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INVESTIGATING AND ENHANCING GUIDANCE AND FEEDBACK TO UNDERGRADUATE STUDENTS

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Abstract

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. In the work reported, a first- and a final-year bioscience course unit were surveyed in each of three contrasting university departments by means of questionnaires and interviews. The resulting data-set comprised 782 completed student questionnaires and 23 group interviews with a total of 69 students. While 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. This analytical framework brings into sharper relief the hitherto neglected role of exam-related guidance and feedback in helping to facilitate high-quality learning (e.g. through anticipatory and intrinsic feedback). And by pinpointing potential troublespots, the framework can serve as a valuable diagnostic tool, helping course teams to enhance the effectiveness of provision.

1. 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. Rowntree, 1987; Brown, Bull and Pendlebury, 1997; Brown and Glasner, 1999), in reports of teaching quality reviews (see for example QAA, 2003) and in checklists of indicators of effective assessment practices (e.g. James, McInnis and 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 (that is, those aspects of assessment which are developmental in their purposes, seeking to help students in pursuing and attaining high standards of achievement) that has been stimulated by the work of Black and Wiliam in particular. In a very substantial review of research findings (Black and Wiliam, 1998) they concluded that well-designed formative assessment can have an impact on learning which 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 positive pedagogical benefits of formative assessment have come growing concerns about a decline in the provision of guidance and feedback on assessed work in higher education. Hounsell (2003) has suggested that 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 tend to be crowded towards the end of courses, leaving students with little or no scope to benefit from a tutor's feedback on their work (Yorke 2001; Higgins, Hartley and Skelton, 2002; Gibbs, 1999). Another reason may lie in the backwash effects of much larger class sizes and a lower unit of resource (Hounsell, 2003). While student numbers have risen substantially over the past quarter-century, there has been a drop of about 40 per cent in funding per student (NCIHE, 1997) and a halving of staff-student ratios, with the consequence that contemporary UK students generally undertake fewer coursework assignments than their predecessors and have less face-to-face contact with staff (DfES, 2003).

Evidence on the provision of feedback is limited, but raises further concerns. In national surveys of first-year students in Australia in 1994 and 1999, two out of five respondents expressed dissatisfaction with the helpfulness of tutors' feedback (McInnis et al., 2000). A review of research findings – mostly from relatively small-scale qualitative studies in the UK and in single subject areas – concluded that while feedback seemed to be widely valued by students, their experiences of getting feedback from their tutors 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, since 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 which 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, initiatives which focus on the formative dimension of peer assessment by 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 eleven '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 which places the student at the heart of the feedback process.

2. Settings, research design and data analysis

Research design

The findings on guidance and feedback discussed in the present paper originate in the work of the 'Enhancing Teaching-Learning Environments in Undergraduate Courses' (ETL) Project, a large-scale project which was funded from 2001-2005 as part of the Teaching and Learning Research Programme of the UK Economic and Social Research Council. The ETL project worked with fifteen higher education departments across Britain in five contrasting subject areas. It aimed to understand and enhance undergraduate courses as 'teaching-learning environments' and to investigate what aspects of undergraduate courses help and hinder the achievement of high-quality learning.

This paper draws on the biosciences component of the project and focuses on students' experiences of the provision of guidance and feedback in a first-year and a final-year course in each of three contrasting university departments. Our work with these course units 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

In total six course units or modules were surveyed across three institutions selected to be representative of the range of different types of higher education institutions common in the UK. All three departments were actively committed to research and to teaching in the biosciences, while also valuing their links with the wider professional bioscience community. While we sought to identify course units which would represent the broad range of biosciences teaching-learning environments in the UK, some care is called for in generalising from these six settings. Since the work was undertaken with staff who had agreed to participate actively in a project focused on educational innovation, their often high levels of interest in matters relating to student learning may be somewhat atypical.

