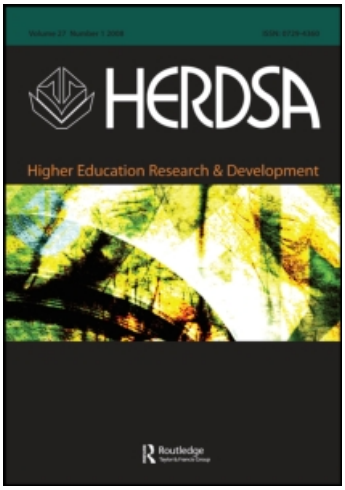

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The quality of guidance and feedback to students

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The paper presents research findings on students' experiences of the provision both of guidance and feedback, and with respect to examinations as well as coursework assignments. A first- and a final-year bioscience course unit were surveyed in each of three contrasting university departments. The resulting dataset comprised 782 completed student questionnaires and 23 group interviews with a total of 69 students. Although the questionnaire data provided a robust overall picture of the students' perceptions of guidance and feedback across the six units, the interview data made possible a much finer-grained analysis of their experiences. At the core of this analysis was a guidance and feedback loop, within which six interrelated steps have been picked out, beginning with the students' prior experiences of cognate assessments and closing with the potential of what has been learned from a given task to feed forward into subsequent work. By pinpointing potential troublespots, the framework can serve as a valuable diagnostic as well as analytical tool.

Keywords: assignments; biosciences; exams; feedback; guidance

Introduction

The provision of guidance and feedback to students has long been acknowledged as an indispensable part of an effective teaching–learning environment in higher education. It features in standard texts on assessment (e.g. Brown, Bull & Pendlebury, 1997), in reports of teaching quality reviews (see, for example, QAA, 2003) and in checklists of indicators of effective assessment practices (e.g. James, McInnis & Devlin, 2002). Recently, however, new perspectives on guidance and feedback have been emerging from developments in research, policy and practice. The most widely observed of these has probably been the resurgence of interest in formative assessment (or assessment-for-learning). In an influential and wide-ranging review of research findings, Black and Wiliam (1998) concluded that well-designed formative assessment can have an impact on learning that is both demonstrable and quite substantial, with gains in learning 'among the largest ever reported for educational interventions'. And in subsequent school-based research and development (Black et al., 2003), they have explored ways in which formative assessment might be more effectively pursued. Their work builds on the conceptual insights of Sadler (1989, 1998), who has argued that 'students have to be able to judge the quality of what they are producing and be able to regulate what they are doing during the doing of it' (Sadler, 1989, p. 121). Thus, effective formative assessment involves not simply providing constructive and timely feedback comments, it also entails assisting students to come to hold a conception of what counts as good-quality work in the subject area.

Paradoxically, however, alongside the upsurge of interest in the pedagogical benefits of formative assessment have come growing concerns about a decline in the provision of guidance

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and feedback on assessed work in higher education. One reason for this may be the shift in UK higher education towards modularisation and semesterisation, resulting in more compressed curricular timetables in which assignments crowd towards the end of courses, leaving students with little or no scope to benefit from a tutor's feedback on their work (Gibbs, 1999; Yorke, 2001). Another reason may lie in the backwash effects of much larger class sizes and a lower unit of resource (Hounsell, 2003). Although student numbers have risen substantially over the past quarter-century, staff to student ratios have halved, with the consequence that contemporary UK students generally undertake fewer coursework assignments than their predecessors and have less face-to-face contact with staff (Department of Education and Skills, 2003).

Evidence on the provision of feedback is limited but raises further concerns. In three successive national surveys of first-year students in Australia, two out of five respondents have expressed dissatisfaction with the helpfulness of tutors' feedback (Krause et al., 2005). A review of research findings – mostly from relatively small-scale qualitative studies in the UK and in single subject areas – concluded that although feedback seemed to be widely valued by students, their experiences of getting feedback had been uneven (Hounsell, 2003). The quantity of feedback provided by tutors, and its helpfulness to students, appeared to range widely, and could give rise to uncertainty and confusion, as requirements for assigned work seemed to fluctuate from course unit to course unit, and from one tutor to another. Yet, some tutors appeared to take it for granted that their expectations of academic work were relatively self-evident, that their feedback comments were transparent in their meaning and import, or that students would know how to remedy any shortcomings identified.

