CHAPTER 2: CHANGING CONCEPTIONS OF FEEDBACK

Elizabeth Molloy and David Boud

Introduction

Feedback has proved problematic for individual learners, for teachers and for institutions. The lack and availability of it is criticised by students. Teachers bemoan the burden of marking. And leaders of educational institutions wonder why of all things they have to deal with, feedback creates so much difficulty. There is no shortage of proposals and recipes for action. Is it just a matter of seriously attending to these and ensuring that they are put into practice? If only it were clear what feedback was and how it could be implemented well, then the problems should severely diminish. The fact that so much has been written about the topic and so much energy has been expended without resolving the problem suggests more of the same is not enough. So much has been invested in the idea that it can't be wished away; it has to be confronted. New ways of thinking about feedback are needed. A clear view of current assumptions and practice is needed as a starting point, but it is also important to step back and examine feedback in its wider context to see what it promises and what it might be reasonably be expected to do.

In this chapter we suggest that it is necessary to go back to the origins of feedback in other fields of endeavour: what has it been used for and how it has been used effectively. Feedback is not an idea native to education. It is an enormously powerful and successful concept that has been borrowed from other disciplines and taken up in the field of education. It is from the translation into the educational context that different feedback practices and traditions have sprung, many of which have lost the main feature of the idea and have not proved fit for purpose. New ideas about feedback have been introduced with little evidence of their effects. We start by examining some of these practical schemes, or nostrums, that have embedded themselves in the teaching and learning discourse. And we will highlight how problematising these practices can lead us to thinking about feedback in a different, and hopefully more useful way.

Following this critique of common practices claimed as 'feedback' we wish to consider the idea of feedback in its wider context. First to see what ideas from its successful application elsewhere offer something for education, and then to

examine what it is that feedback in education in particular needs to satisfy if it is to be successful.

Two models for practising feedback will be introduced and discussed, drawing extensively on a framework we have proposed in a recent paper (Boud and Molloy, in press). The first of these is built directly on the origins of feedback in other disciplines and identifies the key characteristic of feedback as a noticeable change in learners. The second model builds on the first, but it adds the unique feature of educational feedback: that the learner has volition and agency. It treats the learner not as if they were a passive object responding to a stimulus, but as a thinking, acting person. In this model, feedback is positioned not as an episodic act linked to marking of assessed work, but rather as situated *as part of* the overall design of the curriculum with a clear function to perform. The implications for practice in these two frameworks will be considered, including generating dispositions for teachers and learners to effectively take up these forms of feedback, along with features of curriculum design.

Challenging the Nostrums

Reports of learner dissatisfaction with feedback, whether in the educational or workplace setting lead us to re-examine the ways that what is commonly termed 'feedback' is being enacted. In professional development there are a number of assumptions or recipes that are sometimes promoted as 'best practice'. Dissecting these nostrums can provide revealing insights into how feedback is viewed, carried out and evaluated. While some may argue that a 'little bit of knowledge is better than nothing', we suggest that professional development that provides quick tricks or formulaic approaches to practices such as feedback can be detrimental through encouraging educators to take up practices that deviate from the main purpose of feedback. In other words, quick tricks or nostrums that are not contextualised in a sound theory or evaluated practice may do more harm than good.

Nostrum 1: All feedback is good feedback
Many accounts of feedback in education begin with the claim that feedback drives learning and that learning or performance is optimised through the provision of feedback to students. If we look at the evidence, particularly the very helpful comprehensive systematic reviews by Hattie and Timperley (2007) and Kluger and DeNisi (1996), it is clear that some feedback has no effect on learning or performance, and in fact, that some has negative effects. Empirical work in psychology and healthcare suggests that feedback is a complex process and can have both positive and detrimental effects on performance depending on the task, the learning setting or the learner's motivation in approaching the task. For example, research by Kluger and Van Dijk (2010) and Ilgen & Davis (2000) indicated that critical feedback provided without sufficient strategies for

improvement could undermine task performance and motivation for subsequent mastery of tasks, projecting students into a state of 'learned helplessness'.

This lack of productive impact of feedback on learning is not limited to episodes of critical or harsh commentary to learners. Ende's (1983, 1995) studies indicated that feedback characterised by praise had little impact on learner's performance, and if anything, had the potential to provide learners with over-inflated perceptions of how they executed tasks. These findings from both experimental and observational studies suggest that not all feedback is good feedback, and rather, that the potency of feedback as a process in learning is contingent on context, timing, and learner and educator attributes and skills.

Nostrum 2: The more the merrier

An overwhelming institutional response to student satisfaction surveys in higher education relating to the 'feedback problem' has been 'we must give more feedback' or 'we must ensure that students understand all comments as feedback'. This is either because student questionnaire responses are taken literally, or because one of the hypotheses to explain students' poor feedback ratings is that students don't recognize many examples of performance information, such as that given in lectures, as feedback.

The need for commentary on students' work, with clear, collaboratively devised strategies to improve performance on subsequent tasks is real. Whether increasing the frequency of commentary or the amount of commentary (how much is said, or critiqued) might be contested. Or at least, it should be tested. The landscape of assessment in higher education changed considerably from the 1960s with a focus on multiple assessment episodes to drive and to gauge achievement of standards (Rowntree, 1977). This change in approach was stimulated by arguments about the lack of validity of once-off assessments in a standard format and also the reported stress on students in completing single high-stakes examinations. There should now be more opportunities structured within programs to give and receive feedback, yet students appear to be more disillusioned with feedback than ever. Why is this so?

One explanation might be that the frequency or volume of feedback does not necessarily equate to meaningfulness or usefulness of feedback to learning. Rather it may be that the conditions in which feedback episodes sit, have a larger bearing on the student experience of whether or not engaging in feedback is worthwhile. For example, continuity of the learner-educator relationship so that educators develop a close understanding of the learners' work over time (including how the work changes in response to feedback) may be more important that the volume of feedback provided in the program.