All 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 less than 100 to over 600 students, and there were matching differences in the size and scope of staffing inputs (Hounsell, McCune, Litjens and Hounsell, 2005). Each module was taught via a combination of lectures, laboratory-based practical work and small-group activities. There were notable differences, however, in how these activities were taken forward and in how the course units were assessed. While two of the three course units mounted lectures, practicals and tutorials in tandem, in the other the weekly practical sessions blended laboratory experiments with group activities of various kinds, including discussions, debates, writing assignments and poster presentations designed to promote the development of a range of subject-based skills as well as to enhance the students' understanding of the interrelationships between theory and application. Coursework assignments in unit 2F were linked to these skill-focused activities, and were combined with end-of-module exams in the overall assessment. Assessment in the other two units was also based on a combination on exams and coursework, with the latter having the lowest overall assessment weighting (20%) in unit 3F.

The three final year course units (1L, 2L and 3L) were one-semester honours-level courses. Their combined enrolment – 83 students in the baseline year – reflects the typically much smaller cohort sizes of honours courses relative to first-year courses. The three units differed considerably in their approaches to teaching and learning and in their patterns of assessment. In unit 1L, twice-weekly lectures were complemented by regular tutorials in which students had an opportunity to raise questions and issues of concern to them; assessment was based on a three-hour examination (60% of the final grade) together with two coursework assignments, each of which counted for 20% overall. In unit 2L, by contrast, each three-hour session opened with a talk by an external speaker from a biosciences research institute; the students were then assigned problems or questions arising from data linked to the guest lecturer's work, and they tackled these in small groups prior to plenary discussion. Assessment in 2L took the form of a single three-hour exam paper, since it was not feasible to set, mark and return coursework within the relatively short time-span (a half-semester) in which the module ran. Lastly, in unit 3L formal teaching sessions took the form of weekly seminars in which presentations were given by two of the students, addressing one of ten topics drawn up by the two members of staff; each 45-minute presentation was expected to include overhead slides and a short handout and was followed by questions and discussion. Assessment in 3L was wholly based on coursework, combining marks for the students' seminar presentations with grades for two 1500-word integrative essays on questions set by the tutors.

Data gathering

In each of the course settings a sample of students participated in semi-structured group interviews in the penultimate week of the unit. All of the students in each unit were invited to complete two questionnaires designed for the project, one at the beginning of the unit and one in the penultimate teaching week (Learning and Studying Questionnaire and

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
LSQ	46 (43%)	28 (64%)	140 (22%)	–	88 (92%)	13 (93%)
ETLQ	52 (49%)	24 (55%)	271 (42%)	20 (80%)	86 (90%)	14 (100%)
LSQ & ETLQ	33 (31%)	19 (43%)	84 (13%)	–	77 (80%)	13 (93%)
staff interviewed	1	2	22	1	3	2
group interviews	1	5	7	4	3	3
students interviewed	1	13	20	12	10	13

Experiences of Teaching and Learning Questionnaire Entwistle, McCune and Hounsell, 2003).

Semi-structured individual interviews with staff were also carried out in each course unit, and course documentation was collected to supplement the analysis of the questionnaires and interview transcripts. Table 1 summarises the take-up rates for the different aspects of the data collection from the six course units. One potential limitation of the data collection for the purposes of this paper is that in some cases the students would not have completed all of their assignments, or would not necessarily have had all of their feedback, at the time when the data was collected. It was not feasible, however, to collect the data any later as it would not have been possible to collect sufficient data from the students after their classes had finished and they were not coming into their institutions on a regular basis.

Analysis

Questionnaire analysis

The questionnaire analyses here are concerned only with the data collected via the Experiences of Teaching and Learning Questionnaire (ETLQ).1 The ETLQ 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 to support the analysis of the student interview data. The items were also grouped into scales, based on earlier analyses (Entwistle, McCune and Hounsell, 2003) to provide an overview of the students' perceptions of these aspects of their course units.

Analysis of student interviews

After transcribing the student interviews in full, all of the data relating to guidance and feedback on assessments were selected out from the transcripts and formed the basis of the analyses reported here. Previous analyses of parts of this data set (McCune, Hounsell and Nisbet, 2003; McCune and Hounsell, 2005; Hounsell, McCune, Litjens and Hounsell, 2005) had involved the identification, discussion and refinement of a range of key themes relating to guidance and feedback on assessment by two members of the project team. In the analyses presented in this paper these key themes were systematically re-evaluated within all of the student interview data collected from five of the six course units in the first year of working with those course units (a total of 22 transcripts, since 1F was excluded from this analysis as only one student interview had been conducted). A record was made of how commonly particular themes or issues were expressed across different institutions and levels of study. Counter-examples to the broad picture emerging were sought. Further, the data was checked for additional relevant themes which had not been included in the earlier analyses. This re-evaluation of the data was carried out by one member of the project team and then carefully checked by another team member.

