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Enhancing student learning through effective formative feedback

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1 Introduction

Student Enhanced Learning through Effective Feedback (SENLEF) was a project funded by the LTSN Generic Centre (now Higher Education Academy) to develop a resource for practitioners wishing to improve their feedback practice to students or get some new ideas on how to enhance their current practice.

The idea for the project came from the Universities Scotland Educational Development Committee. The project team explored feedback issues with higher education institutions (HEIs) across Scotland. The outcomes from the project are available on the Higher Education Academy Generic Centre web site at www.ltsn.ac.uk/genericcentre/senlef and include the following:

- A series of case studies
- A theoretical model
- Seven principles for good effective practice
- A questionnaire for others to contribute further case studies
- Workshop plans for using the materials.

This publication includes a small selection of the case studies, the theoretical model and the seven principles, and the workshop plans for using the materials.

It is worthwhile reiterating the seven principles of good feedback practice that we have identified. These are listed below.

1. Facilitates the development of self-assessment (reflection) in learning.
2. Encourages teacher and peer dialogue around learning.
3. Helps clarify what good performance is (goals, criteria, expected standards).
4. Provides opportunities to close the gap between current and desired performance.
5. Delivers high quality information to students about their learning.
6. Encourages positive motivational beliefs and self-esteem.
7. Provides information to teachers that can be used to help shape the teaching.

These principles are explained in greater detail in the next section.

The project team hopes that these might be useful to both educational developers and academics when they are attempting to enhance their practice in the area of giving learners effective feedback.

2 Rethinking formative assessment in HE: a theoretical model and seven principles of good feedback practice

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This section explores how higher education institutions might use assessment more effectively to promote student learning. Assessment provides a framework for sharing educational objectives with students and for charting their progress. However, it can generate feedback information that can be used by students to enhance learning and achievement. This feedback information can also help teachers realign their teaching in response to learners' needs. When assessment serves these purposes it is called 'formative assessment'. It is argued that formative assessment should be an integral part of teaching and learning in HE and that 'feedback' and 'feed-forward' should be systematically embedded in curriculum practices.

Formative assessment aids learning by generating feedback information that is of benefit to students and to teachers. Feedback on performance, in class or on assignments, enables students to restructure their understanding/skills and build more powerful ideas and capabilities. However, the provision of feedback information is not the sole province of the teacher. Peers often provide feedback – for example in group-work contexts – and students generate their own feedback while engaging in and producing academic work (see below). Formative assessment also provides information to teachers about where students are experiencing difficulties and where to focus their teaching efforts.

This section summarises the research on formative assessment and feedback. It includes the following:

- A conceptual model of the formative assessment/ feedback cycle
- Seven principles of good feedback practice: these are drawn from the model and a review of the research literature
- Some examples of good practice strategies related to each principle.

There are two central arguments within this section (i) that formative assessment and feedback should be used to empower students as self-regulated learners and (ii) that more recognition should be given to the role of feedback on learners' motivational beliefs and self-esteem. A number of writers have argued that feedback is under-conceptualised in the theoretical literature in HE and elsewhere, and that this makes it difficult to design effective feedback practices or to evaluate their effectiveness (Yorke, 2003; Sadler, 1998). While there has been a move over the last decade to conceptualise 'learning' from a constructivist perspective (Laurillard, 2002, for example), approaches to feedback have, until recently, remained obstinately focused on simple 'transmission' perspectives. Teachers 'transmit' feedback messages to students about strengths and weaknesses in their work assuming that these messages are easily decoded and turned into action. In contrast, in this paper, students are assumed to construct actively their own understanding of feedback messages from tutors. Moreover, these messages are assumed to be complex and difficult to decipher (Higgins, Hartley and Skelton, 2001; Ivanic, Clark and Rimmershaw, 2000).

The conceptual model and the seven principles presented in this paper are intended as tools that teachers might use to analyse and improve their own formative assessment and feedback practices.

A conceptual model

In a review article, Black and Wiliam (1998) drew together over 250 studies of formative assessment with feedback carried out since 1988 spanning all educational sectors. The studies that formed part of their meta-analysis were ecologically valid in that they were drawn from real teaching situations. Black and Wiliam's analysis of these studies showed that feedback resulted in positive benefits on learning and achievement across all content areas, knowledge and skill types and levels of education. One of the most influential papers underpinning the Black and Wiliam review, and the writings of other researchers, is that by Sadler (1989). Sadler identified three conditions necessary for students to benefit from feedback. The student must:

- Possess a concept of the goal/standard or reference level being aimed for
- Compare the actual (or current) level of performance with that goal or standard
- Engage in appropriate action which leads to some closure of the gap.

Sadler argued that in many educational settings teachers give students feedback information on (b) – that is, how their performance compares to the standard – but that this feedback often falls short of what is actually necessary to help students close the gap. For example, such information might be difficult to understand (such as a comment that 'this essay is not sufficiently analytical') and especially if the learning goal (a) has not been fully assimilated in the first place. Black and Wiliam (1998) further elaborate on this communication issue when they discuss the links between the way a feedback message is received and what students do with that message.

> *...those factors which influence the reception of a [feedback] message and the personal decision about how to respond…[include]….beliefs about the goals of learning, about one's capacity to respond, about the risks involved in responding in various ways and about what learning should be like (p21).*

Any model of feedback must take account of the way students make sense of, and use, feedback information. More importantly, however, is Sadler's argument that for students to be able to compare actual performance with a standard, and take action to close the gap, they *must already possess some of the same evaluative skills as their teacher*. For many writers, this observation has led to the conclusion that as well as focusing on the quality of the feedback messages, teachers should focus their efforts on strengthening the skills of self-assessment in their students (Yorke, 2003; Boud, 2000).

Figure 1 presents a conceptual model of formative assessment and feedback that synthesises current thinking by key researchers into this topic (Sadler, 1983, 1989; Black and Wiliam, 1998; Yorke, 2003; Torrance and Pryor, 1998). The figure is based on a model of feedback and self-regulated learning originally published by Butler and Winne (1995). A key feature in the model that differentiates it from commonplace understandings of feedback is that the student is assumed to occupy a central and active role in all feedback processes. They are always actively involved in monitoring and regulating their own performance both in terms of their goals and in terms of the strategies being used to reach those goals.

In the model, an academic task set by the teacher (in class or set as an assignment) is the starting point for the feedback cycle.

Engagement with the task requires that students draw on prior knowledge and motivational beliefs and construct a personal interpretation of the requirements and properties of the task. Based on this internal conception, they formulate their own task goals (which may be different from those of the teacher) and engage in actions to achieve these goals by applying tactics and strategies that generate outcomes. Monitoring these interactions with the task and the outcomes that are being cumulatively produced, generates *internal feedback*.

This feedback is derived from a comparison of current progress against internal goals or standards – gaps are identified (between progress and goals) and further actions are taken to close these gaps (Sadler, 1989). This self-generated feedback information might lead to a re-interpretation of the task or to the adjustment of internal goals or of tactics and strategies. Students might even revise their domain knowledge or beliefs which, in turn, would influence subsequent processes of self-regulation. If *external feedback* is provided, this additional information might augment, concur or conflict with the student's interpretation of the task and the path of learning (Butler and Winne, 1995).

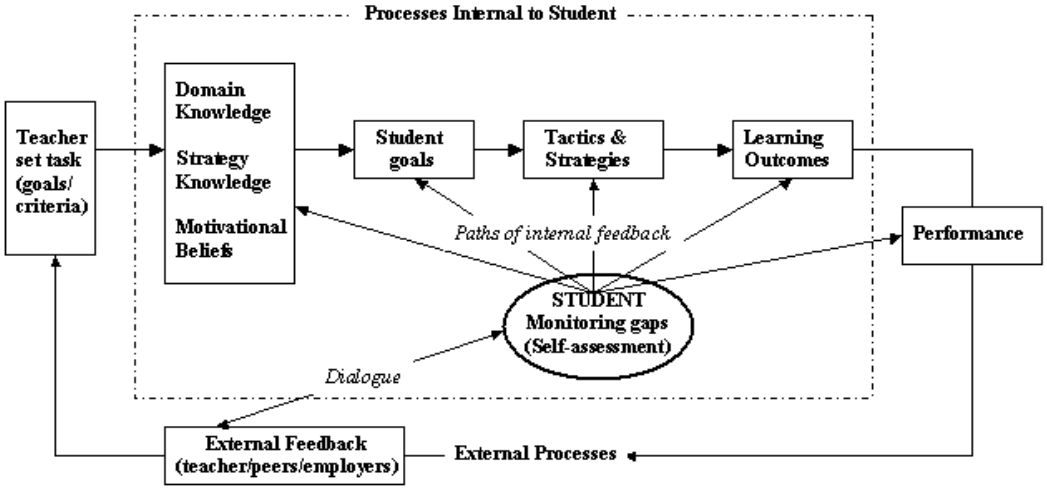

FIGURE 1: A Model of the Formative Assessment and Feedback

In the model, external feedback to the student might be provided by teachers, peers or others (placement supervisor, for example). However, students are always actively engaged in feedback processes. First, they generate aspects of their own feedback as they monitor performance and identify and make sense of gaps while carrying out tasks. Second, they interpret and filter feedback information from external sources. The teacher's feedback response (based on their monitoring and assessment of student performance) must be interpreted and internalised by the student before it can influence subsequent action (Ivanic, Clark and Rimmershaw, 2000). This has important implications for feedback processes in HE. If students are always involved in monitoring and assessing their own work, then rather than just

thinking of ways of enhancing the teacher's ability to deliver high quality feedback we should be devising ways of building upon this capacity for self-regulation (Yorke, 2003).