Moving from the program level to the episodic level of feedback provision, the concept of the more the merrier can also be challenged. A study by Molloy

(2009) of feedback in the clinical workplace found that physiotherapy students, when confronted with a large volume of feedback on their performance, found it difficult to prioritise the messages, and therefore were challenged to implement changes based on the information exchange. Large amounts of feedback may simply increase their cognitive load (van Merriënboer and Sweller, 2005) so much that they can't process what is available. Research is needed into what constitutes a suitable amount and type of feedback in order to both motivate learners to change their behaviours or approaches while at the same time not swamping them with information they cannot process.

Nostrum 3: Feedback is telling

There appears to be an assumption in feedback practice that what the educator does is the most important part of the feedback process. That is, educators' skills in observing learner performance, detecting points for improvement and then delivering this information in an artful way (exercising sensitive linguistic choices) are *the* determinants of feedback efficacy. While not diminishing the importance of educators, we observe that this view fundamentally misses the point. Feedback needs to be framed in terms of what learners do, what educators do is only a means to this end. Unfortunately, many professional development initiatives for improving feedback are anchored in this nostrum (Molloy and Boud, 2012). However, as Carless et al (2011) pointed out, 'tinkering with feedback elements such as timing and detail is unlikely to be sufficient [in generating good feedback]. What is required is a more fundamental reconceptualisation of the feedback process' (p 2).

There has also been recent literature, written from a constructivist perspective, about how to engage learners as active players in feedback (Butler and Winne, 1995; Boud, 2000; Hounsell, 2007). These proposals are grounded in the notion that students are central to the process of learning, and that the feedback and strategies for improving practice should be collaboratively devised between learners and educators. Despite these recommendations, many of the feedback models remain teacher-centric, and many verbal feedback interactions are didactic exchanges of educator opinion on what went wrong and what needs to happen to enable improvement.

Molloy's (2009) observational study of verbal feedback in clinical education revealed that on average the feedback exchanges lasted for 21 minutes, and that the average input from physiotherapy students was 2 minutes within this encounter. In post session interviews, educators acknowledged the monologic nature of the feedback sessions and attributed this to lack of time to engage in a legitimate conversation. Some indicated that they did in fact extend invitations for students to self-evaluate in line with best practice principles, but privately hoped that these invitations would not be taken up,

*We've all got time restraints so you know, saying 'what did you do well?'
and then giving feedback, it all takes extra time and that's an issue as well.
And you know, I find myself saying to the learner 'OK, what did you think
[about your performance]?' and then hoping inside me that they'll be really
quick about what they want to tell me.*

(Molloy 2009 p. 134).

Other educators in the study justified their 'telling' style because of a lack of
trust in students' judgements. They were concerned that inaccurate student self-
evaluations would require energy to contest with counter data and counter
arguments and conceded to acquiescing to known transmissive rituals whereby
the expert tells the novice. They seemed to be saying that if only the students'
would listen to them more attentively, then all would be well. The findings
suggest that educators may be more focused on securing short term outcomes
including efficiency and harmony of the exchange (with a lack of contested
viewpoints) rather than committing to longer-term outcomes such as developing
learners' capacity for self-evaluation in practice.

Undoubtedly it is important for educators to establish conditions favourable for
the exchange and uptake of performance information. Student-centred practices
are only achieved through focusing initially on what teachers do. However with
modelling, with increasing exposure to standards of practice and familiarity
with teaching and learning expectations, learners should be able to
progressively seek the feedback they need. They need also to be able to commit
to self-evaluation alongside externally generated feedback. By allowing
students agency in feedback practices, educators can better cue into learners'
needs for feedback and help generate meaningful and achievable strategies for
improvement. **'It is helpful to remember that what the student does is more
important in determining what is learned than what the teacher does.'** (Sheull,
in Biggs 1993 p. 73).

Nostrum 4: Feedback ends in telling
That feedback *ends* in telling is unfortunately one of the most followed and
pernicious nostrums in the feedback business. That is, a seemingly common
acknowledgement by educators that the work of feedback is done once
performance information is imparted. Definitions of feedback are promoted that
emphasise the act of reflecting back to the learner the 'reality' of the
performance—so that feedback serves as a mirror to performance (Molloy,
2009). The 'seeing' or 'replaying' or 'diagnostics' of feedback is only one
function of the process however. Sadler (1989), in his seminal paper, described
three essential components of feedback which include: information on the goal
of performance, information on the executed performance, and finally and most
importantly, strategies to address the gap between task goal and task
performance. A study in medical education by Fernando et al. (2008) found that

15

of all the feedback encounters recorded, only 50 per cent of these included strategies for how the learner could improve. The seemingly high focus on the diagnostic element of feedback, and the lack of emphasis on how the learner can move forward in their practice—the bridging the gap component in Sadler's account of feedback—is alarming. Without helping learners devise ways to move forward in their learning, Sadler has said that this information is not feedback at all, merely 'dangling data' (Sadler, 1989, p. 121). Worryingly, much of the feedback literature in higher and professional education is on how to improve the telling techniques of the educator so that they can more skilfully dangle the data (Boud and Molloy, in press).

In principle, devising strategies for learner improvement would not appear to be too onerous or too taxing a demand for the educator. Indeed, they should be a normal part of what teachers do. The lack of engagement in this key component in feedback could potentially be explained by a lack of expectation that this is part of the deal. That feedback does end in telling. The second component in challenging this nostrum is that educators have a responsibility to set subsequent (and related) tasks for the learner so that learners have an opportunity to demonstrate change in their behaviour. This subsequent demonstration of performance is part of completing the feedback loop—it is the output component of the process. The pivotal nature of this output component of the feedback loop will be explored in detail later in this chapter. The 'closing of the loop' provides opportunities to the learner, and also opportunities for educators, to evaluate the quality of their educational messages and advice. For example, if the student does not improve their performance in the subsequent task, the educator may need to rethink the way in which they have constructed the performance information and practice advice.