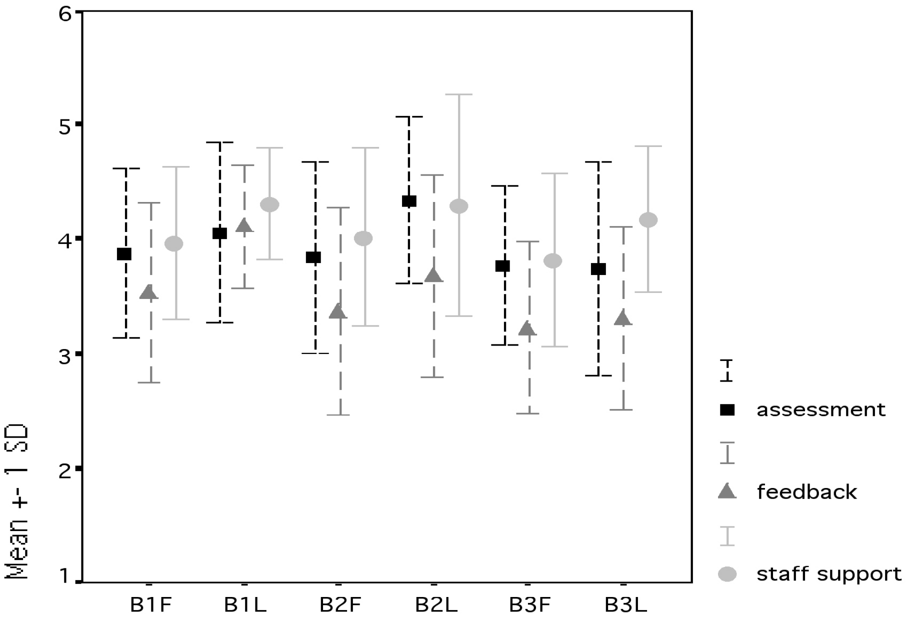
3. Questionnaire findings

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. While 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 , sd=0.45 (3F) to M= 4.11, sd=0.56 (2L). These broadly positive overall perceptions were generally supported by the student interview data. More details of these findings can be found in Hounsell, McCune, Litjens and Hounsell (2005).

The questionnaire data also provided a more detailed picture of the students' experiences of assessed work, in the form of their responses to three of the ETLQ scales: 'set work and feedback', 'assessing understanding' and 'staff enthusiasm and support' . 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.