Seven principles of good feedback practice

From the conceptual model and the research literature on formative assessment it is possible to identify some broad principles of good feedback practice. A provisional list might include the following seven.

1. Facilitates the development of self-assessment (reflection) in learning.
2. Encourages teacher and peer dialogue around learning.
3. Helps clarify what good performance is (goals, criteria, standards expected).
4. Provides opportunities to close the gap between current and desired performance.
5. Delivers high quality information to students about their learning.
6. Encourages positive motivational beliefs and self-esteem.
7. Provides information to teachers that can be used to help shape the teaching.

The following sections provide the rationale for each principle in terms of the conceptual model and the associated research literature. Brief examples of how these principles might be applied are also suggested.

1. Facilitates the development of self-assessment in learning

Over the last decade there has been an increasing interest in strategies that encourage students to take a more active role in the management of their own learning (see Nicol, 1997). Black and Wiliam (1998) make the argument that 'a student who automatically follows the diagnostic prescription of a teacher without understanding of its purpose will not learn' (p54) while Sadler (1989) argues that the purpose of formative assessment should be to equip students gradually with the evaluative skills that their teachers' possess. These writers are concerned that an over-emphasis on teacher assessment might increase students' dependency on others rather than develop their ability to self-assess and self-correct.

In the conceptual model, the student or learner is always engaged in *monitoring gaps* between internally *set task and personal goals* and the *outcomes* that are being progressively produced. This monitoring is a by-product of purposeful engagement in a task. However, in order to build on this process, and the student's capacity for self-regulation, teachers should create more formal and structured opportunities for self-monitoring and the judging of progression to goals. Self-assessment tasks are a good way of doing this, as are activities that encourage reflection on both the processes and the products of learning.

Research shows that direct involvement by students in assessing their own work, and frequent opportunities to reflect on goals, strategies and outcomes are highly effective in enhancing learning and achievement (McDonald and Boud, 2003). Moreover, if the skills of self-assessment are developed progressively over the course of an undergraduate degree this would support a model of higher education where students are prepared for lifelong learning (Boud, 2000).

An important aspect of self-assessment involves helping students both to identify standards/criteria that apply to their work and to make judgements about how their work relates to these standards (Boud, 1986).

> Examples of structured reflection and/or self-assessment are varied and might include students:
> (1) requesting the kinds of feedback they would like when they hand in work;
> (2) identifying the strengths and weaknesses in their own work in relation to criteria or standards before handing it in for teacher feedback;
> (3) reflecting on their achievements and selecting work in order to compile a portfolio;
> (4) setting achievement milestones for a task and reflecting back on progress and forward to the next stage of action;
> (5) having students give feedback on each other's work (peer feedback) also helps support the development of self-assessment skills (for example, Gibbs, 1999).

2. Encourages teacher and peer dialogue around learning

While research shows that teachers have a central role in helping a develop student's own capacity for self-assessment in learning, external feedback from other sources (such as tutors or peers) is also crucial. Feedback from tutors and peers provides additional information that helps challenge students to reassess their knowledge and beliefs. Teacher feedback also serves as an authoritative external reference point against which students can evaluate, and self-correct their progress and their own internal goals.

In the conceptual model (figure 1), for external feedback to be effective it must be understood and internalised by the student before it can be used productively. Yet in the research literature (Chanock, 2000; Hyland, 2000) there is a great deal of evidence that students do not understand the feedback given by tutors (for instance, 'this report is not logically structured') and are therefore not able to take action to close the gap (that is, he or she may not know what to do to make the report more 'logical in structure'). External feedback as a transmission process involving 'telling' ignores the active role the student must play in constructing meaning from feedback messages.

One way of increasing the effectiveness of external feedback and the likelihood that the information provided is understood is to conceptualise feedback more as a *dialogue* rather than as information transmission. Feedback as dialogue means that the student not only receives initial feedback information but also has the opportunity to engage the teacher in discussion about that feedback. This is shown in the conceptual model by the two-way arrows that link external processes to those internal to the student. The idea that feedback encourages dialogue is considered good practice by many writers on assessment. For example, Freeman and Lewis (1998) argue that the teacher 'should try to stimulate a response and a continuing dialogue – whether this be on the topics that formed the basis of the assignment or aspects of students' performance or the feedback itself' (p51). Discussions with the teacher help students to develop their understanding of expectations and standards, to check out and correct misunderstandings and to get an immediate response to difficulties.

Unfortunately, with large class sizes it can be difficult for the teacher to engage in dialogue with students. Nonetheless, there are ways that teachers might increase feedback dialogue even in these situations. For example, by reporting feedback in class and structuring break out discussions of feedback or by using classroom technologies that collate student responses in class and then feed the results back visually as a histogram. This feedback can act as a trigger for teacher-managed discussion (for example, Nicol and Boyle, 2003).

Another source of external feedback are the students themselves. Peer dialogue is beneficial to student learning in a variety of ways. First, students who have just learned something are often better able than teachers to explain it to their classmates in a language and in a way that is accessible. Second, peer discussion exposes students to alternative perspectives on problems and to alternative tactics and strategies. Alternative perspectives enable students to revise or reject their initial hypothesis and construct new knowledge and meaning through negotiation. Thirdly, by commenting on the work of peers, students develop objectivity of judgement (about work in relation to standards) which can be transferred to the assessment of their own work ('I didn't do that either', for example). Fourthly, peer discussion can be motivational in that it encourages students to persist and gives a yardstick to measure their own performance against (see Nicol and Boyle, 2003). Finally, it is sometimes easier for students to accept critiques of their work from peers rather than tutors.

Good examples of feedback dialogue in class include:
(1) providing feedback using one-minute papers (Angelo and Cross, 1990);
(2) reviewing feedback in tutorials where students are asked to read the feedback comments they have been given and discuss these with peers – they might also be asked to suggest strategies to improve performance next time;
(3) asking students to find one or two examples of feedback comments that they found useful and to explain how they helped.

Other ways of using feedback dialogue in a planned way, for assignments, might involve:
(1) having students give each other descriptive feedback on their work in relation to published criteria before submission;
(2) group projects.

3. Helps clarify what good performance is

Students can only achieve a learning goal if they understand that goal, assume some ownership of it, and can assess progress (Sadler, 1989; Black and Wiliam, 1998). In the model (figure 1), understanding the goal means that there must be a reasonable degree of overlap between the task goal set by the student and the goal originally set by the teacher. However, there is considerable research evidence to suggest that there are often mismatches between tutors' and students' conceptions of goals and of assessment standards and criteria.

Hounsell (1997) has shown that tutors and students often have quite different conceptions about the goals and criteria for essays in undergraduate courses in history and psychology and that poor essay performance is correlated with the degree of mismatch. In a similar vein, Norton (1990) has shown that when students were asked to rank specific assessment criteria for an essay task they produced quite different rankings from those of their teachers. Weak and incorrect conceptions of goals not only influence

what students do but also the value of feedback information. If students do not share (at least in part) their tutor's conceptions of assessment goals (criteria/standards) then the feedback information they receive is unlikely to 'connect' (Hounsell, 1997). In this case, it will be difficult for students to evaluate gaps between required and actual performance.

One way of clarifying task requirements (goals/criteria/standards) is to provide students with written documents embodying descriptive statements that externalise assessment goals and the standards that define different levels of achievement. However, many studies have shown that it is difficult to make explicit assessment criteria and standards through written documentation or through verbal descriptions in class (Rust, Price and O'Donovan, 2003). Most criteria for complex tasks are difficult to articulate; they are often 'tacit' and unarticulated in the mind of the teacher. As Yorke notes:

> *Statements of expected standards, curriculum objectives or learning outcomes are generally insufficient to convey the richness of meaning that is wrapped up in them (Yorke, 2003, p480).*

Hence there is a need for strategies that complement written materials and simple verbal explanations. An approach that has proved particularly powerful in clarifying goals and standards has been to provide students with 'exemplars' of performance (Orsmond, Merry and Reiling, 2002) alongside other resources. Exemplars are effective because they define an objective and valid standard against which students can compare their work.

Strategies that have proved effective in clarifying criteria, standards and goals therefore include:
(1) providing better definitions of requirements using carefully constructed criteria sheets and performance level definitions;
(2) providing students with exemplar assignments with attached feedback;
(3) increasing discussion and reflection about criteria and standards in class;
(4) involving students in assessment exercises where they mark or comment on other students' work in relation to defined criteria and standards;
(5) workshops where students in collaboration with their teacher devise their own assessment criteria for a piece of work;
(6) combinations of the above five have proved particularly effective.