This observation and analysis of future task performance provides essential feedback to the educator on their own skills as a teacher. Without this how can the educator know that they have acted appropriately? Yorke (2003) argued for the importance of conceptualising formative and summative assessment as a mechanism to help the teacher. 'The act of assessing has an effect on the assessor as well as the student. Assessors learn about the extent to which they [the students] have developed expertise and can tailor their teaching accordingly' (p 482). In order to be realized, this notion relies on two things: reasonable continuity of the educator-learner relationship, and a record of knowledge of student work, so that educators can observe subsequent performances. This is turn requires the setting of subsequent tasks that enable learners to exercise similar competencies or address similar standards and noticing the changes that have or have not occurred. With the increasing fragmentation of programs where experts deliver discreet topics/modules, and the shortening placements in professional workplace learning, these two conditions are becoming harder to meet.

Picking the nostrums apart
In summary, what we wanted to reveal is that these nostrums, or rules of thumb, live in practice and get oxygenated and perpetuated through word of mouth, literature and professional development initiatives. They are decisive and relatively simplistic. And what they all assume is that feedback is a fairly simple idea; easy to execute. The nostrums serve to mask the complexity of feedback and direct attention to considerations that are probably not the most important ones.

Our intention is not to seek to generate a list of 'better nostrums' in an attempt to improve feedback practices. Rather we emphasise the elemental features of feedback and seek to elicit the implications of these for practice. We focus on what feedback exists to do, and how can it do that effectively.

Rethinking Feedback: Revisiting Origins
Feedback, as a process, was not founded in the field of education. Corrective feedback became important through the rise of mechanisation in the industrial revolution. An engine, for example, could be regulated through gauging its output (i.e. how much steam was produced) and feeding this 'performance information' back into the system to control it. Similar features can be seen in the way that a thermostat works today to control a building's temperature. The controller stores the reference value (e.g. 24 degrees) compares it with the current, measured value (i.e. 21 degrees) and on the basis of this comparison, provides an output that enables correction (raises the room to 24 degrees through a surge in heat).

Feedback has been prominent in considerations of biological processes. For example, how organisms could adapt to changing conditions and yet still maintain controlled internal conditions needed for survival. Homeostasis is perhaps the most sophisticated feedback loop we can draw upon, enabling the body to regulate variables such as PH levels and temperature regardless of inputs that threaten to undermine the delicate balance. Feedback in both engineering and biological examples involves the control of a system by reinserting into the system the results of its performance.

Feedback became part of an area of study concerned with regulation, order and stability of complex systems. In the 1950s, these principles began to be talked about in the newly created field of cybernetics (Wiener, 1954), and eventually education (Ende, 1983). The system in focus was no longer the steam engine or a biological process, but the learner. External performance information was provided to improve a learner's subsequent performance, that is, to help make it correspond more closely to the reference value, which were the standards for good work. The difference in the application to education is that humans have the capacity to think and make judgements as to whether performance targets have been reached. Information does not act automatically, it has to be

processed by learners and they have to decide whether to act upon it to lead to a changed output. The neglect of this vital stage led to a distortion of research and neglect by teachers of a necessary feature of feedback.

Because of this focus on the input of information, feedback theory in education tended to ignore the role of the learner in the process, and positioned them akin to a mechanical system whereby a certain stimulus (information from a teacher) was likely to result in a predicable response in learner behaviour. It is not surprising that feedback became a practice where a more experienced person tells a less experienced one about how they can do things better.

What was lost from the theoretical framework of feedback when applied to education (apart from the volition of the learner) was consideration of the change in the learner's subsequence performance as a result of the information input. As argued by Wager and Wager (1985) feedback became to be seen as any type of information provided to learners after they have engaged in a learning task. The mutation in definition meant that that notion of a learner comparing actual performance with intended performance and then changing subsequent performance was lost. This left an attenuated concept of feedback in education that has inhibited development ever since.

Rethinking Feedback: Feedback Mark 1
Feedback, as applied to education had become synonymous with 'telling' where educators were seen as responsible for providing accurate information to learners on the observed task. Underpinning this notion is the assumption that if students can only adhere to the advice provided, they can improve their performance. This in turn, assumes that the information that educators provide is accurate, meaningful, unambiguous and realistic, and that it enables this change to occur. Apart from disregarding the agency of the learner in this process (ignoring what they think is important, what they want to achieve, what they are able to achieve), it places enormous pressure on the educator to see all, know all and say all. No wonder the literature tells us that feedback is hard to give, as well as hard to take (Molloy and Boud, 2012). In our earlier conceptual paper (Boud and Molloy in press) we proposed two ways to think about feedback in education. These notions, or models, we described as Feedback Mark 1 and Feedback Mark 2.

Feedback Mark 1 leans on a key premise of feedback from the engineering or biological conceptualization. That is, information about their current level of work is available to learners in order to affect the quality of subsequent work. The process occurs in order to produce higher quality subsequent work, not solely as an act of communication from educator to student. There needs, of course, to be a way of determining whether this change has occurred in the direction desired because the feedback effect cannot be judged by looking at what the educator does:

18

If the information which proceeds backwards from the performance is able to change the general methods and pattern of the performance, we have a process which may very well be called learning

(Wiener 1954, p. 71)

Without this visible detection of change, we have a process we might call the imparting of 'hopefully useful information', which it would be inappropriate to label 'feedback'.

In challenging nostrums in feedback practice earlier in the chapter we saw how most of the espoused principles of good practice are centred on improving the information imparting ability of the educator. Feedback Mark 1 goes beyond this to focus on what this information is used for. See Figure 2.1.

The information provided to students is used to influence their subsequent task performance. This output manifest in performance on the later task is a central part of the feedback process. Conventionally, the tendency is to label the first box titled 'information to student' as feedback, and therefore to feel that the job of feedback is complete at this junction. Until a response to it has been made and identified by the educator, this remains 'hopefully useful information'. As represented in the Figure, feedback is part of a system that necessarily involves both input from others and output from the learner.

[Insert Figure 2.1. Feedback Mark 1: Input and output components of the system]

Figure 2.1 represents the feedback loop for learners, but Feedback Mark 1 also provides an important feedback process for those who offer feedback information. See Figure 2.2.

The provider of information receives useful data about whether the input offered to the learner has had a desirable effect in improving their performance. Using this data, the educator can adjust the information they provide to maximise the possibility that it will have a positive influence on learners. They do this in two ways. Firstly through observing the effects in subsequent tasks by the same student. Secondly, through providing hopefully improved information to students in the next cohort on the original task. This is an essential feedback loop for the purpose of educator skill development:

19

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

(Yorke 2003, 482).