Finally, however, it should be borne in mind that guidance and feedback practices have themselves been evolving, and in ways that may help to provide a counterweight to shortcomings in provision. Developments in approaches have taken various forms, including the use of criterion-specific marking and commenting pro formas; involving students themselves in generating feedback; and the rise of collaborative authorship and 'on-display' assignments, such as oral and poster presentations, both of which can have feedback-like effects by opening up opportunities for students to acquaint themselves with one another's work at first hand, and so help to develop a common understanding of what has – and can be – achieved (Hounsell, 2003). There have also been notable attempts, grounded in research findings, to tease out fundamental guiding principles. In one such framework, Gibbs and Simpson (2004) identify 11 'conditions under which assessment supports students' learning', prominent amongst which is the provision of feedback. By contrast, the seven 'principles of good feedback practice' articulated by Nicol and Macfarlane-Dick (2006) are underpinned by a model of self-regulated learning that places the student at the heart of the feedback process.

Settings, research design and data analysis

Research design

The present paper stems from the 'Enhancing Teaching–Learning Environments in Undergraduate Courses' (ETL) Project, which was funded as part of the Teaching and Learning Research Programme of the UK Economic and Social Research Council. The ETL project worked with 15 departments in five contrasting subject areas, aiming to understand and enhance the effectiveness of undergraduate courses as 'teaching–learning environments'. (For further information see www.ed.ac.uk/etl.)

This paper focuses on students' experiences of the provision of guidance and feedback in a first-year and a final-year course in each of three biosciences departments. The research was taken forward in two stages. In the first academic year of work with a given course unit, the focus was on building up a rich picture of the extent to which the teaching–learning environment in the

unit supported high-quality learning, and on discussing the resultant findings with the course team concerned. The second stage focused on monitoring the impact of agreed changes in four of the units, which were intended to build on the first-stage findings in enhancing the quality of the students' learning. The present paper is concerned only with the first-stage findings on guidance and feedback. A subsequent paper will report the second-stage work.

Settings

All three of the participating departments were actively committed to research and teaching, while valuing their links with the wider professional bioscience community. Each of the first-year course units (coded 1F, 2F and 3F) were second-semester modules intended to provide an introduction to a range of broad areas of study in the biosciences. Intake sizes ranged from fewer than 100 to over 600 students, and there were matching differences in staffing inputs (Hounsell et al., 2005). Although two of the three course units mounted lectures, practicals and tutorials in tandem, in the other (2F) the weekly practical sessions blended laboratory experiments with group activities of various kinds. Assessment in all three units was also based on a combination of end-of-module exams and coursework.

The three final-year course units (1L, 2L and 3L) were one-semester honours-level courses with a combined enrolment of 83 students. The three units differed considerably in their approaches to teaching and learning and assessment (McCune & Hounsell, 2005). In unit 1L, twice-weekly lectures were complemented by regular tutorials during which students raised questions and issues of concern; assessment was based on a 3-hour examination and two coursework assignments. In unit 2L, by contrast, a research-focused talk by an external speaker was followed by work on assigned problems or questions arising from data linked to the talk, which students tackled in small groups prior to plenary discussion; assessment took the form of a single exam paper. Lastly, in unit 3L there were weekly seminar presentations given by two of the students, addressing one of 10 topics drawn up by the two members of staff; assessment was wholly based on coursework, combining marks for the seminar presentations with grades for two 1500-word integrative essays.

Data gathering and analysis

In the penultimate teaching week of each unit, the students completed the Experiences of Teaching and Learning Questionnaire (ETLQ),[1] which asks the students for their perceptions of a range of aspects of their teaching–learning environments, such as the clarity and coherence of the course unit studied, aspects of the teaching that encouraged high-quality learning, the set work and feedback, staff enthusiasm and support, and support from other students. The items relating to students' perceptions of their assessed work were examined on an item-by-item basis. The items were also grouped into scales, based on earlier analyses (Entwistle, McCune & Hounsell, 2003), to provide an overview of the students' perceptions of these aspects of their course units.

In each of the course settings a sample of students participated in semi-structured group interviews in the penultimate week of the unit. After transcribing the student interviews in full, all of the data relating to guidance and feedback on assessments were selected from the transcripts and key themes were identified (Hounsell et al., 2005). A record was made of how commonly particular themes or issues were logged across different institutions and levels of study. Counter-examples to the broad picture emerging were sought.

Table 1 summarises the take-up rates for the student questionnaires and interviews. In some cases, it should be noted, the students would not have completed all of their assignments, or

Table 1. Samples and response rates.

	1F	1L	2F	2L	3F	3L
No. of students	107	44	638	25	96	14
No. of staff	3	2	32	1	14	2
ETLQ (%)	52 (49%)	24 (55%)	271 (42%)	20 (80%)	86 (90%)	14 (100%)
Group interviews	1	5	7	4	3	3
Students interviewed	1	13	20	12	10	13

ETLQ, Experiences of Teaching and Learning Questionnaire.
1F, 2L etc. indicate course unit.

would not necessarily have had all of their feedback, at the time when the data were collected; however, later collection of the data was not practicable.