4. Provides opportunities to close the gap

According to Yorke (2003) two questions might be asked regarding external feedback. First, is the feedback of the best quality and second, does it lead to changes in student behaviour? Many researchers have focused on the first question but the second is equally important. External feedback provides an opportunity to close the gap in the learning process between the current learning achievements of the student and the goals set by the teacher. If feedback information is not turned into action soon after it is produced then this is a missed opportunity. As Boud notes:

> *The only way to tell if learning results from feedback is for students to make some kind of response to complete the feedback loop (Sadler, 1989). This is one of the most often forgotten aspects of formative assessment. Unless students are able to use the feedback to produce improved work, through for example, re-doing the same assignment, neither they nor those giving the feedback will know that it has been effective (Boud, 2000, p158).*

In the conceptual model (figure 1), Boud's arguments about closing the gap can be viewed

in two ways. First, closing the gap is about supporting students while engaged in the act of production of a piece of work. Second, it is about providing opportunities to repeat the same 'task-performance-feedback cycle' by, for example, allowing resubmission. External feedback should support both processes: it should help students to recognise the next steps in learning and how to take them both during production and for the next assignment.

Supporting the act of production requires the generation of concurrent or intrinsic feedback that students can interact with while engaged in an assessment task. This feedback would normally be built into the task (a group task with peer interaction is an example here) or the task might be broken down into components each associated with its own feedback. Many forms of electronic feedback can be automatically generated to support task engagement (multiple choice, FAQs). Providing feedback at sub-task level is not significantly different from other forms of feedback described in this paper.

In HE, most students have little opportunity to use directly the feedback they receive to close the gap, especially in the case of planned assignments. Invariably they move on to the next assessment task soon after feedback is received. While not all work can be resubmitted, many writers argue that resubmissions should play a more prominent role in learning (Boud, 2000). In addition, the external feedback provided to students often focuses on identifying specific errors rather than providing constructive advice about how performance relates to standards and about how to make improvements in subsequent tasks; and even when corrective guidance about how to improve is given, students often do not fully understand it or know how to turn it into action.

Specific strategies to help students use external feedback to close the gap are:
(1) to increase the number of opportunities for resubmission;
(2) for teachers to model the strategies that might be used to close a performance gap in class (for example, model how to structure an essay when given a new question);
(3) teachers might also write down some 'action points' alongside the normal feedback they provide. This would identify for students what they should do next time to improve their performance;
(4) a more effective strategy might be to involve students in identifying their own action points in class based on the feedback they have just received. This would integrate the process into the teaching and learning situation and involve the students more actively in the generation and planned use of feedback.

5. Delivers high quality information to students about their learning

Another finding from the research is that a great deal of external feedback given to students is not of good quality: it may be delayed, not relevant or informative, or overwhelming in quantity, and so on. Good quality external feedback is defined as information that helps students trouble-shoot their own performance and take action to close the gap between intent and effect. In the model (figure 1) processes internal to the student (shown by the dotted line) are strongly influenced by contextual factors in the environment over which the teacher has considerable control. The teacher sets the task, assesses performance and provides feedback. Research shows that in each of these areas there is considerable scope for improvement.

Feedback needs to be relevant to the task in hand and to student needs. Despite this, research shows that feedback information is often about strengths and weaknesses in handed-in work or about aspects of performance that are easy to identify (such as spelling mistakes) rather than about aspects that are of greater importance to academic learning but that are more abstract and difficult to define (strength of argument, for example).

Students might also receive too much feedback, making it difficult to decide what to act on. In the literature on essay assessment, researchers have tried to formulate guidelines regarding the quantity and tone of feedback comments. For example, Lunsford (1997) has advocated providing only three well thought out feedback comments per essay. Moreover, these comments should indicate to the student how the reader experienced the essay as it was read – 'playing back' to the students how the essay worked – rather than offering judgemental comments. Such comments help the student to understand the difference between his or her intentions and the effects. Comments should always be written in a non-authoritative tone and where possible, they should offer corrective advice (both about the writing process as well as about content) instead of just information about strengths and weaknesses.

Other researchers have argued against following positive comments with lists of criticisms (such as 'this essay was well-structured . . . However . . .') arguing instead that descriptive information about performance in relation to defined assessment criteria is better received by students and is more likely to be acted upon.

It has become common practice in recent years to provide feedback sheets with assessment criteria as a way of informing students about task requirements and of providing consistent feedback in relation to expected goals. However, the construction of such feedback sheets does not always encourage students to engage with a task in a way desired by teachers. Sadler (1983) has argued that the use of such criteria sheets often has unwanted effects. For example, if there are a large number of criteria (12–20) they may convey a conception of an assessment task (an essay, for instance) as a list of things to be done ('ticked off') rather than a holistic process – something involving the production of a coherent argument supported by evidence. So as well as being responsive to student needs, teachers should also consider whether the instruments they use to deliver feedback are commensurate with the expected goals and task requirements.

Strategies that increase the quality of feedback drawn from research include:
(1) making sure that feedback is provided in relation to pre-defined criteria but paying particular attention to the number of criteria;
(2) providing feedback soon after a submission;
(3) providing corrective advice, not just information on strengths/ weaknesses;
(4) limiting the amount of feedback so that it is used;
(5) prioritising areas for improvement;
(6) providing online tests so that feedback can be accessed anytime, any place and as many times as students wish;
(7) focusing on students with greatest difficulties.

6. Encourages positive motivational beliefs and self-esteem

How can we make assessment a positive learning experience for students? A key feature of the model of feedback (figure 1) presented in this paper is the importance attached to motivational beliefs and self-esteem. In the model, students construct their own motivation based on their appraisal of the teaching, learning and assessment context. This influences the goals that students set (personal and academic) as well as their commitment to these goals. However, research has shown that external feedback can have a positive or negative effect on motivational beliefs and on self-esteem. It influences how students feel about themselves which, in turn, affects what and how they learn.

Many studies have shown that, contrary to expectation, frequent high stakes assessment (where marks or grades are given) can lower the motivation to learn (Harlen and Crick, 2003). Such assessments encourage students to focus on performance goals (passing the test) rather than learning goals (Elliott and Dweck, 1988). In one study, Butler (1988) demonstrated that feedback comments alone improved students' subsequent interest in learning and performance when compared with controlled situations where marks alone or feedback and marks were given. Butler argued that students paid less attention to the comments when given marks and consequently did not try to use the comments to make improvements.

Butler (1987) has also argued that grading student performance has less effect than feedback comments because it leads students to compare themselves against others (ego-involvement) rather than to focus on the difficulties in the task and on making efforts to improve (task-involvement). Feedback given as grades has also been shown to have especially negative effects on the self-esteem of low ability students (Craven, et al., 1991).

Dweck (2000) has interpreted some of these findings in terms of a developmental model that differentiates students into those who believe that ability is fixed and that there is a limit to what they can achieve (the 'entity view') and those that believe that their ability is malleable and depends on the effort that is input into a task (the

'incremental view'). These views affect how students respond to learning difficulties. Those with an entity view (fixed) interpret failure as a reflection of their low ability and are likely to give up whereas those with an incremental view (malleable) interpret this as a challenge or an obstacle to be overcome.

These motivational beliefs, however, are not immutable. In part, they depend on how teachers provide feedback. Praising effort and strategic behaviours and focusing students on learning goals leads to higher achievement than praising ability or intelligence which can result in a learned-helplessness orientation. In summary, 'feedback which draws attention away from the task and towards self-esteem can have a negative effect on attitudes and performance' (Black and Wiliam, 1998, p23).

The implication of these studies for teaching practice is that motivation and self-esteem are more likely to be enhanced when a course has many low-stakes tasks with feedback geared to providing information about progress and achievement rather than high stakes summative assessment tasks where information is only about success or failure or about how students compare with peers.

Other strategies that would help encourage high levels of motivation to succeed include:
(1) providing marks on written work only after students have responded to feedback comments;
(2) allocating time for students to re-write selected pieces of work – this would help change students' expectations about purpose;
(3) automated testing with feedback;
(4) drafts and resubmissions.

7. Provides information to teachers that can be used to help shape the teaching

Good feedback practice is not only about providing good information to the students about learning – it is also about providing good information to teachers. As Yorke notes:

> *The act of assessing has an effect on the assessor as well as the student. Assessors learn about the extent to which they [students] have developed expertise and can tailor their teaching accordingly (Yorke, 2003, p482).*

In order to produce feedback that is relevant and informative teachers themselves need good data about how students are progressing. They also need to be involved in reviewing and reflecting on this data and in taking action to help close the learning gap.

In the conceptual model (figure 1) information about students is provided when the learning outcomes are translated into public performances. Teachers generate this public information about students through a variety of methods – by setting assessment tasks and in

class, through questioning of students and through observation. Such information helps teachers uncover student difficulties with subject matter (conceptual misunderstandings, for example) and difficulties with study methods while carrying out assessment tasks.

Frequent assessment tasks, especially diagnostic tests, can help teachers generate cumulative information about students' levels of understanding and skill so that they can adapt their teaching accordingly. This is one of the key ideas behind the work of Angelo and Cross (1990) in the United States. They have shown how teachers can gain regular feedback information about student learning within large classes by using short test-feedback cycles. These strategies benefit both the student and the teacher (Steadman, 1998) and they can be adapted to any classroom situation or discipline. Moreover, implementation allows teachers and students to share, on a regular basis their conceptions about both the goals and processes of learning (Stefani and Nicol, 1997).