For example, if a learner approaches Activity 2 in the same way as Activity 1, with no modification of their work in the direction desired, the educator has good cause to question their own advice, and to think of alternative strategies to help the learner change their approach to their work. The learner's response, as depicted by Activity 2, acts as data to help the educator refine their own 'feedback skills'. Educators calibrate their ability to provide useful information to students through comparison of the comments they provide with the student's work in the subsequent task. This enables more effective information to be provided for students in (a) later tasks for the same students, and (b) the same task for the next cohort of students.

[Insert Figure 2.2. Educators adjust information provided to students over time.]

The other key premise of Feedback Mark 1, is that students, following performance information from the first activity must engage in a second activity that is constricted to allow their changed performance in the desired area to be demonstrated and noticed. This means that the design of the subsequent activity ('activity 2' as pictured in Figure 2.1) needs to contain some overlapping features to enable the learner to demonstrate the change in performance. This concept is represented in Figure 2.3.

[Insert Figure 2.3. Feedback as iterative and nested task design]

The design of tasks or activities needs to be such as to ensure overlap of some key learning outcomes. The 'nesting of tasks' enables the feedback loop to be completed through detecting the effects of earlier information provision in subsequent tasks. Figure 2.3 shows not only the overlap of learning outcomes (nesting) but also that task complexity may increase as the learner develops over time.

The question arises, what should the overlapping material include? Clearly, it is inappropriate and unnecessary for basic material that can be demonstrated as learned through a single iteration to be repeated. This leaves such things as core or threshold concepts (i.e. key ideas that are challenging to appreciate but fundamental for further study: Meyer and Land, 2005); academic skills, such as writing and other forms of communication; and discipline-specific material that requires continuing practice to fully learn. The old notion that different assessment tasks should test quite discrete learning outcomes is not compatible with such an output-oriented notion of feedback.

So here lies Feedback Mark 1—a conception of feedback for education that draws from the biological and engineering origins of feedback. Feedback Mark 1 reminds us that feedback is a system whereby learners use external information on performance in order to narrow the gap between intended and executed performance. Learners need to be provided with subsequent opportunities to demonstrate change in performance after they receive this information, and the subsequent activity should share some overlapping learning outcomes with the original task. The benefit of 'doing feedback' in this way is for both the learner and the educator (through seeing the results of the information transfer).

We should note that an implication of Feedback Mark 1 is that educators require knowledge of what were the earlier comments and what use of them the student made before they provide a second iteration of information to the student.. Discrete, fully anonymised marking can be disruptive of effective feedback. It might be undertaken, but it is far more resource-intensive and may limit the quality of feedback information.

Could we promote Feedback Mark 1 and feel justified in saying that the conceptual work of this book is done? We could certainly argue that feedback practices, if they resembled Mark 1, would be more effective than what is currently implemented in conventional educational practice. However, we can't rest here because Feedback Mark 1 still represents the learner as resembling a machine. We need to go further and examine the implications of a rather obvious feature of students: they are human beings who make their own choices about what they do. Feedback Mark 2 builds on Feedback Mark 1 and seeks to take account of the learner as an agent in the process, capable of self-evaluation, and capable of taking on, or ignoring, aspects of the externally provided information, depending on their perceived use for it.

There is a further pragmatic need to move beyond Feedback Mark 1. It may simply not be possible to fit in sufficient numbers of tasks in which feedback is utilised within the typical higher education course and level of staffing to

achieve the desired effects. If students can be more actively mobilised, then better use might be made of necessarily limited information.

Rethinking Feedback: Mark 2.
Feedback Mark 2 introduces a new discourse of feedback in learning. It departs from Feedback Mark 1, because it is based on the notion that learners are necessarily active and volitional. They do not have passive and predictable responses to given inputs. Mark 1 sees teachers or educators having full control of the feedback process. Learners need to play their part, but this role is constrained to what is provided to them by others. Feedback Mark 2 sees students as having significant agency and choice. They are regarded as being capable of soliciting and using feedback rather than being recipients of the 'inputs' of others. Most importantly, Mark 2 acknowledges that the impact of feedback extends beyond immediate subsequent task performance. The premise of Mark 2 is that feedback, as a process, has a role in developing students' continuing evaluative judgement that has a more sustainable impact on learners. Feedback is seen not only as having an influence on immediate tasks but of building students' capability for making judgements about their subsequent work.

This is an important feature of what Boud (2000) has termed sustainable assessment. He called for students to necessarily be active players in their assessment within programs and noted that, 'acts of assessment need both to meet the specific and immediate goals of a course as well as establishing a basis for students to undertake their own assessment activities in the future. To draw attention to the importance of this, the idea that assessment always has to do double duty is introduced' (p 151). This 'double duty' of assessment and feedback is acknowledged in Feedback Mark 2, where the act of feedback not only has the potential to positively impact the next attempt at an activity or task, but also plays a key role in helping learners to develop informed judgement (Molloy, 2009).

Butler and Winne (1995) also identified the importance of positioning the learner at the centre of the feedback process and recognised that the learner actively makes links between their goals in learning, the strategies or approaches they use to achieve this target and their actual performance outcomes. This comparative process may propel the student to alter their conception of the learning goal and standards or may cause them to alter the strategies they employ to try to reach the goal. The external feedback provider, whether that is a peer, practitioner or educator then provides additional external information that helps to further inform the 'adjustment process'.

There is ample literature in the health sciences describing the poor capacity that humans have in isolation for accurate self-assessment (Eva & Regeher 2005). Indeed, this is one of the reasons why it is so important to help develop it. This

very tendency to lack objectivity when it comes to 'self' is why external feedback is so important for learning. Our ability to judge our own actions in a way that reflects others' judgement of our actions is highly variable and can be influenced by a number or factors related to disposition, environment and practice opportunities. For this reason, particularly when entering any aspect of a field as a novice, humans need external performance information to help calibrate their own judgement about how things are going. Even though effective self-assessment may be difficult to achieve, there is evidence that supported practice at self-judgement can improve reliability of ratings (Eva and Regehr 2005).

