Drafting and acting on feedback supports student learning when writing essay assignments

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Freestone N. Drafting and acting on feedback supports student learning when writing essay assignments. *Adv Physiol Educ* 33: 98–102, 2009; doi:10.1152/advan.90127.2008.—A diverse student population is a relatively recent feature of the higher education system in the United Kingdom. Consequently, it may be thought that more “traditional” types of assessment based around essay writing skills for science undergraduates may be of decreasing value and relevance to contemporary students. This article describes a study in which the process of feedback on, and associated redrafting of, an essay was closely supervised to improve essay writing skills and subsequent exam performance. The results of this study show that students can significantly improve their learning and academic performance, as assessed by final examination mark, by a process that more closely mimics a “real-world” situation of review and redrafting. Additionally, the data show that students benefit from feedback only when this is used appropriately by the student. The article also discusses the continuing importance and relevance of essay writing skills so that writing, and acting upon feedback to do with that writing, remains an integral part of the process of learning.

IN MANY HIGHER EDUCATION (HE) institutions in the United Kingdom (UK) today, the recent government-derived policy of “massification” of HE provision has resulted in a student body that may not be as familiar with the traditional culture that prevails in academic life as they previously were (24). Massification is a term used by Scott (21) to describe the development of mass participation in HE. Such a process has occurred relatively recently in the UK, and many institutions are still grappling with the issues that have arisen with such developments (21).

Students may exhibit diversity in age, background, nationality, and ethnicity, and, for some of them, English may be a second or even third language. This has led to the perception of a “reduced teachability” in the current student population (23). There is then a cultural and educational disjunction between this new influx of nontraditional students and the educational setting they are entering. Obviously, in this context, suitable and nondiscriminatory assessment policies must be developed, not least, to accommodate students’ fluency in the English language so that their knowledge and learning can be properly supported, monitored, and measured (27).

It has also been suggested, more specifically, that a significant number of science students elect to take science degree programs primarily because of problems they may have faced producing extended pieces of writing in the past in nonscience subjects (4). This may leave science students confronting an essay-writing task intimidated, confused, and lacking little conception of what is involved for the successful completion of such a task (15).

In this regard, it may be thought that the use of essay-type writing assignments for assessment purposes may not be suitable for at least a substantial minority of the student population as currently constituted. Furthermore, many science departments place very little stress on essay-writing skills even though they may use essays to assess students in examinations (4). However, essay assignments give students a chance to use and develop a wide range of sources and allow time and create opportunities for sustained reflection (9). Additionally, if used as a major assessment over the course of an academic program or module, essays can act as a record of student learning over a prolonged period of time (3a).

While traditional academic activities may involve students reading, listening, or taking lecture notes, constructing essays is a more complex task that involves the students “putting learning on display” (3a). Scouller (22) demonstrated that essay writing develops different skills in students relative to other assessment modalities. More specifically, students were found to use surface learning approaches when confronted with multiple-choice questionnaire (MCQ) tasks, and poor performance in such tasks was associated with these strategies being used by students. On the other hand, good performance in essay tasks was linked to students developing and using deep learning strategies with poor performance being associated with students using surface learning approaches.

In terms of language difficulties encountered by students with English as a second language, Chur-Hansen (4) undertook a study to improve the essay-writing skills of medical students. Students were given the opportunity to complete a practice essay after being given an introductory tutorial session in which the expected standards and format of an examination essay were described. The essay was then rated by both the student and lecturer. This study found that the students themselves were more critical of their essay-writing efforts than was the lecturer. Nevertheless, most of the students reported the exercise to be a positive learning experience.

It is apparent then that difficulties of language and unfamiliarity with the essay writing format can and should be overcome to provide students with a form of assessment that tests deep learning (22). Essay writing may be seen as a way of getting students to reflect on and judge these ideas while also allowing tutors to better analyze student thought processes and understanding of a subject (14).