A variety of strategies are available to teachers to help generate and collate quality information about student learning and help them decide how to use it. For example:
(1) one-minute papers where students carry out a small assessment task and hand this in anonymously at the end of a class, such as...
What was the main point of this lecture? What question remains outstanding for you at the end of this teaching session?;
(2) having students request the feedback they would like when they make an assignment submission;
(3) having students identify where they are having difficulties when they hand in assessed work;
(4) asking students in groups to identify 'a question worth asking', based on prior study, that they would like to explore for a short time at the beginning of the next tutorial;
(5) quick evaluation strategies at key points in teaching.

3 The case studies

The website http://www.ltsn.ac.uk/genericcentre/senlef contains all of the case studies collected as part of this project, some 42 in total. This publication contains a small selection of case studies to illustrate the type and range included and the sort of information contained within each case study.

The eight case studies selected cover a variety of institutional types and a range of disciplines. In total, they offer examples of all the seven principles being applied in practice.

Case study 1 – Feedback as deviations from a ‘sound standard’

Discipline/course/subject area:
Personal Development Planning, Level 2

Institution: University of the Highlands and Islands Millennium Institute (UHIMI) and Heriot-Watt University.

Start date: Term 2, 2002

Impact: The practice was **introduced**: within a course unit/module.
The practice has been **adopted by**: other institutions.

Number of students affected: around 50 in 2001-2. Not used by John Cowan this year but taken up by Dr Elisabet Weedon and Professor Ray McAleese (see below).

Contact: Professor John Cowan, LEARN Unit, Perth College, Crieff Road, Perth PH1 2NX
John.Cowan@hw.ac.uk

Others involved: Dr Elisabet Weedon, Social Science, University of the Highlands and Islands Millennium Institute (UHIMI) and Professor Ray McAleese, Combined Studies, Heriot-Watt University.

Abstract

Before each assessment, students are provided with ‘sound standards’ – descriptors against which to measure their work – and exemplars of work that goes beyond the standard expected and work that falls below. Staff explain where the exemplars deviate from the ‘sound standard’ to help students understand assessment criteria and formatively self-assess their own work. Subsequently, students get feedback on how their own work deviates form the ‘sound standard’ in the same way and can move on to self-assess their own work using the process.

Description of implementation

What was the rationale for introducing the practice?

A previous study showed that students did not understand assessment criteria and wanted to know (and use) the reasoning behind judgements.

How was the practice implemented?

The feedback process works as follows:

1. Select 4–6 headings under which work should be judged.
2. Describe for each heading what ‘sound standard’ work (valued at 55% if 40% is a pass and 70% a distinction) would look like. Avoid value words like ‘adequate’ and ‘sound’ – rather, describe ‘adequacy’ and ‘soundness’.
3. At the outset, give students ‘sound standard’ descriptors and two sample pieces of work – one better than the ‘sound standard’, one poorer. Explain the deviations from the descriptor that would raise the rating of one, and lower that of the other.
4. Provide feedback on students’ submitted work similarly – thus assuming it meets the ‘sound standard’ descriptors.
5. Encourage student transition to self-assessment based on staff descriptors.
6. Encourage student transition to self-assessment based on headings and descriptors formulated by students themselves, in accordance with module goals.

What resources were needed?

Very little additional resource is needed to implement this practice.

Enablers that help/helped the practice to work

- Getting advice on where to enhance the process – asking students individually to help make the mechanism even more effective.
- I didn't ask permission to use the process – which created no problems since the students found it helpful from the outset.

Points of advice

- Detach it from marking – to be more qualitative/formative feedback.
- Suspend disbelief: try it once, on coursework. I offer that encouragement with caution, as I'm not an evangelist – just an improver of my own practices and my students' learning experiences.

Possible improvements/enhancements (suggested by the case study provider)

N/A

External commentary (related to the feedback principles)

This case demonstrates clearly what good performance is (goals, criteria and expected standards) – Principle 3 – as well as facilitating the development of self-assessment in learning (P1) (enabling the students to develop the capacity to self-regulate performance) and closing the gap between current and desired learning outcome (P4).

Possible improvements could include introducing appropriate coaching or training in devising criteria and in the practice of self-assessment.

Perceived benefits

For students…

- The making of judgements is much more transparent and informative.
- Improved performance.
- Knowing what is expected of them and seeing how to get there.
- The process makes the formative assessment more focused.

For teaching/support staff…

- Our framework for resolving differences is more explicit and objective.

Issues/challenges

For students…

- They are confused initially by the 'criteria' – until you call them the 'headings' under which judgements are made.
- It takes a while before some students appreciate that less than the 'sound standard' doesn't mean a fail.

For teaching/support staff…

- Eschewing subjectivity: being explicit about criteria and standards.
- Throwing aside habits familiar to us since we ourselves were learners.

Case study 2 – Combining formative and summative assessment on a continuous basis

Discipline/course/subject area: Nursing and Midwifery, DipHE/BSc Life Sciences

Institution: Bell College, Hamilton

Start date: 1998

Impact: The practice was **introduced**: within a course unit/module
The practice was **adopted by**: the department

Number of students affected: around 550

Contact: Jim Dick, Biological and Chemical Sciences, Bell College, Almada Street, Hamilton, ML3 0JB, J.Dick@bell.ac.uk

Others involved: Hugh Watson, John Larcombe, Andrew MacKenzie – Biological and Chemical Sciences and Health Studies.

Abstract

Students have the opportunity to sit a sequence of formative tests to prepare them for both the content and format of exam situations. This builds students' confidence, allows for ongoing practice and timely feedback and raises confidence levels.

Description of implementation

In what context does the feedback practice happen?

We are involved in the teaching of the Life Sciences module on the Nursing and Midwifery course.

What was the rationale for introducing the practice?

Essentially, prior experience of students' expectations. They want to know where they did well and/or went wrong. Rightly so!

How was the practice implemented?

For a number of years we have been assessing the students by giving a series of tests. There are three class tests scheduled at various times during the duration of the module. The tests, 'smallish bite-sized exams', contain the following types of questions: short answer, multiple choice, and labelling diagrams, and are carried out under exam conditions (see appendix, available on www.ltsn.ac.uk/genericcentre/senlef). It is expected that students complete the tests in around half an hour. Each test carries 25 marks. To pass the module the student must attempt all three tests and achieve a mark of ten or above in each test. The final grade awarded is not graded but simply credited as an S (satisfactory) or U (unsatisfactory).

After each test the papers are marked and quickly returned to students during tutorial/lab sessions where correct answers are given and topics causing concern, or where students have performed poorly, are explored. Second diet (re-sits) follow a week or two after the feedback sessions. The advantages of these feedback sessions are enormous for students and staff alike and are summarised below.

If the first attempt at a test is failed (less than 10/25) or missed, a second attempt (with different questions of course) will be offered to the student within the duration of the module. If a third attempt is required students must contact a Life Sciences lecturer for one-to-one feedback and to arrange a third attempt.

What resources were needed?

Time is needed to carry out feedback sessions, and be prepared to adjust and alter teaching methods and/or vocabulary to make things clearer for students. In addition, assessments need to be modified in light of findings.

Enablers that help/helped the practice to work

- Having adequate staffing.
- Keeping groups small during feedback sessions.
- Refinement of test questions resulting from a greater understanding by staff of student vocabulary and interpretation of notes, etc.

Points of advice

- Ensure anonymity for students during feedback sessions, such as marks written inside test papers and not on covers.
- Possibly works well in field of Biological Sciences where many answers are 'facts'– they are either right or wrong and all students sit same test paper. For obvious reasons, it could be a nightmare if applied in areas such as psychology or sociology where individual feedback could be required for each student!

Possible improvements/enhancements (suggested by the case study provider)

Not applicable

External commentary (related to the feedback principles)

This case study illustrates the use of feedback to:

a) clarify what good performance is – goals, criteria and expected standards – (P3); and

b) respond sensitively to learners' needs in terms of timing, quantity, quality and individual differences and thus deliver high quality information to students about their learning (P5).

Possible improvements could include automating and delivering the tests online so they can be easily accessed, taken anytime, any place and as many times as the students wish. Automation also has the advantages of:

(i) using a diverse range of question types which may be more interesting and motivating to the students and,

(ii) reducing assessment workload (in terms of marking) for the teachers.

Perceived benefits

For students…

- Students now receive ongoing feedback on performance – this clearly encourages most of them.
- Where a re-sit is required they have the opportunity to see where they went wrong and to discuss it with a member of staff prior to re-sit.
- Students can question why some of their answers were unacceptable and this helps to identify areas of difficulty.
- Feedback of this nature opens up the assessment process for students. They can see that there is no mystery surrounding assessment.
- Students can see assessment criteria clearly and are aware that no preferential treatment is given to any student.

For teaching/support staff…

- There is constant quality assurance of test questions and marking schemes from a student's point of view (often more valid than lecturers/examiners/moderators because we are so familiar with the subject that there are times we assume too much comprehension and prior knowledge).
- As a follow on from the above, wording of questions/diagrams used are constantly being modified to 'appeal' to the student – not the lecturer. (Often we assume a greater comprehension of fine points of grammar, or breadth of vocabulary, than is realistic for the average student.)
- Students and staff build up a rapport that improves communication in all situations. (For example, they will ask questions in lectures!)

Issues/challenges

For students…

Some students appear anxious and open to scrutiny from their peer group if they think they have not performed well in a test. Given student numbers involved it is impossible to give feedback on a one-to-one basis in private.