Figure 1. Perceptions of assessment, feedback and staff support



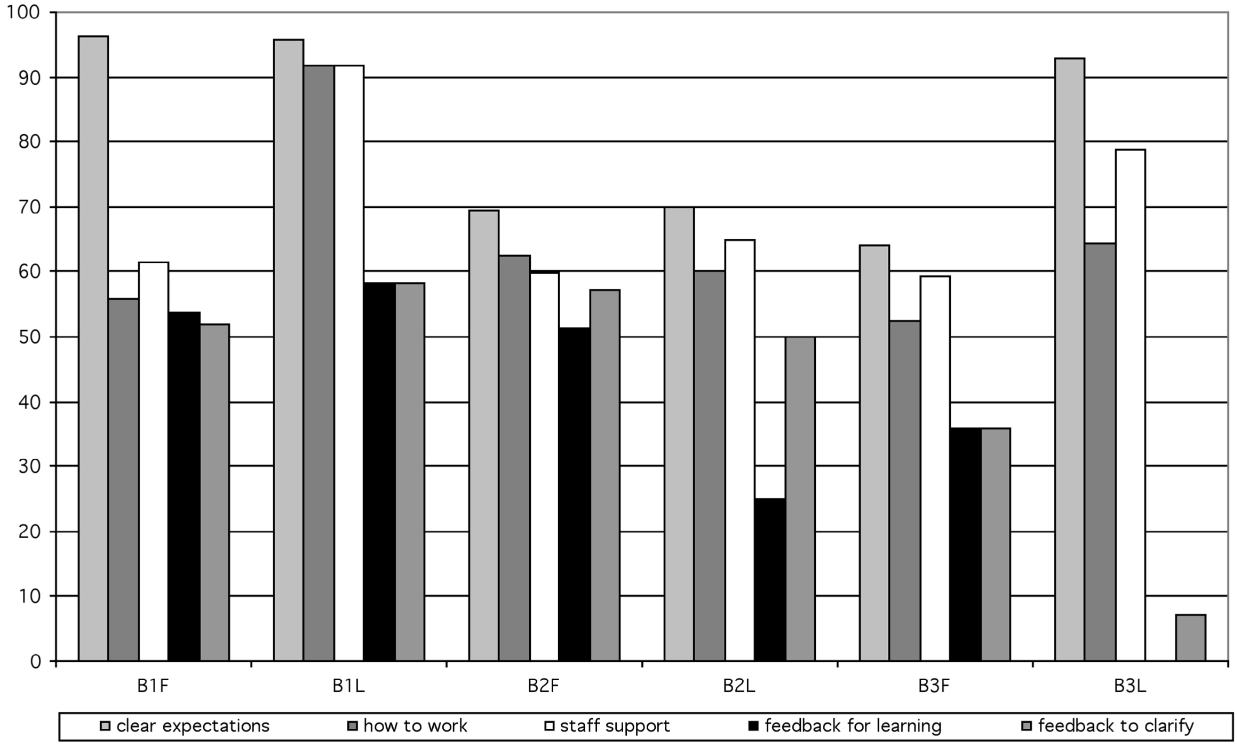
The analysis of the questionnaire responses can be taken an important step further, by looking at the results for each of the questionnaire items that relate directly to the students' experiences of guidance and feedback. In these questionnaire items, the students were asked about the clarity of what 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. Figure 2 below shows the percentages of students in each course unit who agreed or agreed somewhat with these items. Clarity of expectations emerged as the highest rated item in each of the course units (with scores ranging from 64.0 per cent in 3F to 96.2 per cent in 1F).

The students also tended to have positive perceptions of the support they had received from staff and the encouragement they had been given to think about how to tackle their assignments. 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 to items asking about the feedback they received. The proportion of students 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 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, where the responses were relatively higher for this feedback question.