Torrance et al. (25) also reported that different students employ different strategies when undertaking essay-writing tasks and that these strategies correlate with their performance. In this study, students who used strategies of “minimal drafting” (writing the essay and only altering it once or twice before submission) and “outline and develop” (filling in the gaps in a
skeleton draft of the essay) obtained poor results, whereas those students who used strategies of “detailed planning” and “think-then-do” performed better at the essay-writing task. It has been shown that student success in essay-writing assignments can be predicted by auditing the time spent on the task, the number of books used, the number of references cited, and the proportion of research-based primary literature sources used (17).

A survey of students conducted after an essay-writing assignment found that the experiences most valued by the students in the whole process were workshops and tutorials designed to give students formal instruction in how to write essays (5). This aspect of laying foundations for an essay-writing task has also been the subject of research done by Pain and Mowl (19), who found that a preparatory workshop helped students to become familiar with the task while at the same time increasing their confidence in their ability to tackle the assignment successfully. These sessions were also used to get academic staff and students to discuss and agree upon the criteria used for the task and its assessment.

A mismatch of expectations between academic staff and students in essay-writing tasks was identified by Branthwaite et al. (2), who found that students thought that essay-type tasks tested for originality and understanding, whereas academic staff were not looking for these features when determining what was and what was not a “good” essay with a consequent impact upon student grades for essay assignments. On the other hand, Campbell et al. (3) found through interviewing students that those who wrote complex essays put more effort into finding appropriate references, wrote preliminary notes that were organized into different themes, and constructed arguments within their work rather than simply relaying information. Such students also had a better understanding of the assessment criteria and expected and received higher grades.

Finally, the role of feedback is increasingly believed to play a major role in improving student performance. Feedback to students from formative assessments leading up to a major summatively assessed task can enable changes in learning and thus link learning goals to assessment goals, but only when this feedback is understood and acted upon (8). Feedback that does not require active engagement by the students is likely not to have a significant impact upon learning (15). Rust (20) suggested that only by creating feedback exercises in which students redraft their work according to feedback given to them will there be a significant effect on future performance.

Thus, the aim of this study was to improve student performance in essay-writing tasks by means of a feedback-driven process of drafting and revision of assessed work with transparent assessment criteria throughout a semester-long physiology-based module.

METHODS

Year 3 students over a 4-yr period (n = 495) in the School of Pharmacy and Chemistry at Kingston University undertook two different, but comparable, modules that were both physiological in nature and were required to write essay-type answers to end-of-module exam questions.

Kingston University is a post-1992 university in the UK system that encourages the widest possible participation in HE to students from “nonstandard” academic backgrounds. The students being followed here were enrolled for a 3-yr BSc (Hons) Pharmaceutical Science degree, which is a very broad-based program involving modules dealing with pharmaceutical chemistry and the basic principles of physiology and biochemistry to the design, synthesis, and testing of biologically active molecules.

Students enrolled in this program typically come from a wide variety of racial, religious, and cultural backgrounds. The majority of the students are African and Arabic immigrants and second- or third-generation British-Asians (in a UK context, Asian is taken to mean citizens of Pakistani or Indian origin). Caucasian students usually make up <5% of this student population. Students were evenly mixed in terms of gender with an age profile largely confined to the 18- to 24-yr age range. Due to the wide variety of module choices available to the large number of students in this degree program, a number of different physiology-based modules have been produced, which are delivered largely by the same academic team to different sets of students. Students then choose different modules, similar in content, based on their desired path through the degree scheme and availability on the timetable.

The control group. The control group was composed of 291 students (4 cohorts over 4 yr) who were not given specific help with essay-type questions in their course work and were not required to act on feedback given before the formal submission of their work. Students were told that the format and topic of any course work essays would be similar to final examination questions in essay format.

The treatment group. The treatment group was composed of 204 students (4 cohorts over 4 yr) who were asked to submit an extended essay as part of the module assessment that was introduced by a preparatory workshop and benefitted from a process of iterative feedback on preliminary drafts of the essay. Students were again told that the format and topic of the course work essay would be similar to final examination questions of essay format. Wording of a typical essay assignment might take the following form (see Table 1 for further examples of both course work and exam essay questions): Critically discuss how potential new therapies for congestive heart failure address the underlying pathophysiology of this disease.