For teaching/support staff…

- The process can be time consuming and occasionally confrontational if a student is not happy with their results.
- Occasionally students expect similar practices in other subject areas. Sometimes this expectation can cause a bit of friction between staff!
- Conflict between 'systems' operated at college level and module level. For example, according to college regulations, exam scripts should not show the name of the student but their matriculation number to ensure anonymity and impartiality of marking. Given we need a rapid turn round of scripts (often the day after the test) it is impossible to operate such a system based on matriculation numbers. Students are asked to put their names on the script to allow us to record marks and sort out scripts into the appropriate lab groups thus allowing us to return the marked scripts quickly. Too much bureaucracy would make the process impossible. Impartiality of marking is met by the means already described above.
- Lack of time!

Case study 3 – Feedback in interactive lectures using an electronic voting system

Discipline/course/subject area: Various

Institution: University of Glasgow

Impact: The practice was **introduced**: across a faculty/ school/group of departments.

The practice was **adopted by**: the department, other departments in the institution and in other institutions.

Number of students affected: Hard to say – growing all the time!

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www.psy.gla.ac.uk/~steve/

Others involved: Many! – see web pages www.psy.gla.ac.uk/ ~steve/ilig/

Abstract

An electronic voting system/personal response system (PRS) allows a whole class to contribute an anonymous vote to any multiple choice question (MCQ) the lecturer offers, with immediate feedback of the aggregated class responses (how many voted for each alternative answer). This can be used in any way expressible by MCQs, all of which increase interactivity in lectures for all audience sizes. Feedback to the lecturer is as important as to the students, and can be used to adapt the session on the spot and on the fly to the needs of that audience.

Description of implementation

In what context does the feedback practice happen?

In lectures: we have used it in class sizes from 15 to 300, in first year and fourth year classes, in departments across the university from philosophy to biology, psychology to computing science.

What was the rationale for introducing the practice?

The biggest weakness of typical teaching at this university, relative to Laurillard's theoretical model, is the emphasis on lectures where there is a paucity of to and fro interaction between learners and teachers. This technology addresses this weak point in a generic way that can in principle help in every subject.

How was the practice implemented?

We obtained funding and purchased enough equipment for our two largest lecture theatres simultaneously, and thus could offer a mobile service so that users would not have to change their teaching rooms. This follows the important approach of subordinating technology to the pedagogical aims. Advertising to all university staff recruited some lecturers who immediately could imagine a beneficial application. We supplied both equipment and technical assistance (in setting up the equipment on the day, and operating it if requested), so as to free lecturers to concentrate on managing the occasion and obtaining the desired pedagogic benefits. Pedagogical suggestions about ways of using it are available on our extensive web pages, but usually client lecturers had a specific idea about how to use it when they approached us rather than seeking oral consultation about pedagogical methods (as opposed to technical and practical details) beyond our written material.

What resources were needed?

- The voting equipment: we spent £17,500 for enough equipment to cover our two largest lecture theatres simultaneously (650 students at once).
- Lecturers have to design the questions, and adapt their lectures to use them. At its easiest, you can add a few self-assessment questions in a few minutes' work to an existing lecture. Designing brainteasers,

which may be the most productive in the long run, can take much longer – as can completely redesigning sessions and indeed courses for new approaches.
- Personnel to assist with moving and setting up the equipment on the day.
- Data projectors: supplied already by the university.
- Laptop or other PC for the lecture theatre: sometimes loaned, sometimes supplied by the client.

Enablers that help/helped the practice to work

- Funding.
- The way the first clients immediately saw ways to use it in their context, sometimes in ways we would never have thought of.
- Advice from educators elsewhere.

Points of advice

- Visit our website at http://www.psy.gla.ac.uk/~steve/ilig/
- Visit someone using it.

Possible improvements/enhancements (suggested by the case study provider)

Several groups are developing software with more features, which may extend the modes of use. But mainly, collecting and documenting the ways different teachers use it, which in turn frequently and rightly inspires imitation. We have learned from our clients in important ways.

External commentary (related to the feedback principles)

This is an excellent example of the use of modern technology in providing instant feedback to students on their learning. It illustrates good practice in active participation and dialogue involving tutor and peers (P2), helps students to close the gap between current and desired learning outcomes (P4) and, due to its fast, succinct nature, is delivering high quality information to students about their learning (P5). This is particularly worthy of dissemination and trial in other institutions.

The website at http://www.psy.gla.ac.uk/~steve/ilig/ lists papers to read.

Perceived benefits

For students…

- The interactivity keeps them active and focussed.
- The anonymity is often valued, so they contribute with complete certainty.
- The feedback (if self-assessment questions are used) is valued because it is usually in short supply, and because it is timely (right after first encountering a concept), and used to self-direct what they follow up on.
- If used to initiate discussions with neighbours, this is both enjoyed at the time, and is productive of deep learning – getting learners to process and produce reasons for and against rival interpretations.

For teaching/support staff…

- It allows, or makes easier, various tactics such as initiating small group discussions, or providing students with feedback without having to mark the answers in person.
- In advanced use, it lets a teacher see what this audience does and does not understand well, and adapt what they do on the spot. A teacher can practise contingent teaching: coming with a variety of prepared material and selecting from it according to the audience responses.

Issues/challenges

For students…

- Most are positive.

For teaching/support staff…

- Designing good questions.
- Being less in control.
- Deciding what to give up to make more time for this.

Case study 4 – Enhancing effectiveness and efficiency in student feedback

Discipline/course/ subject area: Accounting, Business and Management

Institution: The Robert Gordon University, Aberdeen

Start date: January 2003

Impact: The practice was **introduced**: within a course unit/ module

Number of students affected: 55

Contact: Win Hornby, Teaching Fellow and Senior Lecturer Business Economics, Economics and Public Policy, The Robert Gordon University, Schoolhill, Aberdeen AB10 1FR, w.hornby@rgu.ac.uk

Abstract

This case study examines a method of improving feedback to 55 final year Accounting and Finance honours students. Using grade-related criteria together with self-assessment and a bank of feedback statements, students received a feedback report including guidelines from a tutor via email in real time as the tutor was assessing the work. The benefits of this approach were thought to be: speed of feedback; a detailed evaluation against specified criteria; an opportunity for students to reflect on their learning, to evaluate their own performance against the specified criteria and to compare their evaluation against the tutor's evaluation; and pointers for students on how they might have improved their performance by reference to the guidelines.

Description of implementation

In what context does the feedback practice happen?

Students at the Aberdeen Business School in the final year of the Accounting and Finance degree are required to undertake a module on the Economics of Taxation. As part of the assessment for this module students were required to undertake some small scale, independent research on one of three tax topics. Each of the topics required the students to do a search of the literature; to apply the key economic models, frameworks and concepts of the module; to critically assess the evidence; and finally to evaluate alternative proposals. Students also used an online discussion forum to clarify the criteria and to 'unpack' the meaning of each of the dimensions.

What was the rationale for introducing the practice?

The main rationale for the introduction was dissatisfaction by both staff and students with the way feedback had been provided in previous years. In the past, feedback had consisted of comments at the end of the report but not linked specifically to pre-specified criteria. A percentage mark would be awarded but students were unable to ascertain the basis on which it had been derived. This led to student dissatisfaction and feelings that marks were awarded arbitrarily. Also because of the length of the reports and the fact that the submission date was usually set close to the end of the semester, students received no feedback prior to sitting the examination. Thus feedback was largely irrelevant as a factor in influencing subsequent performance. The University had introduced a common grade-related set of criteria and it was decided to use these criteria to provide feedback and to allow students to use the same criteria to self assess. Part of the feedback process also provided an opportunity for the tutor to review his assessment of each of the dimensions using the assessment by the student on the same dimensions. (See Appendices A and B, available on the website at www.ltsn.ac.uk/genericcentre/senlef)

The process has improved speed and efficiency in providing feedback because we now provide agreed criteria on which students are assessed and the opportunity for students to reflect on what they have learned from the coursework via self-assessment and using the same agreed grade-related criteria and guidelines as tutors.

How was the practice implemented?
During the first three weeks of the module, one session was devoted to a briefing on the coursework and the setting up of an online discussion forum dealing with coursework issues. The statement bank was devised which corresponded to each of the dimensions/ criteria that were used in the assessment of the coursework with statements corresponding to a top grade (grade 6) a very good grade (grade 5) etc. These were then attached to the set of guidelines (see Appendix C available on www.ltsn.ac.uk/genericcentre/senlef). As the tutor marked each report inappropriate statements were deleted and other comments were 'tailored' where appropriate. The feedback plus guidelines were then emailed to the student with the agreed understanding that the grade awarded was provisional subject to double marking and external verification.

What resources were needed?
No significant resources other than 'one off' set-up costs for statement bank.

Enablers that help/helped the practice to work

Professor Sally Brown from the Institute of Learning and Teaching in Higher Education (ILTHE) gave a workshop on streamlining assessment at the University. The idea of statement banks was discussed in this forum.

Possible improvements/enhancements (suggested by the case study provider)

One way of improving effectiveness would be to spend time with students assessing and evaluating examples of reports from previous cohorts using the grade-related criteria. Students would then have experience of doing some assessing themselves and could have compared their evaluations with one another and with the tutor's assessment. It is planned to use a sample of this year's reports for an assessment exercise next year and to monitor the results.