4. Interview Findings: Students' Experiences

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

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



Step One: Students' prior experiences of cognate assessments

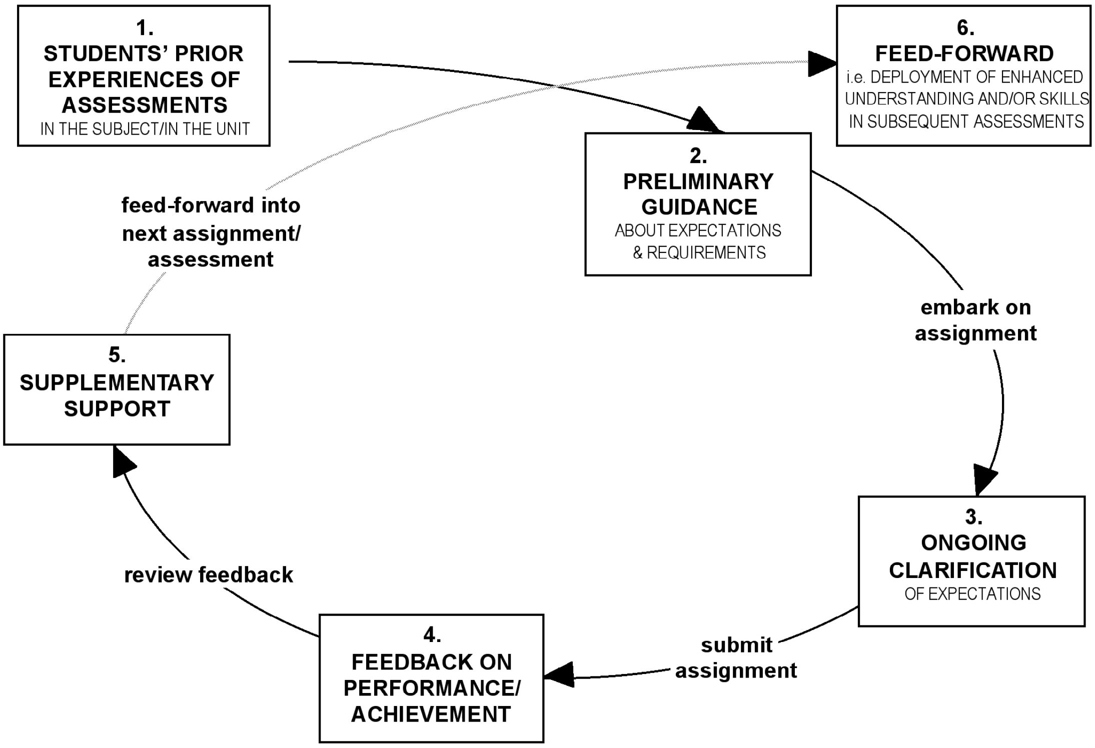
In the course units surveyed, the types of assessments with which the students were confronted ranged widely in their degree of familiarity. Writing lab reports for coursework, and tackling multiple-choice or short-answer questions in exams, were tasks that all or most students had previously encountered, 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 where the students were not on home ground, and where 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) where 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 since 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 in two out of the three groups interviewed, which the students concerned attributed to a comparative lack of prior experience of essay-writing essays, together with a perceived dearth of feedback on those few essays which had been submitted for other course units (McCune and Hounsell, 2005). Another example was an Honours unit (1L) taken by both final-year BSc students and MSc students. While the former group had extensive experience of submitting and getting feedback on coursework assignments in the Department, the latter were relative newcomers, and so understandably anxious to know how well they were doing. As one put it:

> I've never done any coursework in English, so I hope if I can get any feedback, it's what part is insufficient, or structure, or language, that it will tell me how to improve. Not just grades, but to know where I can improve it and how.
>
> [1L N2]2

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, where 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 and Hounsell, 2005):

Figure 3. The guidance and feedback loop: main steps


1.
STUDENTS' PRIOR EXPERIENCES OF ASSESSMENTS
IN THE SUBJECT/IN THE UNIT
2.
PRELIMINARY GUIDANCE
ABOUT EXPECTATIONS & REQUIREMENTS
6.
FEED-FORWARD
i.e. DEPLOYMENT OF ENHANCED UNDERSTANDING AND/OR SKILLS IN SUBSEQUENT ASSESSMENTS
feed-forward into next assignment/ assessment
embark on assignment
5.
SUPPLEMENTARY SUPPORT
3.
ONGOING CLARIFICATION
OF EXPECTATIONS
review feedback
4.
FEEDBACK ON PERFORMANCE/ ACHIEVEMENT
submit assignment

> 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]

> S1: I didn't think it was relevant really [...] it turned into a kindae 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 kindae art class [S: Uh huh. S: Yeah] Drawing a poster of it.
>
> [2F V3]

> I: And [S4] says that there's a problem working out what they want? [2 or 3 Students: Yes.]
>
> S4: Yes, it's confusing. They don't tell you exactly – especially that circulation thing, for example, today, there were questions that I wasn't sure exactly what they wanted me to do. It was really, really vague.
>
> [2F D2]

Step Two: 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 following examples:

> 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]

> I: Were you given general guidelines about how to do [the oral presentations]?
> S1: We were at the beginning, weren't we?
> I: So you had some idea what was expected of you, then?
> S2: Um, and they gave us just starting materials, like lead references and where we could go.
>
> [3L J1]

But there were also instances where 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 which had caused particular difficulties was part of an exercise focused around survey data on vaccinations for whooping-cough (pertussis), and the assignment required students to draw up 'best-practice' recommendations for general practitioners on the use of the pertussis vaccine.