The student's comparison of the internal appraisal and external appraisal of performance is a key process in development as a learner. It enables them to interpret what is required for any task, and to design strategies to reach the task goal. The external information may be significantly different to students' own internal judgement of the 'work' and this may help to calibrate the learner's judgement (Boud, Lawson and Thompson, submitted for publication). The ability to 'accurately' judge one's own work and the work of others is arguably one of the fundamental competencies required in the workplace (Boud and Falchikov, 2007).

If students are to take a greater role in making judgements about their learning, then our models of feedback need to be adapted to take this into account. A necessary feature of such a model is that students are expected to take more of an initiatory role. The obvious place where this can begin is in identifying the kinds of input from others that would be most helpful to them. Depending on the kinds of prior educational experience students have had, this may be a challenging process for some. Any lack of confidence on their part in doing so and in identifying the kinds of information they need speaks more to the inadequacies of their earlier experiences than the importance of being able to take a pro-active approach to feedback. It is common for students to be resistant at first to seeking specific comments, so this process typically needs to be introduced carefully to them.

The second important expectation of Feedback Mark 2 is that students follow through and actively utilise the information they have solicited in subsequent work. The importance of having later activities in which students can demonstrate their utilisation of hopefully useful information is no less in Mark 2 as in Mark 1. The role students take in actively soliciting and using feedback is represented in Figure 2.4.

[Insert Figure 2.4: Mark 2 Feedback: Active Role of students in soliciting and using feedback]

The seven distinguishing features of this representation of Feedback Mark 2 are:

1. Students are orientated not only to standards of work (learning outcomes) but also to the purpose of feedback. With this explicit orientation, students are more likely to see feedback as a process they can use, rather than a tool imposed on them.

2. Students judge their own work and are encouraged to articulate this judgement (self-evaluation)

3. Students seek or solicit feedback on those aspects of their work that matter to them most (for example asking the external source to comment on particular aspects of their performance that require improvement). This serves to cue educators and external providers of information into what to focus on to best help learners achieve their goals. This honesty in acknowledging limitations in their own practice does leave them vulnerable, and this honesty can be compromised if students are overly attuned to the summative assessment process, that is, they are always attempting to 'show their best selves' to the educator

4. Educators or 'others' provide performance information to the learner

5. The learner than engages in a comparative process where they combine the internally and externally generated judgements and decide how to meaningfully interpret these messages

6. The comparison of judgements, and how these relate to the standards or goals of work, are used to generate a plan for improved work.

7. The strategies are implemented in the subsequent participation in later tasks ..

While this model is presented as a single sequence described in procedural detail, it would be possible to envisage other representations of Feedback Mark 2. Other arrangements are possible so long as the central active role of the learner as initiator and decision-making is present, and so long as the feedback loop is completed through the production of subsequent work.

Feedback Mark 2 as represented in Figure 2.4 has two purposes; firstly, to improve the quality of the immediate subsequent work (as represented by Activity 2) and, secondly, to develop capacity for long-term evaluative judgement which can be applied to future circumstances. This is where feedback has a role in developing sustainable learning practices, akin to the 'double duty' role of assessment discussed above. Changing the way that we think about feedback, as a process to help harvest evaluative judgement (needed for self-monitoring, self-regulation, and working with and evaluating others), have implications for the way that both learners and educators approach the feedback process. This next section unpacks this further- to address the question: what is the agenda for feedback in this Mark 2 conception?

Changing Conceptions in Feedback: Practice implications

If we are moving away from educators 'giving feedback' to students, what is it that educators should now be doing? Do they now become marginalised as students move to the centre of the process where their volition, agency and motivation are acknowledged? We suggest that the challenge for educators is just as great to create conditions favourable for productive feedback, but their emphasis or focus needs to change. Overall, the educator's role in feedback in this new view is twofold: firstly, influencing the nature of the course and type of curriculum features, and secondly focusing on behaviours and conditions within a single episode or encounter. These curricular, or 'macro', features are presented in Table 2.0, and include examples of how Feedback Mark 2 principles may play out in practice.

This renewed conception of feedback challenges us to go beyond the commonplace idea of providing hopefully useful information to students about their work. It views feedback as a complex *system* that needs to permeate the curriculum, rather than an activity that appears within it from time to time. In this conception learners need to be orientated to their own roles as co-producers of learning, the purpose of feedback as being beyond immediate performance control or improvement and their role in soliciting feedback. It also requires them to be oriented to cueing educators or others to aspects of performance that require critique and improvement. Enactment of Mark 2 also needs educators to be thoughtful in curricular design including scheduling of nested and incremental tasks that allow for learning to be demonstrated after the exchange of internally and externally generated performance critique. Encouraging students to take on the role as feedback generator as well as seeker, positions them away from the 'passive recipient' role, reliant on comments and instruction from expert teachers. The dual role also gives students a first hand taste of the complexity of feedback (reminding them that skilful feedback involves information that is hard 'to give', not just hard to take which is akin to taking them backstage so they see the inner workings of the curriculum that they are in fact part of, rather than be witnesses (or consumers) of it. Finally,

creating opportunities for students to give and receive feedback encourages students to fully engage in understanding learning outcomes, as without appreciating the performance benchmark, there is no capacity to give feedback.

Table 2.0: Curriculum features characteristic of Feedback Mark 2 (reproduced with permission from Boud and Molloy, in press).