Questionnaire findings

The students' overall perceptions

It was evident from the questionnaire data that each of the six course units surveyed was generally favourably perceived by the students concerned as a teaching–learning environment. Although the three final-year units (1L, 2L, 3L) were perceived more positively than the first-year units (1F, 2F, 3F), each course unit received a mean score higher than the mid-point of the scale (3), ranging from $M = 3.42 \pm 0.45$ SD (3F) to $M = 4.11 \pm 0.56$ SD (2L). These broadly positive overall perceptions were generally supported by the student interview data.

Three of the ETLQ scales—'set work and feedback', 'assessing understanding' and 'staff enthusiasm and support'—provided a more detailed picture of the students' experiences of assessed work. As Figure 1 shows, in each of the settings staff were seen as generally very supportive and enthusiastic, with means of no lower than 3.85 (3F). The students also had positive perceptions of the extent to which getting good marks on assessments would have entailed thinking critically and understanding the subject. They were less positive about the guidance, support and feedback they had received on their set work, although, as with the overall perceptions of the teaching–learning environments, none of the mean scores was below the mid-point of the scale.

The analysis can be taken a step further by focusing on the questionnaire items that relate directly to guidance and feedback. The students were asked about the clarity of what was expected in the assessed work, how far they were encouraged to think about how best to tackle the set work, to what extent staff gave them the support they needed to complete the work, and the degree to which the feedback they received had helped them to improve their ways of learning and studying, or to clarify things they had not understood. As Figure 2 shows, clarity of expectations emerged as the highest rated item in each of the course units (with scores ranging from 64.0% in 3F to 96.2% in 1F). The students were also positive about staff support and encouragement. There was, nonetheless, a substantial minority in several course units who indicated that they were not clear about what was expected in their assessed work. And the students responded less positively about feedback. Those agreeing or agreeing somewhat that feedback had helped improve their ways of learning and studying ranged from just over half in three of the units to a third or less in two others, and none at all in the case of one unit (3L). There was a similar pattern of responses on the contribution of feedback to clarifying things that had not been understood, with the exception of unit 2L, for which the responses were relatively higher for this feedback question.

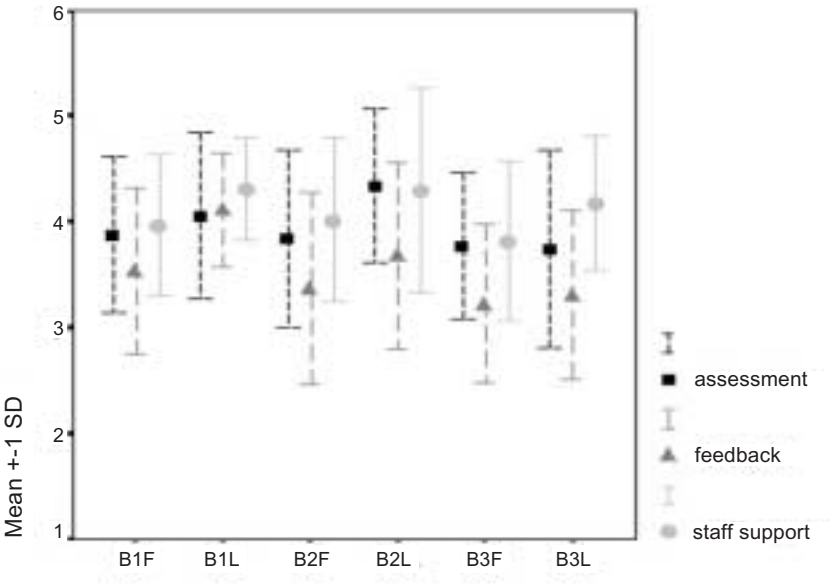

Figure 1. Perceptions of assessment, feedback and staff support.

Interview findings: students' experiences

While reinforcing the mixed picture of the students' perceptions of guidance and feedback that emerged from the questionnaires, the analysis of the interview data yielded a much sharper and more detailed impression. In the first stage of the analysis, the principal themes pinpointed were