> 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]

> I totally got the wrong end of the stick. [. .] I read the instructions, and I felt there were hidden things that you had to put [in] that they didn't explain.
>
> [2F D2]

Another assignment in the same unit which had given rise to uncertainty stemmed from a practical on mammalian circulatory and respiratory systems, and had posed questions about the circulatory system of a vertebrate:

> S1: 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 percent clear what we'd to do. […]
>
> S2: It was very very unclear […] I went and looked in my textbook, read like the whole chapter, looked on 230 sites on the internet, and got […] only half of what I was looking for.
>
> [2F V5]

Step Three: 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 third example below) to anticipatory feedback on past exam questions, i.e. 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 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]

> S: [Professor X is] really good because at the moment he's making us do loads of exam practice papers and we just hand them in and he marks them. We spend a whole tutorial discussing how we could make it better and things like that.
>
> [3F V1]

> 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]

Secondly, there was the availability of additional advice or explanation from staff, should the student choose to request it. For every course unit, data was 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]

> Yeah I think that's the one thing about biology, the lab leader gets to know your name and she knows who you are, so it's good compared to other subjects. You know you feel there's someone you could go to ask for help.
>
> [2F V1]

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:

> S2: I think most people are dead kind of em, what's the word? – S1: 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]

> If you're enthusiastic about it and you want to do well in this module then you will go and seek advice [...] and I suppose I have done that but it still is kind of difficult. […] Also 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:

> S1: I think you can ask [about the integrative essays]. Maybe I will go and ask him what he would expect […]
> S2: Yeah, 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?
> S1: Yes, that's true.
>
> [3L V1]

Step Four: 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 limitations of the feedback provided on aspects of their assessed coursework. A recurring theme was the absence or paucity of feedback. 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 following comment by a final-year student:

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: Well, we get the essays back and they're corrected but there's not really ...
S: Well they used to give you a mark sheet and it's got, like, structure, bibliography […]
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) where 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 a feedback [exercise?].

[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.
S3: One of my friends' buddies actually sent her in an email all of the practical work that she'd done for the first year, and she sent that to her.
S1: That would be really helpful I think, just to see one.

[2F V1]

In reviewing the students' experiences of feedback, it is also important to take heed of their emotional reactions to perceived shortcomings in that feedback, which students in several of our course settings spoke strongly about, even though it had not been a specific focus of our interview schedules. Students could feel frustrated, annoyed or disappointed, while poor feedback, it seemed, could signal that the marker did not care about the student:

> S1: It can be quite frustrating […] if you know you've worked so hard on something and then you get it back and it's a bad mark for it and then as if no one really cares that you got that mark –
> S2: It kind of lowers your confidence a wee bit – S1: It does – S2: You're like, hm, I put all this effort in what's the point …
>
> [2F V3]

> Once I had a graph, and I hadn't written something on it, and I mean it was scribbled on like the whole - I had writing from here to here on it. It was just massive 'This is wrong', you know. This kind of thing. And that's really, you know, really bad […] and it didn't make me feel great [laughter], that they'd scribbled all over my lovely graph.
>
> [3F D1]

By contrast, in the extract below the student indicated that lack of feedback had provided motivation to work harder. The student did not, however, seem to have a clear idea about where to direct these efforts.

> S2 : We don't really get feedback […] I think in a way it might have motivated me personally a bit because it's just made me try a lot harder, like especially course work. It's made me try a lot harder at course work. [...]
> S1: But how did you know what areas to improve?
> S2 : I didn't really, I just threw everything in and hoped something would be okay.
>
> [3F V1]

Intrinsic feedback

In all of the above instances, the feedback referred to was predominantly extrinsic, i.e. 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, pp. 55ff.). But as already reported elsewhere (McCune and 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 Five: Supplementary support

Where a coursework assignment had been marked and returned to students – and most obviously, where 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.

The two illustrative comments below are from interviews with students in a first-year unit with no regular tutorials of a conventional kind (2F). One student saw recourse to individualised help as a feasible option, while the other would have preferred more in-built, follow-up guidance:

> 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]

> Maybe if they could give you more help with the assignments, and maybe a bit more feedback. [...] You're probably better having like a tutor or something, maybe just there, every month, to say to you, 'How are you getting on, how are you finding it?', 'This is what was wrong with this assignment, this is what wasn't'.
>
> [2F D1]

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 following extracts 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.
> S: I would have quite liked to have had mine . . .
> 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'. [...]
> I: Did he get them back for you or you got them back?
> S3: No, I sent an email to the [programme coordinator] and [he/she] said 'Your teacher needs to go and get them'.
>
> [3F D1]