Feature	Examples
Learners orientated to the purposes of feedback	Explicit learning outcomes relating to developing judgements and collaboration with peers, clear expectations that students actively participate in classes and that information received will lead to action
Learners participate in activities promoting self-regulation	Activities to build student engagement and foster self-regulation through self-testing of understanding, students reflecting on how the standard required compares to their execution of the task, or planning what information they need to meet learning outcomes.
Learner disposition for seeking feedback is developed	Development of feedback seeking skills through early practice activities including identification of appropriate criteria, formulating comments on others' work, practice in identifying what kind of comments are needed on assignments
Opportunities provided for production of work	Opportunities for students to produce work of the kind that is central to learning outcomes through multiple tasks well-designed for this purpose, not all of which might be formally graded
Calibration mechanisms	Channels to enable learners to check knowledge sources, develop understanding, calibrate their judgement against expert work and peer work, regular opportunities to judge their own work before it is marked.
Incremental challenge of tasks	Development of sequences of tasks that progressively and realistically challenge learners, assessment tasks progressively build capacity to tackle more complex problems
Nested tasks to allow for 'feed forward'	Timing and design of tasks to permit input from others (teachers, peers, practitioners, learning management systems, as appropriate) and self on each task, to be utilized to benefit performance on subsequent tasks
Learner as 'seeker and	Opportunities to practice giving as well as receiving of feedback. Orientation of learners to

provider'	dimensions of the target performance (they need to engage with the desired learning outcomes, so they can make and articulate a comparative judgement).

Along with the macro, there are of course the micro considerations of feedback practice, all of which are written about extensively in the higher and professional education literature. These include principles of giving and receiving feedback (see, for example, how students may do this for each other: Boud 1995, pp. 200-206). Principles such as these, which can guide episodic feedback interactions, may be helpful, particularly if framed within a curriculum design that honours the sustainable notion of feedback. Other examples of guidelines for episodic feedback practices are presented in Table 2.1. Key underpinning principles include that feedback should be co-produced and should be based on clear intentions (to help learners to improve). Many of the guidelines are based on the importance of others providing specific and timely comments and using first hand data and behaviours (which are remediable or have the capacity to change). Even though on one level, these guidelines appear to be driving the model of 'feedback as telling', they also encourage student agency in that behaviours, not 'persons' are critiqued (implying capacity for change in subsequent tasks), and that the student is encouraged to reflect on their behaviours or actions and the potential underpinning reasons behind the work. This approach seeks to be intrinsically empowering for learners, compared to educators making and articulating assumptions around students' motivations about their approach to work.

Table 2.1 Examples of episodic feedback guidelines, drawn from Ende (1983)

1.	Educator and student work as allies
2.	Well-timed and expected
3.	Based on first-hand data
4.	Limited to behaviours that are changeable
5.	Phrased in descriptive language
6.	Specific performances not generalisations

7.	Subjective data should be labelled as such
8.	Actions are emphasised, not assumed intentions behind the actions

The following case studies illustrate how Feedback Mark 2 might be enacted in order to maximise learning opportunities for students. This is in no way prescriptive, or empirically tested for effectiveness but rather illustrative of how Tables 2.0 and 2.1 may come to life in practice.

Case Study 1: A first year arts/social science student

Students are introduced to the idea of what constitutes good work through working in groups on the task of discriminating between the qualities of three short typical assignments. They are asked to identify how they differ from each other and what is good and not so good about each. They create a list of what should be found in a good assignment of this type.

Subsequently they produce their own assignment and attach their own statement of what is good and not so good about it.

After tutor marking, this is returned to the student with commentary from the tutor that focuses on the accuracy of the student's own analysis of their work. Examples are provided in areas in which the student appears unable to make good judgements e.g 'you indicated that you were concerned with the sequencing of the arguments. I thought the way that you sequenced the essay was sensible and effective. What I did notice, is that your key point in each paragraph was buried within the third to fourth sentence. Next time, try to position your key argument in the first sentence of each paragraph and see whether this format is easier to navigate as a reader.'

The second assignment covers different subject matter, but requires students to do some of the kinds of analysis they engaged in for the first. Before submission, students exchange their final draft with another student and use the earlier agreed features of a good assignment to provide comments to each other. After revision, when handing it in, students are asked to indicate specifically the areas in which they want comments from their tutor. They receive detailed comments only on the areas specified and commentary about the areas on which they may have found it profitable to ask for guidance.

The third assignment covers different subject matter again, but there is some overlap in the learning outcomes from the second. For this, students are asked to judge their work against explicit criteria. Tutors use the same

criteria and provide comments about reasons for discrepancies between student judgements and their own. In this way, the tutor is providing commentary on both the calibre of the work produced, and the calibre of the learner's judgements about their own work.

Case Study 2: A third year social work student on hospital placement
A student studying social work starts a placement at an acute hospital, in a ward that specializes in acute spinal injuries. On the first morning of the placement, the social work supervisor provides the student and her peer with a tour of the hospital ward, including introductions to other team members, orientation to systems on the ward including patient records and a timetable for the four-week placement. The supervisor suggests that after morning tea, she would like to sit down with the two students and spend an hour discussing mutual expectations of the placement, and what the students see as their strengths and deficits in practice to date. Both students had experienced two placements prior to this spinal injury rotation so were able to draw on their past exposure and performance. The student found it helpful to hear about her peer's experience, and it was comforting to know that they shared similar concerns about what they found difficult and what they needed to improve on. The supervisor stated upfront that she wanted the students to actively seek feedback, and that she expected that they would self-evaluate prior to her providing her own commentary on their performance on the ward.

Although it is tempting to launch the students straight into practice (the 'roll up your sleeves and do approach'), the supervisor had experienced first hand the value of sanctioning a half-day for discussions around mutual expectations and learning needs. Asking the students to identify what they viewed as their strengths and weaknesses in clinical practice provides the supervisor with cues about how to allocate tasks (selection of patient profile with associated degree of complexity) and what aspects of practice to provide feedback on. This approach means that the feedback is more likely to be tailored to the needs of the individual learner, and therefore more meaningful than if driven solely by the supervisor's agenda.

In the afternoon, the student is observed taking a patient's history. The patient is a 24-year-old male, whose spinal injury in a car accident had left him without any movement in his lower limbs. Although most of the points concerning the patient's medical status are covered, the student neglects to ask any questions relating to the patient's social history, including occupation, living situation, and activity levels prior to the car accident. After the episode, the supervisor and student sit down in the office and discuss the performance. The student is asked to provide her own account of

the episode first, and her strengths in the history taking are accurately described. The supervisor validates this judgement, and adds that she noticed that no questions were asked relating to the patient's social situation. The student replies that these questions were purposefully left out, because she didn't want to upset the patient who had just lost function, and was unlikely to want to talk about his involvement in basketball that he would never return to. The supervisor acknowledged the rationale behind the purposeful omission ('I know where you are coming from') but highlighted the importance of gathering this information to help in goal setting and in establishing rehabilitation plans with the patient.