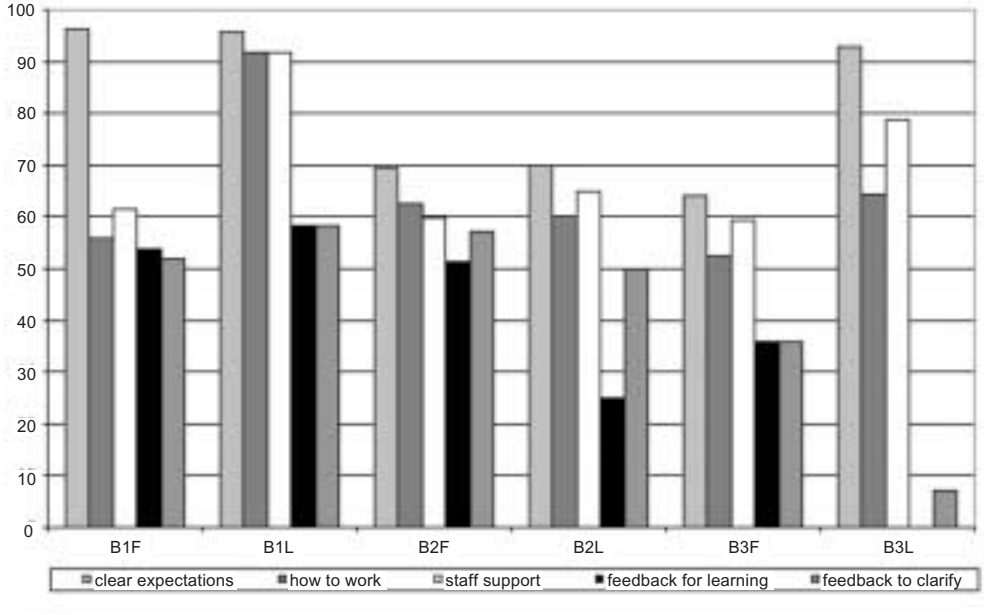

Figure 2. Perceptions of set work and feedback (per cent who agreed or agreed somewhat).

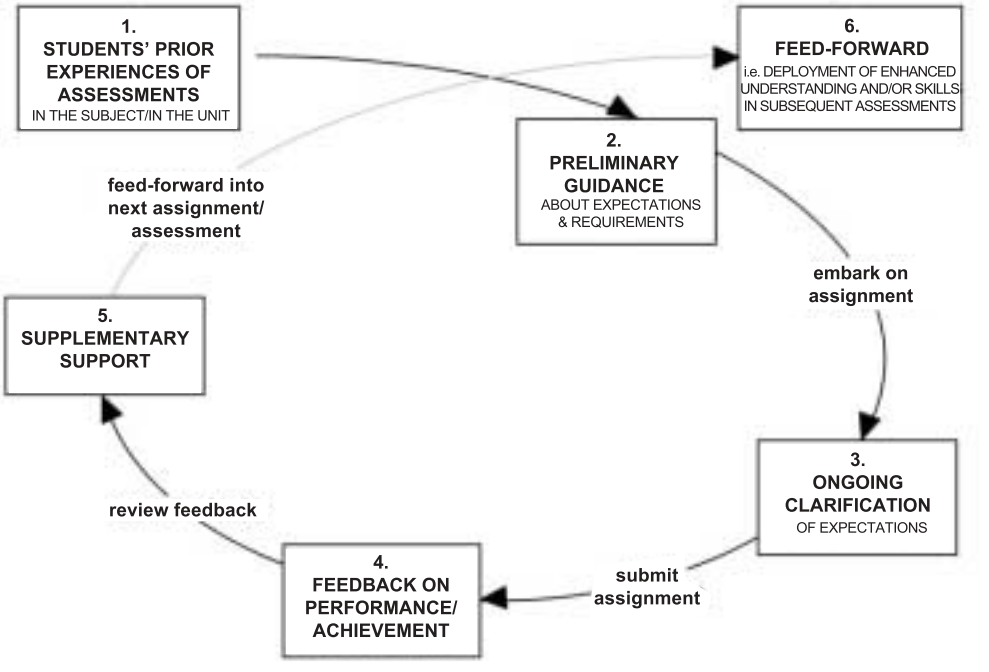

Figure 3. The guidance and feedback loop: Main steps.

the students' experiences of pre-assignment guidance, the value they placed on feedback (in tandem with their concerns about feedback which fell short of their expectations and needs) and the availability of additional follow-up support from staff (McCune et al., 2005). In a subsequent review of these emergent themes, it became evident that it would be even clearer, and potentially more insightful, to view the experience of guidance and feedback in terms of an iterative cycle or 'loop', and to differentiate within this loop a series of 'steps' or 'phases' that would be potentially applicable to assessment regimes based (as in the present examples) on coursework, on exams, or on a mixture of the two. The main steps in this guidance and feedback loop are shown in Figure 3, and they are successively introduced and illustrated in the analysis that follows.

Step 1: students' prior experiences of cognate assessments

In the course units surveyed, the types of assessments with which the students were confronted ranged widely in their degree of familiarity. Writing lab reports for coursework, and tackling multiple-choice or short-answer questions in exams, were tasks that all or most students had encountered previously, and to which they could therefore bring at least some previous experience, even if the subject matter concerned, or the levels of skills demanded, had shifted. Much more challenging were those assessment tasks in which the students were not on home ground, and in which consequently they were much more reliant on guidance and support in acquainting themselves with what was required.