External commentary (related to the feedback principles)

An excellent study illustrating several of the principles of effective feedback. Using a common set of grade criteria across the University leads to consistency of approach. Encouraging students to use the criteria themselves strongly supports the principle of promoting skills of self-assessment and reflection (P1), as well as clarifying what is expected of the students (P3).

Perceived benefits

For students…

- Quick, detailed feedback.
- An opportunity to develop students' skills of self-assessment.
- Guidance on how to improve their performance.
- Also see attached email (Appendix D available on the project website at http://www.ltsn.ac.uk/genericcentre/senlef).

For teaching/support staff…

- An efficient method of giving detailed feedback.
- Speeding up the process of marking.
- Fewer 'hassles' and disputes over grades/marks.
- Positive feedback from students on the process.

Issues/challenges

For students…

- To face up to the challenge of self-assessment.
- To 'unpack' the meaning of each of the criteria on which they were to be assessed.
- Students had to appreciate that there was a 'trade-off' between getting quick feedback and realising marks were only provisional at this stage.

For teaching/support staff…

- To devise a statement bank which corresponded to each of the criteria and each of the grades for each criteria. To 'personalise' the reports appropriately.
- To 'induct' students into the process of self-assessment and evaluation.
- To be comfortable with the risk that marks might be amended by external/internal assessors thus 'exposing' the tutor as either too harsh or too soft!

Case study 5 - Using immediate feedback in class: The New Approaches to Teaching and Learning in Engineering (NATALIE) Project

Discipline/course/subject area: Engineering

Institution: University of Strathclyde

Start date: 1997

Impact: The practice was **introduced** across:
a degree programme/scheme of study, a faculty/school/group of departments, the institution as a whole.

The practice was **adopted by**: the department, other departments in the institution and in other institutions.

Number of students affected: around 500

Contact: Professor Jim Boyle, Department of Mechanical Engineering, James Weir Building, Montrose Street, Glasgow G1 1XJ
jtboyle@mecheng.strath.ac.uk

Others involved: Many

Abstract

An electronic 'classroom communication system' (CCS) is used to gain immediate feedback from students during lecture classes. This enables the lecturer to gain a quick perspective of where the class is in terms of understanding on any aspect of the lecture and to adjust subsequent teaching by concentrating on areas of student need. At the same time students get immediate feedback from the exercise as to whether they have understood. They can also compare their progress with the rest of the class thereby reducing any sense of isolation and anonymity in lectures. CCS helps support teacher-student dialogue where classes have large numbers of students.

Description of implementation

In what context does the feedback practice happen?
The practice is introduced to students in all engineering modules in first year.

How was the practice implemented?
The scenario below is my 'take' on the students' experience of the 'classroom communication system' (CCS), more commonly referred to as the 'zapper'!

'. . . after a long summer break you've started your new university course and classes have begun straight away. The lecturer in one important class is doing revision, but you don't remember doing that stuff and that other stuff you never understood anyway. So you go back to your books to see what it was about, but the lecturer is now on to a new topic and you're not following what he's saying. You wonder if anyone else is – but looking around most are staring out the window or doodling. Some seem to be writing down what the lecturer is saying. At lunchtime the girl next to you says she's having problems too – so you both decide to go to the tutorial. It's very busy and the tutors are running around helping students to do problems like you get in the exams. Are the others doing okay? There must be a lot who understand all this because only about half the class are at the tutorial. You can't get to talk to a tutor and next week there's another new subject and you haven't even understood the last one! There's a lot of homework to be done and you seem to have to work much harder than at school. If everyone else follows this perhaps you don't fit in here – you've chosen the wrong course and everything's a mess. The handful of students you hang out with think they have also chosen the wrong course – but they do know a guy who sits down the front of class who thinks it's all a breeze.

At the weekend you talk to one of your old friends from school – they're taking a course at Strathclyde. It seems different there – they are put into the same group for all their classes, and different groups work with each other and spend a lot of time talking to lecturers. Even though the classes are big, they give the students some sort of 'zapper' that they use to answer questions in class. The lecturers don't seem to go so quickly or cover as much material in class as you do. In a typical class the lecturer introduces a new topic and briefly describes the background, perhaps

showing a video or including a real case study. The lecturer then asks a question – usually multiple-choice – to see if the class have followed this little bit. To begin with she asks for an immediate response using the zapper and a histogram is shown on the screen collating all the students' responses to the question: your friend says that quite often the class disagree. She says that even if you didn't understand what the lecturer was talking about you can see that quite a lot of the class don't either! Without saying what the correct answer is, the lecturer then asks you to convince your group of your response and they have a discussion – one of the group seems to understand it better and convinces the rest.

The zapper is used again and the class see that quite a lot have now chosen one particular answer. The lecturer may then ask some students to explain why they chose this answer – it's a bit daunting but its done in fun and the lecturer makes as many mistakes; and you can see that other students are thinking the way you are about this.

Sometimes the class still don't seem to 'get it', so the lecturer asks some more, often simpler questions, and the class all talk about the topic some more. Sometimes everyone seems to understand this and the lecturer moves on to another topic. Your friend says the class really likes this – she can see that progress is being made and that the lecturer adapts to what the class thinks so its difficult to get left behind. Best of all the class seems to be moving forward as a whole and you get to know each other much better . . .'

Probably an idealised student perspective – but perhaps not too far from the truth when we interview students. The 'zapper' is the 'classroom communication system' (CCS) that allows the class to be polled. Many types of questions can be asked – not restricted to the class topic. However we have found it to be a very powerful form of instantaneous feedback. It has exceeded our expectations in many ways. Initially, we thought of instantaneous feedback as a very simple form of formative assessment – do the students understand what I've just been talking about? So, it is bi-directional instantaneous formative feedback as well! The lecturer learns a lot about how students learn. But we have now seen that 'feedback' means many things – not just whether the topic has been understood, but it can also let the students know how they are progressing compared to the rest of the class, it can let the lecturer know the 'mood' of the class and about many other, more subtle issues.

What resources were needed?
Effort required to initially re-work 'lectures' into a different format focused on key concepts and questions and then later to update these after class testing. The CCS zapper system for about one hundred students costs about £1000 plus a computer.

Enablers that help/helped the practice to work

- Support from the University and Faculty.
- Considerable enthusiasm.
- Visiting other educators using the technique.

Points of advice

- The best way to appreciate the use of a classroom feedback system is to watch a class in action.
- The best way to ensure a wider take-up is to get others to actually visit the class, observe, ask questions, talk to students etc. and not just read about it.
- All academic staff who have used Classroom Communication (or Feedback) Systems now find it very difficult to give a traditional lecture. The feedback to the lecturer in 'real time' is just as important as the instantaneous feedback to the students. In later years, in classes where these systems are not used, the students complain about the lack of interaction and feedback – the staff complain that the students are asking more questions instead of just sitting passively.

Possible improvements/enhancements (suggested by the case study provider)

Have students formulate their own questions to be asked in class and polled. This development might be appropriate with students in later years of study who have had early experience of lecturer-formulated questions.

External commentary (related to the feedback principles)

The use of an electronic communication system is an exciting and innovative way of giving immediate feedback to students in class. The case study also shows that this method helps the lecturer re-align teaching input based on learners' needs (P7). The 'big picture' or snapshot of students' understanding provided by the histogram information gives the lecturer a better insight into areas of difficulty or student misconceptions. The discussion in groups about incorrect responses adds another layer of feedback, this time from peers.

This feedback derives from the active discussion that peers have about the logic behind the answers to multiple-choice tests (P2). This method also helps close the gap between desired learning and actual performance by giving students a chance to try the same multiple-choice test a second time (P4). As our student groups become more diverse this is a really effective means of tracking student progress, uncovering difficulties and of facilitating a more focused use of a lecturer's time and as a result clearly encourages positive motivational beliefs and self-esteem.

Further reading

Boyle, J. T. and Nicol, D.J. (2003) Using classroom communication systems to support interaction and discussion in large class settings. *Association for Learning Technology Journal* [*ALT-J*] **11**(3), 43–57.

Nicol, D.J. and Boyle, J.T. (2003) Peer instruction and class-wide discussion: a comparison of two interaction methods in the wired classroom. *Studies in Higher Education* **28**(4), 477–73.

Perceived benefits

For students…

- Lectures are more fun: they can participate.
- Deeper learning.
- Can discuss difficult concepts.
- Better use of time.

For teaching/support staff…

- Same benefits as highlighted for students.
- Focus on important concepts in subject discipline.
- Improved attendance.
- Learn about student misconceptions.
- More engaged students.

Issues/challenges

For students…

- Almost all students are very positive about all aspects.
- Coming to class at 9:00 in case they miss something!

For teaching/support staff…

- They are not so much in control and need to be adaptive to changing student needs.
- There is less time for 'delivery of material'. This worries some staff.
- Developing good multiple-choice concept tests.

Case study 6 – Self and peer-assessment of written work in English Literature

Discipline/course/ subject area: English

Institution: University of St. Andrews

Start date: 1995

Impact:
The practice was **introduced**: within a course unit/module

The practice has been **adopted by**: others in the department

Number of students affected: around 20–25

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Abstract

During an honours module, students have the opportunity to experience self-assessment to help them become more reflective learners and better understand marking criteria and course aims. In addition, formative peer-assessment is introduced, which as an assessor helps them to develop their skills in giving and receiving feedback. As a recipient, this peer-assessment allows them the chance to further reflect on their work and to modify a draft assignment in light of the feedback.

