner talk, but it did raise some serious issues. I was largely reflecting on my experience as a teacher, as a learner and as an examiner and on my observations on other teachers, learners and examiners and musing on the interaction between the three aspects - indeed the full title of the talk was *Teaching, Learning and Assessment: Mutually Exclusive Ideologies*.

Since the talk was given to teachers at the school level it is not appropriate to reproduce it in this newsletter. Even so, the issues raised are as real in Higher Education as they are in school, so here are some thoughts which I hope will provoke discussion and action.

We get a different viewpoint of the educational process whether we start from teaching, learning or assessment. In broad categories:

- *Teaching*: emphasises what lecturers do
- *Learning* emphasises what the students do ,
- *Assessment* emphasises what students can show they know

Teaching

Most of us in the University sector are called lecturers rather than teachers. The very word carries overtones of what we are expected to do. We lecture - and that is still the predominant method of education. Now 'teaching' and 'lecturing' lead us to think about what makes a good teacher or lecturer and it is easy to concentrate on what the teacher/lecturer does.

So there is an emphasis on the person and personality. We look for clarity of exposition and the amount of preparation and the work that the teacher does. We are expected to aim for excellence though, as Evans (2000) argues, it is not the occasional excellent teacher we want - it is high standards amongst all teachers.

If we measure teaching in this way we could be deluding ourselves as to the effect. Do students only admire a great performance or are they inspired to learn? And even if they are inspired to learn do they then go on to explore and consolidate this learning?

The true measure of a good teacher is how well and how deeply the students learn. Teaching is measured by learning, not on ground covered. Teachers need to be learners: of the subject and of the effectiveness of their teaching.

Learning

In the 1960's there was a primary school mathematics project which took as its slogan 'I hear and I forget, I see and I remember, I do and I understand' and so laid great emphasis on the pupils doing mathematics in order to learn with understanding. An essential part of the 'doing' was to get stuck and have to work through the problems in order to develop a deeper level of understanding. It is surely our aim in HE that we want to develop this sort of deep rather than shallow learning amongst our students. Yet we do not always help ourselves in this; in particular if we set assessment tasks that only test shallow learning (basic memory of facts rather than deep insight into principles in a way that they can then be used). I return to this theme in the assessment section below.

Are we developing deep or shallow learning?

One important dynamic in classes that we need to come to terms with was first eloquently expounded many years ago by Holt (1982) in his book 'How children fail'. His basic thesis is that the primary principle in a classroom (and I suggest also in the lecture) is survival. For the best students the easiest way to survive is to learn, but for others there may be less onerous ways. Such students may see the prime purpose is to pass the assessment process - hence the recurring question "Will this be on the exam?". The implication is "How little can I do to get my piece of paper?".

We need to develop ways of encouraging deep learning and making this the optimal way of surviving. This may need a closer consideration of what genuinely motivates our students and to build on this to develop a desire to know and understand

Assessment

There are many purposes of assessment and not all are compatible with each other and some are detrimental to good learning, especially if not used properly.

When the assessment of the National Curriculum for Schools was being discussed the Task Force came up with four aims (DES, 1989): These were that the assessment should be:

- formative, so that the positive achievements of a pupil may be recognised and discussed and the appropriate next steps may be planned
- diagnostic, through which learning difficulties may be scrutinised and classified so that appropriate remedial help and guidance can be provided
- summative, for the recording of the overall achievement of a pupil in a systematic way,
- evaluative, by means of which some aspects of the work of a school, an LEA or other discrete part of the educational service can be assessed and/or reported upon.

In their assessment of the effectiveness of the National Curriculum, Jennings and Price (1999) maintain that none of these have been done properly. This is not surprising as it is not possible to do all four of these things with one instrument. They require different levels of detail and different psychological approaches.

Looking at assessment in another way we might say that assessment can be done to enable:

- (a) the student to know what (s)he knows and does not know;
- (b) the teacher/lecturer to know what the student does and does not know;
- (c) the teacher/lecturer to know how effective is the teaching
- (d) the institution to give a grade (different levels of pass or fail) linked with an award such as a certificate or a degree.
- (e) society to assess the effectiveness of the institution or the teacher.

These different categories require different types of assessment, noting that diagnostic assessment is one aspect of formative assessment:

- (a) is formative assessment for the student
- (c) is formative assessment for the teacher
- (d) is summative assessment
- (b) could be either formative or summative
- (e) is evaluative assessment.

Formative and diagnostic assessment needs detailed and ongoing work. It implies a level of trust between the student and the lecturer with both working together to improve the student's understanding. Much of this will be done informally by a good teacher as a matter of course. Summative assessment does not need to be so detailed and does not need to be done as frequently. Its real disadvantage is that it puts the learner on the defensive because of the judgmental element and, using Deming's phrase, brings fear into the system (Deming, 1986). In this way it can work against deep learning and bring tensions into the student/lecturer relationship - especially when the lecturer is seen as the assessor.

Because of the inherent contradiction between these different forms of assessment I suggest two principles and four aphorisms that can be borne in mind.

The *Content Principle* says that assessment should reflect the content that is most important for students to learn.

The *Process Principle* says that assessment should enhance the sound development of concepts, insights and deeper ways of thinking.

- Since students learn to value what they are tested on we should test what we value.
- Formative assessment implies that the student wants to know rather than wants to pass.
- Good summative assessment will ensure that the student knows as well as passes.

- If formative and summative assessments do not match up then generally the summative assessment will dominate because students are more interested in passing than knowing.

A few final thoughts about evaluative assessment of departments. This puts us in the same position as a student being examined. Society is passing judgement on us. A friend of mine has just come back from HEFCE training to be an assessor for the QAA exercise. At one point on the course they asked the leaders what sort of assessment this exercise was. In their words was it developmental or judgmental (formative or evaluative in terms of this article). They were told it was definitely judgmental. This immediately puts us on the defensive and leads individuals and departments to come up with optimal strategies to answer the question 'What can we do to get the highest possible mark on this assessment so that we can look good in league tables?' It would be a very interesting and useful piece of research for the LTSN to investigate how much the current QAA exercise

has actually improved teaching, improved the learning environment for students and led to greater learning and understanding by the student. Given funding, the MSOR network would welcome the opportunity of doing this research.

References

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