One such example was the final-year unit (3L) in which the students were assessed on 45-minute oral presentations and two integrative essays. Interestingly, the oral presentations appeared somewhat less daunting than they might otherwise have been as the students already had experience of giving presentations in previous courses and on research placements. On the other hand, there

was unease about the written assignments, which the students concerned attributed to a comparative lack of prior experience of essay writing, together with a perceived dearth of feedback on those few essays that had been submitted for other course units (McCune & Hounsell, 2005).

Given that the first-year students were also relative newcomers, it does not seem surprising that similar concerns were evident in two out of the three first-year units. In 2F, in which the coursework had included debates, a letter-writing assignment and a poster presentation, unfamiliarity with assessment demands was a particular problem, and the unease which some students felt had prompted them (erroneously) to question the relevance of the skills entailed to ways of thinking and practising in the biosciences (McCune & Hounsell, 2005).

> A lot of the people are straight from school and they don't know how to stand up and talk in front of a group. They just physically can't do it. [2F V5][2]

> S1: It turned into a kinda joke about, like, getting rid of a species. It was just, I don't think it was relevant to the course...We do get lectures on, like, species and things like that but we'd never got any lectures on eliminating them and stuff like that. It was a bit out of the blue, like we were doing anthrax and other things like smallpox, and we'd never come across this.
> S2: [The poster] was more like a kinda art class [S: Uh huh. S: Yeah] Drawing a poster of it. [2F V3]

Step 2: preliminary guidance about expectations and requirements

Across all six course units, the students were given initial guidance about coursework assignment and examination requirements. Generally speaking, this was provided at the start of the course and took the form of written guidelines (e.g. in course handbooks) supplemented by oral comments (e.g. in lectures or practicals). Students were usually also given access to past exam papers, so that they could see what format was followed in a paper and what types of questions were asked. With the exception of unit 2L, opportunities to view past examples of completed course work, or to look at model answers, were comparatively rare, and only then (as in 2F) to individual students who were experiencing particular difficulty in grasping what was required. For the most part, and understandably, course coordinators had fears that model answers would be treated too formulaically, diminishing rather than enhancing students' engagement with the task set.

In all of the course units, students reported positive aspects of the preliminary guidance given, as in the example below.

> The other coursework…I would say it is quite well laid out.…When we got the title and it was broken down in logical areas that you could go into, or like if you wanted to go for a different, different tangent then you could…His coursework was set out quite well. [1L V1]

But there were also instances when initial guidance had been rather more problematic – whether because guidance was insufficient or had been misunderstood, because there had been few or no opportunities to gain practice on an unfamiliar task, or because the criteria for assessing the work had been misunderstood. In one first-year unit, for example (2F), all of the interviews included comments from students who felt that they had received insufficient guidance about some part of their assessed course work, which had been very different from what they had hitherto been used to. One of the assignments that had caused particular difficulties was part of an exercise focused around survey data on vaccinations for whooping cough (pertussis).

> I think with a lot of [the assessments], you don't know what you're doing…The first one, the pertussis thing, was really difficult. You had to write a letter to a drug company, and I thought what I'd done was right, you weren't allowed to use as many figures, and it turned out you had to. It was, oh, I didn't do very well. And with a lot of other ones as well, you don't really know. [2F D1]

Another assignment in the same unit had posed questions about the circulatory system of a vertebrate.

> The worst part about [the course unit], I think, was one of the reports we've just done…I don't think it was explained very well what they were looking for…So I was on the net, dig through all the books, to Internet, got a specialist book out of the library…it wasn't 100 per cent clear what we'd to do. [2F V5]

Step 3: ongoing guidance and clarification of expectations

Once a course unit was well underway, ongoing guidance and clarification of expectations could take one of two broad forms. The first of these was the opportunity for students to monitor their evolving grasp of the subject matter – in one unit, through access to self-test questions as the course proceeded, in another, through practice exam questions in tutorials, and in yet another (the second example below) to *anticipatory* feedback on past exam questions; that is, to comments by the lecturer on how specific questions might be tackled, and potential 'traps for the unwary'.

> L: I provide them with these quizzes where[by] they can go through the lecture and they can try and answer. It gives them an idea of what to expect in their assessment. And I also have a list of additional resources which are just book chapters but they can go up and look up additional information in [them]. [1F L1]
>
> S1: [The module coordinator] has got something on the website on how to answer the [exam] questions and giving example answers.
> S2: Yeah, it's all the past exam questions from something like '98 onwards.
> S1: Yeah, lots of links to other cancer-related websites.
> S2: So when it comes to studying I don't think we'll have a problem accessing any information at all…We'll have examples on how to answer the exam questions, and we'll know what [the module coordinator]'s looking for in answers. [2L V1]

Second, there was the availability of additional advice or explanation from staff, should the student choose to request it. For every course unit, data were available to suggest that at least some of the students interviewed felt that it would be possible to seek further support relating to their assessed work and staff were frequently described as approachable. For example:

> S1: I'm sure if we sent [the lecturers] an email saying can you explain this to us then they would.
> S2: They all supply their email address and tend to say at the beginning of their lecture course 'Oh, if you have any problems you know, you can reach me at this email address.' [3F J1]
>
> Well [the staff are] pretty easy to go to. You can go to their office and ask them questions and they're happy for you to do that. [1L N1]

However, the onus was on a student to seek help, and this was not necessarily straightforward. It could take time to develop the confidence to approach staff for help, especially if the student did not feel they had some relationship with them.