Description of implementation

In what context does the feedback practice happen?
The practice is used with students in third and fourth year honours.

What was the rationale for introducing the practice?

1. Essays take about 12 hours to write, and around 30 minutes to mark. Feedback is usually read in around two minutes. This is an unequal conversation; I wanted to balance it. Self- and peer-assessment typically lead the students to be more engaged with the tutor's views and learning goals or outcomes.
2. Academics often use silence to indicate consent, and may not comment on what seems to them satisfactory. They may thus ignore an aspect of work which worries the student. Self-assessment allows the student to say so.
3. Peer-marking allows students to reflect both on the content of their work, and on their working strategies, in relation to those of other students.
4. Peer-marking allows for feedback on work in progress, unlike the summative assessment in the modular system.
5. Having to mark their own or another student's work encourages students to think more carefully about criteria, and the aims and objectives of the module.

How was the practice implemented?
Students are required to submit two essays for the module. For the first they are asked to complete a self-assessment sheet, identifying the strengths and weaknesses of the essay, what they want to improve/will do differently next time, what they wish me to comment on, and what mark they think the essay deserves. I engage positively with these comments – I do not (for example) ask why the student did not remedy perceived weaknesses – and respond to all of them, in particular to explain any discrepancy between my mark and the one the student thought appropriate.

For the second, they are asked to exchange essays with a peer, and to mark each other's essays, to criteria and ground rules they choose themselves. (Students can, for example, ask the peer-marker to note only what they admire, or only what they wish to dispute.) They can, if they wish, then revise the essay, and submit both the peer-assessed piece (which

now becomes a draft) and the final version; if the latter shows signs of making good use of the peer's comments, the writer rather than the marker is given credit for that. My marks take note of the peer's comments, as well as the writer's argument etc.

What resources were needed?

Preparation of an A4 sheet for self-assessment and around ten minutes to brief the class.

Enablers that help/helped the practice to work

- Modularisation allowed staff to organise modules more or less to their own preference, within broad parameters (including the roughly equal division between continuous and end-of-module assessment). One entirely welcome consequence of this has been a greater diversity in marking and feedback practices.
- For three years, about a decade ago, I was seconded part-time to work on academic staff development. Much of my teaching style reflects the work I did then, including the courses and events which I attended (or organised) on assessment. (This included the ASSHE – Changing Assessment Practices in Scottish Higher Education which can be found in the resources area of www.ltsn.ac.uk/genericcentre. I still have a responsibility within academic staff development, and occasionally run workshops on assessment, where these ideas are exposed for discussion.
- Enhancing practice by taking into account student evaluations using open questionnaires. Students are asked to write what they think I should continue, stop or start doing the next time the module.

Points of advice

My experience suggests that these methods work only if the students understand the reasons for them; time has to be made to explain them, and to support students who feel (unduly) worried about them. I've found it necessary to alert students to the use of self- and peer-assessment in the module descriptors.

Like most institutions, universities are uneasy about change – that something has been done before, or has not been done before, are equally good reasons for not doing it now – but other than inertia I have found no real obstacles, except to the development of the scheme to allow self- or peer-assessment to count in the final marks awarded.

I have made greater efforts to explain the reasons for using these forms of assessment, and made myself available for discussion with students who feel uneasy about them. I've also said more about 'ground rules', that is, the conventions students agree to use when peer-marking (for instance regarding confidentiality, use of a pencil rather than red pen). I've also allowed students to suggest a mark using a scale other than the university's standard one when self-assessing. They don't need to do so in the peer-assessment, though they may, with the agreement of their peer, so that they feel less intimidated.

External commentary (related to the feedback principles)

This case study enacts more than one loop of student-student and student-lecturer feedback. It provides the opportunity for students to:

- develop self-assessment skills (P1);
- engage in peer and tutor dialogue around learning with peers and tutors (P2);
- clarify what good performance is (goals, criteria and expected standards) (P3); and
- close the gap (between current and desired learning outcomes) (P4).

Possible improvements may include introducing appropriate coaching or training in devising criteria and in the practice of self- and peer-assessment and in giving feedback.

Perceived benefits

For students…

- Learning about their own and others' working styles.
- Encouragement to reflect on course criteria – becoming more self-aware.
- The chance to identify areas of concern (and invite comments on these).
- Feedback is taken more seriously. (The reference to what they will do differently next time points towards future work – and as the tutor I expect to note whether the student has indeed done things differently – whereas summative assessment typically looks back to work done and dusted in the student's mind.)

For teaching/support staff…

- Feedback can be more directed, with more hope that it will be taken seriously.
- Criteria and course aims are brought into the forefront of students' minds.
- Students' comments on their own work can be copied and referred to later, in relation to other assignments.
- The style and tone of students' comments on the work of their peers may suggest the style and tone in which they would wish to be addressed. (For example, I have found that students use pronouns more often than staff: 'I like what you do here' rather than 'good comment'.)

Issues/challenges

For students…

- Both self- and peer-assessment take time and can seem frightening.
- Finding a peer-marker can be difficult.

However, in all but a few cases, initial wariness gives way to a (sometimes slightly grudging) recognition of the usefulness of the exercise, sometimes with a comment that it would have been more useful at an earlier stage in the degree programme (which is out with my control). For example, 'I hated the idea of peer-assessment, especially commenting on someone else's work, but I did find it useful even though my peer-marker had taken a completely different line from me, though as I'm in my final year I don't have much time to benefit from it.' Other comments include: 'I found the self-assessment really difficult – especially trying to suggest a mark for my own work – but I was glad to have a chance to show what I wanted comments about, even though in the end the things I'd been worrying about seem to be OK.'

For teaching/support staff…

Both self- and peer-assessment are broadly neutral in terms of how much time they save/cost, but both impose responsibilities, for example:

- to adopt an appropriate tone/register;
- to take note of all that the students say (and to be willing to read between the lines; like the man who goes to the doctor complaining of a headache when he thinks he has a tumour, students don't always identify their concerns directly);
- to be ready and able to refer back to student comments when marking later assignments.

Staff resistance can be an issue. For example, I wished to take the results of self- and peer-assessment into the grading for the module: colleagues are not prepared to allow this.

Case study 7 – Portfolios and feedback: enhancing self-assessment

Discipline/course/subject area: (MSc) Nursing and associated routes, (MSc) Midwifery and associated route, School of Acute and Continuing Care Nursing, Faculty of Health and Life Sciences

Institution: Napier University, Edinburgh

Start date: 1999

Impact: The practice was **introduced**: within a module

The practice was **adopted by**: the department

Number of students affected: 60 plus

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Abstract

Portfolios are used as a way to engage students in a self-reflective learning process, which brings together their previous learning and aims to contextualise it and relate it to actual practice.

Description of implementation

In what context does the feedback practice happen?
The assessment of the Masters level module requires students to reflect on their previous seven modules and produce a portfolio of evidence of how, after completing the module, their enhanced knowledge (as Nursing and Midwifery students) has been used in transforming their practice.

What was the rationale for introducing the practice?
We wanted an innovative programme and felt that this module was exactly that! We also wanted students (and their employers) to see the value of studying our Masters programme not just in terms of an academic achievement but also evidenced through tangible outputs.

How was the practice implemented?
Students produce a 5,000 word portfolio which aims to demonstrate the following:

a) Evidence for each theoretical module to date which demonstrates critical analysis of their own application of relevant theory to practice.
b) From their analysis, students prepare a personal development plan that identifies their own strengths and areas for improvement.
c) Having identified areas for improvement, students are required to submit an action plan describing how their identified needs can be met.

The method of feedback to students involves both self-assessment – which is required throughout the portfolio – and feedback from the academic staff marking the portfolio. The feedback involves the markers commenting not only on how students have faired in meeting the learning outcomes of the module, but also includes commentary on how the student has developed over the period of time they have been on the course. The outcome of this feedback, from both self and tutor, normally results in a recognition of how much the student has actually learned and students report how much this enhances their confidence and self-esteem. It also provides their manager,

who may have met some or all of the fees and/or agreed to study leave, with evidence of the positive effects of that investment.

What resources were needed?

Once the module handbook, study pack and assessment guidelines are written, the only requirement is the normal updating of material. (The module is in a flexible format.)

Enablers that help/helped the practice to work

- Including others in the design of the module.
- Team working.

Points of advice

- Assessment guidelines need to be very clear.
- Students need to be aware that they will be producing a portfolio of evidence from the commencement of the programme.

Possible improvements/enhancements (suggested by the case study provider)

The module is currently being developed and transferred into WebCT for online delivery. Students will have a discussion forum where they can share ideas and gain support from one another.

External commentary (related to the feedback principles)

This case study provides an innovative approach to assessment across an entire named award. The student production of a portfolio relating to achievement in other parts of the course relates to Principles 1, 2, 3, 4 and 5. The dialogue that staff and students engage with as a result of the feedback clearly relates to P4 and P5. The fact that this is adopted across a department demonstrates clear commitment to enhancing student learning. Greater use could be made of on-line facilities both when preparing the portfolio and when providing feedback.

Perceived benefits

For students…

- Makes them reflect on their own development and celebrate it.

For teaching/support staff…

- Affirms the benefits accrued by facilitating students' learning in all modules.