The next day, the student is asked to take a history with a new patient on the ward (in line with the output principles in Feedback Mark 2). In the feedback session afterwards, the student acknowledges that she again failed to adequately gather the information she needed, as she felt the required line of questioning was too invasive and too distressing for the patient. Rather than observe a repeat attempt at the task, the supervisor suggested that the student observe her peer in taking a history, with the instructions to "think about why he is asking the questions, how he is phrasing the questions, and what you would do similarly or differently in the same situation." This provides the student with cues to observe performance (what to watch for, rather than passively observing), and positions her as a voyeur (lower stakes) rather than a doer. This break from practice, provides the student with an opportunity to observe 'good practice' and to reflect on how her own practice approach deviates from these standards.

The key illustrative points in Case Study 2 are that the supervisor protected time in a busy setting to orientate learners to expectations of the work, and also the supervisory relationship (including feedback process). Post performance discussion, the supervisor provided an opportunity for the student to approach a similar, overlapping task. When the learning outcomes were again not achieved, the supervisor was creative in adapting the learning strategy, and instead suggested that the student shadow her peer in order to see modelling of the expected clinical behaviours.

Finally, we acknowledge that a move to Feedback Mark 2 might in some courses represent a substantial challenge to existing practice and ways of thinking. Careful thought needs to be given to the transition from the common practice of provision of hopefully useful information to a student-engaged feedback process. In making this transition, we have been greatly encouraged by the many initiatives of the First Year Experience movement. That is, the groups of educators worldwide that have focused on how students can be assisted in making the transition into an academic environment to become fully engaged as active learners within it. Kift, Nelson and Clarke (2010), write of 'transition pedagogy', and it is a kind of transition pedagogy that may be

required in some courses to enact Feedback Mark 2. The introduction of the full process represented in Figure 2.4 may create such initial resistance in some classes that the whole rationale for it may be doubted. In such situations, there is no substitute to working up to it slowly, by providing multiple opportunities for students to take the initiative, to become engaged and to show tangible respect for their involvement. Feedback Mark 2 cannot exist independently of an environment that supports what it represents. In some situations, the starting point might be not the feedback practices per se, but the ways in which students are engaged in the course.

Conclusion

Looking at feedback in a different way, with features that incorporate helping learners to look beyond the present assignment as well as improving immediate tasks, has the potential to significantly change practices on the ground. The reported dissatisfaction of learners with feedback, and the amplifying tone of this dissatisfaction, needs to be taken on as feedback to us as educators. Rather than repeating the same practices but with greater frequency or intensity, we argue for new notions of feedback, based on placing the student at the centre of the process, rather than positioning them as passive recipients of educators' comments. This demands a shift away from formulaic modes of learning where both parties (commonly the educator and student) are complicit in participating in the transmissive-style rituals that have been reported in observational studies of feedback (Molloy, 2009; Fernando et al., 2008; Ende et al., 1995). Cultivating a student disposition for seeking and using feedback, and seeing the benefits of feedback as a tool for them to build sustainable learning practices, requires educator skill at the macro (curriculum design) and micro (task episode) level. This chapter has outlined the importance of :

1. Creating conditions for students to develop as learners with agency, including establishing engagement, i.e. Developing self-monitoring, self-regulation, capacity to make good judgements.
2. Designing programs/courses and generative learning tasks that position students to identify and engage with standards and criteria, and seek sources of feedback and utilize these in changing their work.
3. Establishing dialogical processes to enable students to clarify and explore standards and criteria and to help orientate educators to their learning needs.
4. Sequencing activities and tasks so that students have the opportunity to reapply their learning to new situations to show how they have benefitted.
5. Providing opportunities for students to track the development of their skills and expertise over time.

The re-conception of feedback, as presented by the notions of Feedback Mark 1 and Mark 2 has been driven by the 'feedback problem' which doesn't seem to be improving, despite featuring as a 'must improve performance outcome' by universities internationally. In exploring the roots of feedback, in its native contexts of engineering and biology, we exposed the extent to which feedback practices in education have deviated from this original purpose and function. Feedback Mark 1 revealed the importance of students responding to performance information with change in their subsequent attempt at overlapping tasks. This relies on educators creating opportunities for learners to use the information to produce improved work (Boud, 2000; Nicol and MacFarlane-Dick, 2007). The limitation of Feedback Mark 1, is that it ignores the volition of the learner, and assumes that the learner will respond in a consistent way to the input (information). Feedback Mark 2 builds on Mark 1 (takes the good parts) but expands the notion to incorporate the learner in the process. The model assumes that the learner can seek and give feedback (rather than acting as the receptor), that the learners own self-judgement contributes to how feedback is used, and that this practise opportunity (to see how your own judgement compares to external appraisal) is integrated with other such episodes of comparison, to generate the learners' capacity for informed judgement. In other words, that what has been traditionally seen as once off pieces of feedback are collected as a string of data points to help to build an internal 'radar' for sensing when work hits the mark, exceeds it, or falls short. Mark 2 promotes feedback as a strategy for improving work, and for improving future work through the harvesting of evaluative judgement.

The practice implications for feedback using this notion have been highlighted in Tables 2.0 and 2.1 and discussed through case studies. There is of course potential or predicted resistance to incorporating these changes in educational programs. Firstly, the incorporation of explicit learning outcomes based on 'student as agent, and student as giver and receiver of feedback' means that the curriculum content needs to be reprioritized and shifted. All educational designers can relate to the fear of "crowding the curriculum" (Dalley et al., 2008) or worse, pushing out disciplinary content, to fit in 'lofty ideals of creating the reflective, lifelong learner'. Educators may look at Table 2.0 and fear that the promoted activities will be pushing out the substantive content of the program. Our own concern is that we are already including outcomes in the curriculum that are not attainable and pretending otherwise. There is also the very real concern that students themselves 'won't buy it'. Literature, particularly in professional education (Molloy and Keating, 2011) reports that students very early in their programs decipher what they see as essential and peripheral content. Activities and assessments that students deem to be aligned to becoming a teacher/nurse/psychologist, which are typically those with a focus on technical skill acquisition, are taken more seriously. This barrier should be anticipated, and we need further research and further dialogue about

how to demonstrate (not convince) to students the importance of becoming 'not a student, but a learner'. The proof needs to be in the pudding, and we suspect that students need to operate in this model, 'to do feedback and monitor the results' in order to see the value in it.