> I think most people are dead kind of…em…what's the word? – S2: Shy? – Shy and feel kind of ooh a bit nervous to see a lecturer, but if you have to go and see a lecturer you don't know, he doesn't know you, or she…You don't really want to go in and say, 'Hi, I'm not understanding this.' [2F V4]
>
> With us just starting university it's different from school. [At] school you're in a classroom with a teacher, they tell you what to do, if you don't know what to do you can ask them as many questions as you like, whereas at university it's not as simple to do that. [2F V2]

Some students also pointed out that constraints on student and staff time could make it hard to seek further assistance. For others – including, as in the extract below, some final-year students – uncertainty about the 'ground rules' for requesting additional support could be a potential obstacle.

> S2: I'm sure most of these lecturers are quite approachable if you actually do go and get in contact with them but then there's a fine line – I don't really like doing that because there's a fine line between sort of pestering, annoying them or how much information you can actually get or whether because you got information from them they'll sort of down-mark you. I mean…

S1: Yes?
S2: No, I don't think that happens but, I mean…
S1: Okay! [*Laughs*]
S2: It's a point though. I mean, everyone should have the same amount of help to make it fair, otherwise what's the point? [3L V1]

Step 4: feedback on performance and achievement

Feedback on coursework

Most of the interviews from units 2F, 3F and 3L included extracts where students expressed concern about the absence or paucity of feedback on their assessed coursework. In the case of 2F, the students' concerns about the lack of feedback were particularly associated with the 'pertussis enigma' assignment, and seem likely to have been all the more acute because of the perceived insufficient initial guidance (already noted above) on that piece of work.

S5: I got 8 out of 20, and I've got nothing written on my [feedback] sheet at all.
S3: Mine's the same. I got 10, and it's got no comments on it whatsoever.
S5: And they tell you to do it in double-spacing, so they can write things in, but they never do.
S3: I mean, if we're getting half marks, it must have a lot wrong with it.
S5: Exactly – but it's not telling us anything. [2F D2]

In another unit (3L) it was apparent that the students' oral presentations had typically been positively received, yet there had been little finer-grained comment on the quality of their presentations, and the students were not expecting to find out what mark their presentations would be awarded until after their exams. Students on unit 3F had also voiced concerns about a lack of feedback and, indeed, there were indications of a wider perception that lack of feedback was an issue within the department more generally, as in the comment below made by final-year students.

S: Yeah, one thing it seems to be like apparently, in all the modules we do, the feedback on the things we do doesn't sound very good, I don't think.
S: Or there isn't any! [*laughter*].
S: And the same with practical reports, the same with essays as well, and probably the same with the seminars as well – we'll just get a mark and that'll be it.
I: The same with essays?
S: …It's a tick sheet.
I: That's it? What about the comments?
S: Few and far between. Definitely.
S: It definitely depends on who's marking it though. Some will just put 'very good', 'liked it' or some will put reams and reams of text. [3L D1]

As this last comment also suggests, a second shortcoming in the provision of feedback was a perceived lack of consistency in the quality of feedback given by different markers. This was a notable issue in the two large first-year units (2F and 3F) for which responsibility for marking and commenting on students' work was distributed across a quite diverse course team.

S3: It's postgrads [who mark the work], and it's quite, sometimes inconsistent.
S2: It's very inconsistent. – S: Yeah – I don't think they are writing in the margins so we will know not to do it again. They're writing it in the margins so they will remember that we've done it wrong when they add up the marks, I think. It isn't done as feedback. [3F D1]

S1: It is quite hard to work out what they're looking for. I have found that when I've got them back and I've thought, 'That's a good one', and it's come back with low marks. Then I had another one that I did in a few hours the night before and it's come back with a higher mark.
S2: I think because obviously you get different people marking them.
S1: It would be nice to maybe have been given an example of a write-up or something just to give us an idea of what they want. [2F V1]

Intrinsic feedback

In all of the instances above, the feedback referred to was predominantly *extrinsic*; that is, it had been provided in response to a formally assigned task completed in the students' own time, rather than being *intrinsically* embedded in day-to-day teaching–learning activities (Laurillard, 2002, p. 55ff.). But, as already reported elsewhere (McCune & Hounsell, 2005), one of the final-year units (2L) provided a fascinating instance of *intrinsic* feedback. Although there was no assessed coursework within that unit (and, thus, no opportunity to get feedback of an extrinsic kind), the ways in which the group problem-solving exercises had been devised meant that the groups' solutions or answers were aired and commented upon in a plenary session led by the lecturer. The students thus felt well prepared to tackle the problem-solving questions that were to be a feature of the exam for that unit.