> I: So when you do exams do you just get your mark back? Is that what happened to your first one? You never find out where you went wrong?
> S1: You can request your paper.
> S2: Oh can you?
> S1: Yeah I got my thermo dynamics one back, the questions in biochemistry.
> S2: Aha.
> S1: But yeah, it would be helpful if you got your exam papers back, 'cause I find at A-level if you did an exam you got them back with comments on, and [...] then you went through the answer in the class so you knew what you did wrong. You didn't get that with any of the exam papers [here]. It makes it harder knowing exactly what the University want.
> S3: I think some model exam questions would be helpful as well.
>
> [3F J1]

Step Six: Feed-forward

The last of the six steps represents the 'closing' of the guidance and feedback loop (c.f. Sadler, 1998; Askew, 2000): 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]. 'Cos 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 while the students across the six course units placed a high value on the potential of feedback to 'feed forward' (as many of the interview comments already cited will have shown), it could not do so effectively where there was a protracted wait for feedback, or where 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, as the following extract indicates, 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: Yeh, 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. [...]
> S: I think it would depend on […] what the grade was. I mean, if it was a good grade then I'm not bothered, just go and focus on what I'm doing, or if it was a bad grade that I'd done really bad and I knew I was expecting that, I wouldn't bother going and asking for any feedback.
>
> [1L N3]