Issues/challenges

For students…

- Some international students have difficulty with the level of reflection expected and with analysing the impact of knowledge on transforming practice.
- It can be a time-consuming process and some students are better at reflecting than others.

For teaching/support staff…

- Portfolios are time-consuming to mark, but that said, the portfolios are normally very enjoyable and illuminating to read.

Case study 8 - Work to win: formative feedback on demand

Discipline/course/subject area: BSc (Hons) Quantity Surveying, Levels 1 to 4

Institution: University of Abertay Dundee

Start date: Semester 1, 1998

Impact:
The practice was **introduced**: within a course unit/module

Number of students affected: Based on the entire course, around 60, as the course is being phased out and numbers are dropping – combined with no further intake at this time.

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Abstract

Students are given the opportunity to submit and receive formative feedback on draft pieces of coursework at any stage in the learning process, giving them timely advice that they can act upon, learn from, and resubmit before summative assessment.

Description of implementation

In what context does the feedback practice happen?

Effort is essential in achieving academic goals. Providing a number of formative assessments (usually short quizzes at the end of tutorials) helps students get to grips with the subject – but students can opt out of the learning experience.

However, it is far less likely they will opt out of submitting coursework. With that in mind, students are offered advice on draft coursework submissions to improve their work – immediate feedback that they can learn from and act on. This is far better, in my view, than feedback after the grade is awarded, as students can use the feedback and do make an effort to learn from advice.

What was the rationale for introducing the practice?

Frustration at students not doing well when they should have been able to. I could only deduce that they were not working hard enough on the subject, as there were no indications in class that they should have experienced trouble. However, to make sure it was not something I was doing (or not doing) I got colleagues to observe classes, check teaching/learning materials etc. to see if there was something I was missing. They did not identify anything in my materials or teaching practice that indicated failure on that part.

In my own experience, I have learned that educational success comes largely from effort and not some 'secret' intelligence. Having applied that philosophy to my teaching practice, any student that puts in the required effort will succeed, regardless of their previous educational background.

The issue was, therefore, how to ensure the minimum effort required was put in. Most effort is generated where the reward is highest, so using assessment is a good starting point – after all, that is what they are actually measured against.

How is/was the practice implemented?

Students can get detailed feedback, something more meaningful than just an 'OK'. In effect, they can get a fully marked draft or drafts and they get drip-fed information, pushing them further each time. They cannot submit a draft then get a solution to gain top grades. The proviso is that feedback will, at each attempt, aim to improve the work by around two grade points (although the grade they start from is not detailed) until the time which they would need to expend on improving the work would not achieve a meaningful grade improvement.

What resources were needed? Time!

Factors that help/helped the practice to work

- The ideology to improve student learning.
- Students willing to 'buy into' the system.
- Students who see this as essential to their success – they are usually those who are setting high personal standards, regardless of where their performance in the class typically appears to sit.

Points of advice

This method requires a genuine belief that all students who engage in this process really want to learn, so positive reinforcement is essential. Once students engage in this process they really like the opportunities. This, in effect, is helping them to reflect on their practice at the earliest opportunity in their career and to get into the habit of doing so.

Possible improvements/enhancements (suggested by the case study provider)

I would like to get more students engaged – I still have to crack this one – but, as I mentioned earlier, if demand gets too high I won't be able to give the time to do this to the same level.

External commentary (related to the feedback principles)

This is an example of good feedback being used to close the gap between current and desired learning outcomes (P4). However, providing personalised feedback to a large number of students involves considerable teacher workload and is resource intensive. However, it is clear that the method provides information to teachers that can be used to help shape the teaching (P7).

Possible improvements/enhancements could include:

- linking the feedback comments to assessment criteria. This would help to clarify the assessment requirements and focus feedback to help improve performance (P3);
- involving students in providing some peer-to-peer critique of each other's work. This would increase student-student rather than student-tutor input and thus reduce teacher effort (P2). In addition, this practice would contribute to the development of students' judgement and decision-making skills.

Perceived benefits

For students…

- Immediate feedback that they can learn from and take action on.
- Opportunities to submit anything at very early stages of their work and get advice and direction which can help them to avoid abortive work – a draft after all is only that – a draft.
- Learning about how to accept constructive criticism and get an insight into developing their work. Those who submit drafts appreciate the benefits – they like it and because the feedback is done face-to-face I can ask questions such as, 'you state here…how did you come to that' which don't seem threatening. An explanation, rather than some cold statement, can help.

To be honest, once students have a grade, how many really learn from their errors? I don't know of any study into this, but my instinct tells me that students are not following up on support offered to improve their learning. They make the same basic errors in consecutive coursework assignments – I have checked – so they have not learned from the first feedback. On the other hand, those who submit a draft (or several) at each opportunity, consider the advice, and may or may not make changes as they see fit, can always put forward reasons if I have raised a question on something or asked them to look into it further.

For teaching/support staff…

- Feedback on the general progress of the class, how they are dealing with assessments, and where any difficulties may be for the class as a whole (which can then be addressed).
- Feedback sessions can be enjoyable for teacher and student, and generate some interesting discussion, particularly with the more able students who can really be pushed to optimise their potential – bearing in mind their other work, of course. It is nice to note comments on student feedback forms such as, 'I wish I had taken the opportunity to do draft coursework last year.' and 'You really pushed me with this coursework, I enjoyed doing this one the most.' Best of all is the 'Thank you', which makes it all worthwhile when a student has finished a feedback session. The appreciation of the support is in itself highly rewarding.

When peer review is carried out, positive statements are noted in the review forms when students are questioned about support and advice. This makes the effort worthwhile. Comments given to reviewers have included: 'I like this subject because I know exactly what I have to do', and 'It was great to get to know lads from the other courses 'cause they have helped with other things'.

Issues/challenges

For students…

- Not all students take up the offer – possibly out of embarrassment? The usual reason given by students is lack of time even though the coursework is always issued in the first week of semester. (I believe in giving as much time as possible for students to plan their assessment workload, but it is still evident that some leave work until the last minute.)

For teaching/support staff…

- Time, time and time! If every student took up this opportunity I would have to stop offering the service. Sessions typically take around 30 minutes, but can take up to an hour for honours work and for semester 2 submission at level 3, where more in-depth questions may be asked of students.

4 Possible Workshops

The project team have developed two outline workshops that you may wish to consider offering in your own institution using the complete set of case studies that are available on the web site.

These workshops cover the following scenarios:

- A lunch time (1.5 hour) event.
- A half day (3 hours) event.

The guidelines given here for running workshops are based on successful events in our institutions. If you develop a particularly innovative way of using the materials then we would be delighted to hear from you.

Student Enhanced Learning through Effective Feedback (SENLEF) workshop plan

These workshop plans offer a framework for a half day (three hour) event. Those attending may be staff from a variety of disciplines or a cognate group from a department, faculty or school.

Programme

Pre-event briefing

1. Outline description of the session with aims and outcomes, session format. Contact those who may be interested, perhaps by means of a staff development programme, email list or website. The session should emphasise that this will be an opportunity to think about formative feedback to learners and that there will be an opportunity to look at case studies of how this can be done in practice. The case studies used in any given session are likely to influenced by the staff who are attending. The web site for the project provides an opportunity after the event for those who have attended to investigate further case studies.
2. Before the event each participant should receive a confirmation of the event and some 'pre-reading'. The pre-reading might include the *Rethinking Formative Assessment in HE: a theoretical model and seven principles of good feedback practice* paper in this publication. The pre-session preparation might involve getting participants to reflect on their own feedback practice.

Format of workshop

Part 1

Introductions from those present.

Either in a small group or plenary group address the question: What makes for 'good' or 'effective' formative feedback to learners? If you have asked participants to reflect on their own feedback practice prior to the workshop you could ask for participants for examples of their feedback practice.

Group responses into suitable headings – using the seven principles in the paper.

Present the theoretical model and the seven principles in relation to published research on formative assessment.

- Research and model.
- Seven principles and research evidence.

Ask for comments or break group up into small groups to discuss the model and the principles. (Omit this part for a lunchtime event – simply present the model and principles and move on to Part 2.)
This part of the workshop should take 60 – 70 minutes.

Part 2

Task 1 (in small groups):
Examine a case study or case studies: say the electronic classroom (Personal Response System) – case study 3 in this paper – or the Class Communication System (case study 5).

- Consider the case study in relation to seven principles and model.
- What principles are present/absent?
- Can you identify how the principles enhance the teaching and learning in this instance?
- Can you suggest any improvements to the way the 'feedback' is given?
- Could you use this form of formative feedback in your own practice and if *not*, why?
- Report back and discuss issues as they arise.

[Note: Task 1 could use any other case study and ask how formative assessment and feedback could be improved based on the seven principles]

Task 2 (in small groups or plenary discussion):
This part can be omitted in the lunchtime event.

- How useful do you think this feedback model and the seven principles are as a means of evaluating your own 'assessment for learning practices'?
- Are there any gaps in the model or principles?

This part of the workshop should take 60–80 minutes (depending on how many case studies are looked at by the small groups and how many small groups are being facilitated).

Closing remarks

Following-up

Before concluding the workshop it is advisable to get participants to think about what they might do next. This could be done either through an action planning exercise at the end, or by an email to participants a couple of weeks after the event asking what they have done as a result of the workshop.

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Bob Matthew, on behalf of the SENLEF team.

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