Step 5: supplementary support

When a coursework assignment had been marked and returned to students and, most obviously, when a student had been disappointed by the mark awarded, the possibility was, in principle, open to seek additional, follow-up guidance from a member of staff. However, as with 'ongoing guidance' in step 2 above, the responsibility for seeking help seemed to lie predominantly with the students, and was an option that some of them, at least, were reluctant to pursue.

> I find that with all the subjects, though. When you're at school and you got a mark, it was like you got this mark because… 'And here's where you went wrong, and here's how you fix it, like next time do this.' But obviously they're not going to have the time to do that with everybody. I do think if you went with it and asked why you got that mark, then I think somebody would sit there and say to you, well, 'This is the way that should have been done.' [2F V1]

As far as exams were concerned, standard practice in these units (as is common elsewhere in UK universities) was not to return completed exam papers; nor – notwithstanding the anticipatory feedback made available in 2L – was feedback on their exam answers routinely offered to students. However, there was the possibility, in at least some of the settings, for students who had not done well in an exam to seek a member of staff's help in going over their exam paper, as the extracts below illustrate.

> S2: We don't get the papers back that we've done, so you – My mum was saying 'Well, you'll know what to expect next time'. Well, in a way, but I won't really, because I don't know what I got wrong the first time.
>
> S3: I got my ones back, 'cause I didn't do very well, I got all of them back [*laughs*]. And my tutor sat there and went through it and said, 'Well actually this is alright, but you need to sort this out.' [3F D1]

Step 6: feed-forward

The last of the six steps represents the 'closing' of the guidance and feedback loop (*cf.* Askew, 2000; Sadler, 1998): a learner can deploy what he or she may have learned from undertaking a particular task under guidance, and from the feedback subsequently received on it, in a subsequent assignment or assessment. Effective guidance and feedback therefore play a crucial role – whether for individuals and for groups, classes or cohorts – in the achievement of high-quality learning outcomes.

> Assignments should be explained better, and there should be more feedback. [Other students: Yes, definitely feedback]. 'Cause that's the only way you can really improve yourself, if you know what to improve yourself on, and which parts [to improve]. [2F D2]

But although the students across the six course units placed a high value on the potential of feedback to 'feed-forward', it could not do so effectively when there was a protracted wait for feedback, or when feedback was deferred because, as a matter of course or departmental policy, marked coursework was not returned to students until after they had taken their exams in the unit concerned. For many, but not all students, this was an opportunity lost.

> S: So sometimes you don't even get feedback and it's just waiting for your overall grade for the module…To see how well you've done. Which is quite bad actually.
> S1: Yeah, it is, because you need some sort of gauge, before you go into your exams, of how well you're doing, because if you know you're doing really badly, then you've still got time to get help. [1L N3]

Conclusions and implications

This paper has drawn on data from a large-scale project to examine students' experiences and perceptions of guidance and feedback in six bioscience course units. As the data were gathered through questionnaires and group interviews, it was possible to gain a robust picture from the former of the students' overall perceptions of guidance and feedback across the six units, and from the latter, a more searching and more fully articulated impression of their experiences within each unit and in relation to particular assignments and assessments.

Some of the specific findings that result from these analyses are not novel in themselves but, nevertheless, provide valuable confirmation of findings elsewhere. Thus, for instance, the evidence of the value that students place on feedback echoes the study by Higgins, Hartley and Skelton (2001), which portrays students as 'conscientious consumers' seeking feedback that will help them to engage with their subject in ways that will facilitate high-quality learning outcomes. Similarly, the documenting of considerable variability in the quantity, quality and timeliness of feedback provision mirrors what has emerged from other studies, within and across subject areas and institutions, in the UK and Australia (see, for example, Gibbs & Simpson, 2004; Hyland, 2000; Krause et al. 2005).