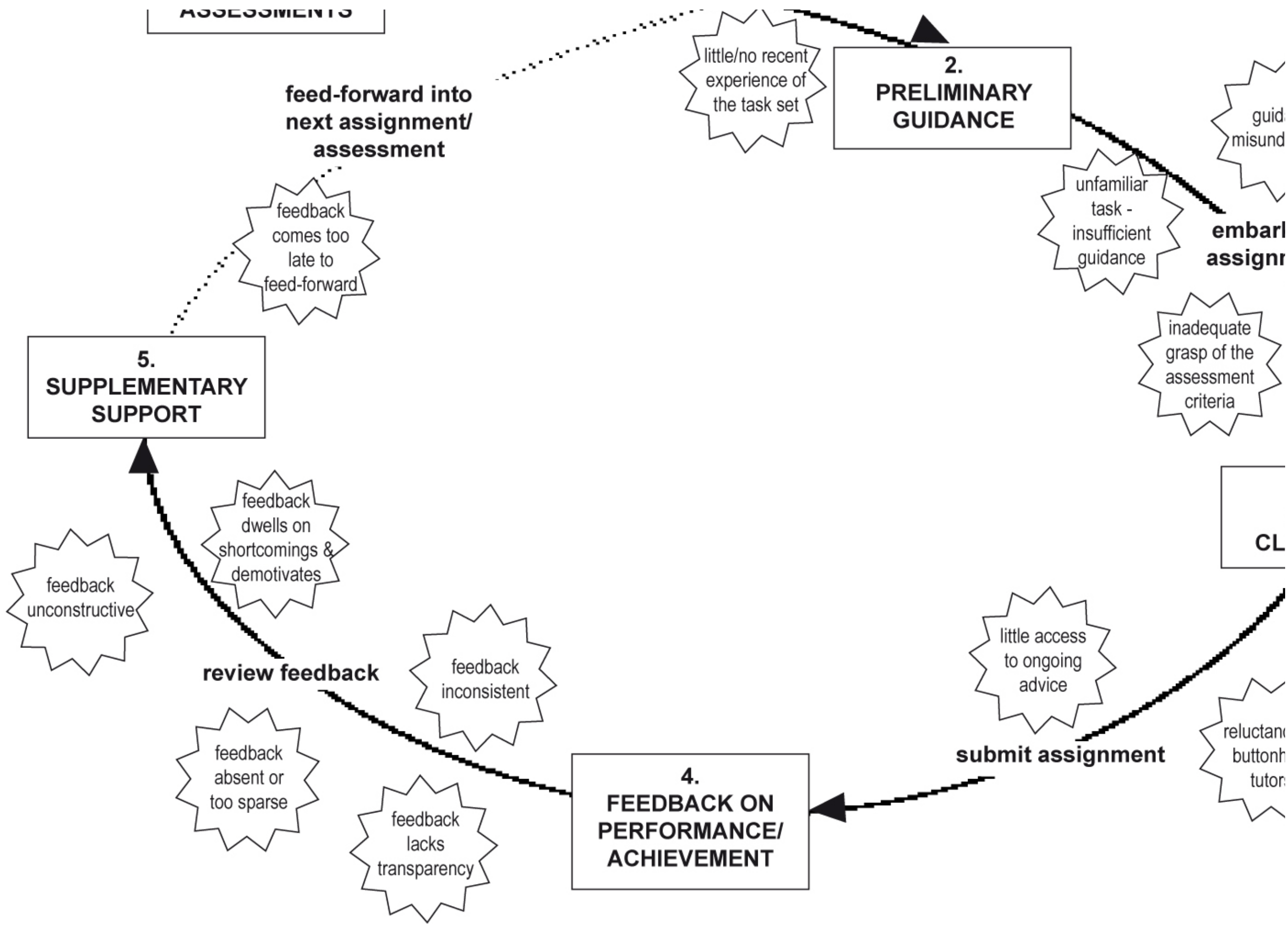
5. Conclusions and Implications

This paper has drawn on the data from a large-scale study of undergraduate teaching-learning environments to examine students' experiences and perceptions of guidance and feedback in six bioscience course units. Since 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 which 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 which students place on feedback echoes the study by Higgins, Hartley and Skelton (2001) which portrays students as 'conscientious consumers' seeking feedback which 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 Krause et al. 2005; Gibbs and Simpson, 2004; Hyland, 2000; Lea and Street, 2000)

Nonetheless, it can be argued, this paper does represent a significant advance in understanding in other respects, most notably in seeking to consider the provision of guidance and feedback as part of an integral whole, rather than (as has generally been the case) singling out feedback for sole or very particular attention. This holistic approach has two other important and illuminating elements, it should also be noted. 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, and of the interplay between coursework and exams in students' everyday learning experiences. And it also serves to demonstrate how guidance and feedback on exams (e.g. through anticipatory and intrinsic feedback) can play a no less powerful role than coursework assignments in the facilitation of high-

Figure 4. Potential troublespots in the guidance and feedback loop


ASSESSMENTS
feed-forward into next assignment/ assessment
little/no recent experience of the task set
2. PRELIMINARY GUIDANCE
guid
misund
unfamiliar task - insufficient guidance
embarl
assignr
inadequate grasp of the assessment criteria
CL
feedback comes too late to feed-forward
5. SUPPLEMENTARY SUPPORT
feedback dwells on shortcomings & demotivates
feedback unconstructive
review feedback
feedback inconsistent
little access to ongoing advice
submit assignment
reluctan
buttonh
tutor
feedback absent or too sparse
feedback lacks transparency
4. FEEDBACK ON PERFORMANCE/ ACHIEVEMENT

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’ (Sadler, 1989; Nicol and Macfarlane-Dick, 2006) – included self-review test questions, model answers and worked examples, as well as commentaries on past exam questions and opportunities to learn from and with one another as well as from the lecturer, through working collaboratively on problems.

The second and equally important 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. Firstly, by demarcating the successive points where guidance and feedback come into play, it renders much more visible where as well as what potential difficulties can arise. Figure 4 shows this graphically, by mapping out the various ‘troublespots’ which emerged in the present study. This could become a valuable diagnostic as well as analytical 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.

A further benefit of viewing guidance and feedback as steps within a loop is in throwing 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) in a study of students’ reactions to innovative assessment), but also a heightened interest in, and perceived need for, informative feedback. Yet where, conversely, where 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 where the earlier guidance had not succeeded in communicating to the students that what they were being asked to do (e.g. to engage in a debate or to prepare a poster presentation) was not of dubious relevance but on the contrary, represented an essential and well-established way of thinking and practising in the subject area (McCune and Hounsell, 2005).

Lastly, 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.

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Endnotes

1. For a fuller analysis of the findings of both questionnaires for the biosciences samples see Hounsell, McCune, Litjens and Hounsell (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 and each could be clearly identified, they are designated S1, S2 and so on, while the interviewer is I. Lecturers are L.

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