While we argue for less concern with what educators 'do' in giving feedback, such as dimensions of when to give feedback and how to structure the information, this is not to be ignored. Instead we argue for the priority of having a better understanding of how students seek, interpret and use information about their performance.

References

Biggs, J. (1993) 'From theory to practice: A cognitive systems approach', *Higher Education and Research Development*, 12:73-85.

Boud, D. (1995) *Enhancing Learning through Self Assessment*, London: Kogan Page.

Boud, D. (2000) 'Sustainable assessment: rethinking assessment for the learning society', *Studies in Continuing Education*, 22(2):151-167.

Boud, D., Lawson, R. and Thompson, D. (submitted for publication). Does student engagement in self-assessment calibrate their judgement over time?

Boud, D. and Falchikov, N. (2007) 'Developing assessment for informing judgement', in Boud, D. and Falchikov, N. (eds) *Rethinking Assessment for Higher Education: Learning for the Longer Term,* London: Routledge

Boud, D. and Molloy, E. (2012) 'Rethinking models of feedback: the challenge of design', *Assessment and Evaluation in Higher Education*, DOI:10.1080/02602938.2012.691462

Butler, D.L. & Winne, P.H. (1995) 'Feedback and self-regulated learning: a theoretical synthesis', *Review of Educational Research,* 65(3):245-281.

Carless, D., Salter, D., Yang, M. and Lam, J. (2011) 'Developing sustainable feedback practices'*, Studies in Higher Education*, 36(5):395-407.

Dalley, K., Candela, L. and Benzel-Lindley, J. (2008) 'Learning to let go: the challenge of de-crowding the curriculum', *Nurse Education Today*, 28(1):62-69.

Eva, K.W. and Regehr, G. (2005) 'Self-assessment in the Health Professions: A Reformulation and Research Agenda', *Academic Medicine*, 80(10 Suppl.):S46–S54.

Ende, J. (1983) 'Feedback in clinical medical education', *Journal of American Medical Association*, 250:777-781.

Ende, J., Pomerantz, A. and Erickson, F. (1995) 'Preceptors' strategies for correcting residents in an ambulatory care medicine setting: A qualitative analysis', *Academic Medicine*, 70:224-229

Fernando, N., Cleland, J., McKenzie, H. and Cassar, K. (2008) 'Identifying the factors that determine feedback given to undergraduate medical students following formative mini-CEX assessments', *Medical Education*, 42(1):89-95.

Hattie, J. and Timperley, H. (2007) 'The power of feedback', *Review of Educational Research*, 77:81-112.

Higher Education Funding Council for England. (2011). *The National Student Survey: Findings and Trends. 2006-2010*. Bristol: Higher Education Funding Council for England

Hounsell, D. (2007) 'Towards more sustainable feedback to students', in Boud, D. and Falchikov, N. (eds) *Rethinking Assessment for Higher Education: Learning for the Longer Term*, London: Routledge

Ilgen, D. and Davis, A. (2000) 'Bearing bad news: Reactions to negative performance feedback', *Applied Psychology: An International Review*, 49:550-565.

Kift, S., Nelson, K. and Clarke, J. (2010) 'Transition pedagogy: A third generation approach to FYE - A case study of policy and practice for the higher education sector', *The International Journal of the First Year in Higher Education*, 1(1):1-20.

Kluger, A. and DeNisi, A. (1996) 'The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory', *Psychological Bulletin*, 119(2):254-84.

Kluger, A. and Van Dijk, D. (2010) 'Feedback, the various tasks of the doctor, and the feedforward alternative', *Medical Education*, 44:1166–74.

Molloy, E. (2009) 'Time to Pause: Feedback in Clinical Education', in Delany, C. and Molloy, E. (eds) in *Clinical Education in the Health Professions*, Sydney: Elsevier.

Molloy, E. (2010) 'The feedforward mechanism: a way forward in clinical learning?', *Medical Education*, 44:1157-1159.

Molloy, E. and Boud, D. (accepted for publication) 'Feedback models for learning, teaching and performance', in Spector, J.M., Merrill, D.M. and Elen, J. (eds) *Handbook of Research on Educational Communications and Technology*, New York: Springer.

Molloy, E. and Keating, J. (2011) 'Targeted Preparation for Clinical Practice' in Billet, S. and Henderson, A. (eds), *Promoting Professional Learning: Integrating experiences in university and practice settings*, Springer: Dordrecht, The Netherlands.

Meyer, J.H.F. and Land, R. (2005) 'Threshold concepts and troublesome knowledge (2): Epistemological considerations and a conceptual framework for teaching and learning', *Higher Education*, 49(3):373-388.

Nicol, D. and Macfarlane-Dick, D. (2006) 'Formative assessment and self-regulated learning: A model and seven principles of good feedback practice', *Studies in Higher Education*, 31(2):199–218.

Rowntree, D. (1977) *Assessing Students: How Shall We Know Them?* London: Harper & Row.

Sadler, D.R. (1989) 'Formative assessment and the design of instructional systems', *Instructional Science*, 18(2):119–44.

van Merriënboer, J.J.G. and Sweller, J. (2005) 'Cognitive load theory and complex learning: recent developments and future directions', *Educational Psychology Review*, 17:147-177.

Wager, W. and Wager, S. (1985) 'Presenting questions, processing responses, and providing feedback in CAI', *Journal of Instructional Development*, 8(4):2–8.

Wiener, N. (1954) *The Human Use of Human Beings: Cybernetics and Society*, Oxford, England: Houghton Mifflin.

Yorke, M. (2003) 'Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice', *Higher Education*, 45(4): 477-501.

[See published chapter for Figures]