Where this paper does represent a significant advance in understanding is in considering the provision of guidance and feedback as an integral whole, rather than (as has generally been the case) singling out feedback for particular attention. This holistic approach has two other important elements. One of these has been to look at guidance and feedback not only in relation to coursework (again, the predominant focus hitherto) but also with respect to exams. This yields a much fuller picture of the overall 'assessment regimes' (Ecclestone, 2004) within particular course units, demonstrating how guidance and feedback on exams (e.g. through *anticipatory* and *intrinsic* feedback) can play a no less powerful role than coursework in the facilitation of high-quality learning. Indeed, the analysis has brought to light a wealth of formative possibilities that can both helpfully complement more extrinsic ones and seem well-suited to helping students 'come to hold a concept of quality roughly similar to that held by the teacher' (Sadler, 1989, p. 121). These possibilities – akin to 'exemplars of performance or achievement' (Nicol & Macfarlane-Dick, 2006; Sadler, 1989) – included self-review test questions, model answers and worked examples, as well as commentaries on past exam questions and opportunities for students to learn from and with one another, as well as from the lecturer, through working collaboratively on problems.

The second element has been to view the processes cyclically, as a guidance and feedback loop in which several key steps can be differentiated. This too has manifest benefits. It renders much more visible where as well as what potential difficulties or 'troublespots' can arise, as Figure 4 shows. This could become a valuable diagnostic tool, helping course teams to pinpoint more precisely where the strengths and weaknesses might lie in their provision of guidance and feedback and, thus, where efforts to remedy shortcomings might most fruitfully be targeted.

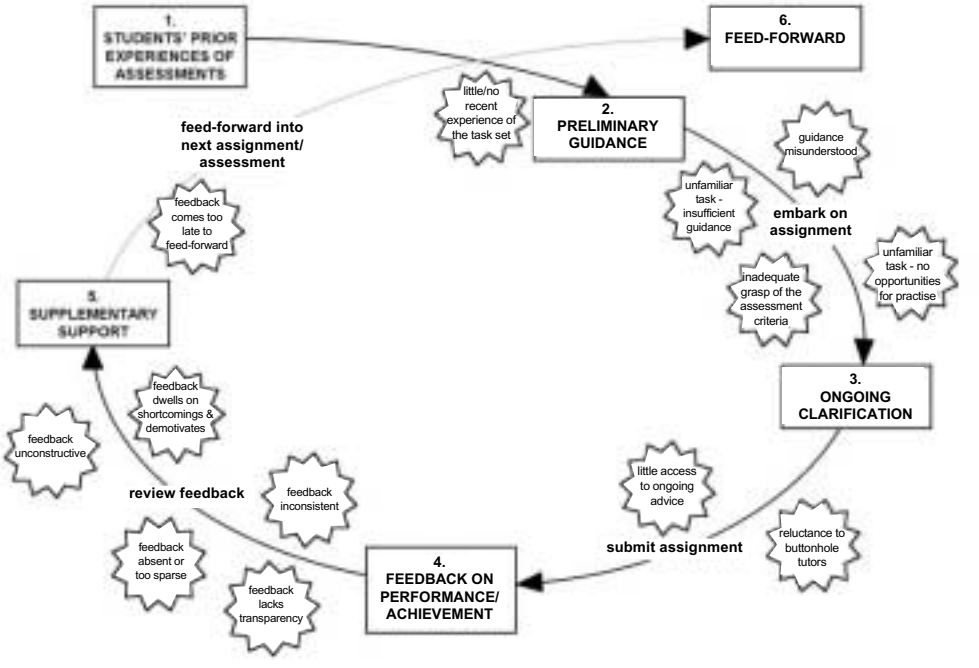

Figure 4. Potential troublespots in the guidance and feedback loop.

But viewing guidance and feedback as steps within a loop also throws into sharper relief the interrelationships between successive steps. Thus, for example, it was apparent in this study that lack of prior familiarity with an assessment task could put a premium not only on appropriate and adequate initial guidance and support (a conclusion similarly reached by McDowell and Sambell (1999)), but also a heightened interest in, and perceived need for, informative feedback. Yet, conversely, when there was a relatively high degree of familiarity with a particular type of task, some students at least could see guidance and feedback as less crucial than usual. Similarly, the potential of an assessed task to feed-forward could be diminished when the earlier guidance had not persuaded students that what they were being asked to do (e.g. to prepare a poster presentation) represented an essential and well-established way of thinking and practising in the subject area (McCune & Hounsell, 2005).

Finally, as already intimated, conceptualising and dissecting guidance and feedback as a loop can provide a sounder basis for efforts to enhance the quality of provision. Indeed, in a subsequent article, we shall present the findings of the follow-up stage of the present study, taking as case studies evidence-informed initiatives to improve guidance and feedback in one of the first-year and one of the final-year bioscience course units. As will become apparent in that article, the changes introduced were much more successful in one setting than the other, and the paper will explore possible reasons for these variations in impact.

Notes

1. For a fuller analysis of the findings, see Hounsell et al. (2005).
2. The coding given below each interview extract indicates the course unit (1F, 2L) and the interview from which the extract is taken (e.g. V1, D1, J1, N1). Where more than one student is involved, they are designated S1, S2 and so on, and the interviewer is I. Lecturers are L.

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