The nature of the question deliberately restricted pertinent information to specialized, subject-specific journals and other literature sources. Thus, it was important that students were competent in their ability to access these journals by using relevant search strategies and literature sources. To support literature search skills, preparatory essay planning workshops were held before the essay assignment.

Essay planning workshops. In each workshop, smaller groups of students (~20 students/group) were asked to formulate a plan for their chosen essay title, giving a short summary description of each of the relevant journals and other sources they would access for information. This session took place in the university Learning Resource Centre, where the students were supervised by the lecturer so that prompt and pertinent guidance could be immediately given at the point of need. The session aimed to develop critical reading skills in students as they were required to analyze, understand, and review quite large amounts of complex material in a limited time frame.

At the end of these 2-h sessions, students handed in their literature searches/plans, which were assessed within 1 wk by the lecturer, who commented on the relevance of each literature source identified by the student as well as their intended use of this source in the essay. Students were then required to write their essay using the literature sources they had identified during the workshop process.

Drafting and iterative feedback. Before formal submission of the essay, students were required to submit draft versions of their work and to use the subsequent feedback they received to improve the final version of their essays, which were then summatively assessed.

Grading criteria. The same grading criteria were used for both the course work and exam essay. For example, to obtain a mark of 70% and above (which in the UK system equates to a First Class degree classification), students have to be able to present work of distin-
guished quality that demonstrates comprehensive knowledge and understanding of the concepts, methods, and content appropriate to the subject matter and shows a degree of originality of thought appropriate to the level of study. There should be clear evidence of the ability to acquire, analyze critically, synthesize, and present material from a wide range of appropriate sources and/or to analyze problems and generate elegant, effective, and comprehensive solutions to them. At the other end of the spectrum, students obtaining marks in the 40% region (which equates to a Third Class degree classification) present work that demonstrates a basic level of knowledge and understanding of the concepts, methods, and content appropriate to the subject matter. There should be evidence of the ability to select, analyze, and present material from some sources and/or to analyze problems and generate partially effective solutions to them. The work may show limitations in knowledge, understanding, and problem-solving skills and limitations in the ability to select relevant material.

Marking schemes. Marking schemes for both the workshop essays and the exam essays were similar in that marks were apportioned for the same broad themes. For example, in relation to the question given above, the following marking scheme might apply: introduction to the physiology of the system involved (10%), pathophysiological processes involved in a specific named disease (20%), the mechanism of action of conventional therapies for the disease (40%), and evaluation of potential new therapies that seek to recover normal physiological function (30%). These marking schemes were awarded to the students at the workshop session, and formative feedback was given based around each of the above themes and how well they were being addressed by the students.

Exam administration. In the end-of-module exam, students were asked to write three essays from a choice of six essay questions over a period of 2 h. Each essay question was graded by the same academic member of staff in an essay-marking session, and formative feedback was given based around each of the above themes and how well they were being addressed by the students.

<table>
<thead>
<tr>
<th>Year</th>
<th>Example Course Work Essay Questions</th>
<th>Example Exam Essay Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1. Give a description of the mode of action of novel agents for heart failure and how they are used to regain physiological function.</td>
<td>A. Explain the main pathological events that underlie the disease of congestive heart failure.</td>
</tr>
<tr>
<td></td>
<td>2. Describe excitation-contraction coupling in the heart as it relates to pathophysiological processes occurring in arrhythmic heart diseases. Explain the rationale behind the use of the current pharmacological treatments used for these diseases.</td>
<td>B. Give a mechanism of action for three of the following drug treatments for congestive heart failure:</td>
</tr>
<tr>
<td></td>
<td>3. Many drugs acting on the central nervous system act at the synapse. A. Describe the role of the synapse in neuronal function. B. Discuss the mechanism of action of catechol-O-methyltransferase inhibitors and monoamine oxidase inhibitors at the synapse in the treatment of Parkinson’s disease.</td>
<td>A. Digoxin</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>C. An angiotensin II type 1 receptor blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D. An endothelin-converting enzyme inhibitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E. A neutral endopeptidase inhibitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F. A vasopeptidase inhibitor</td>
</tr>
</tbody>
</table>

RESULTS

Students in the control group (n = 291), in which essay-writing skills were not supervised during the module, obtained relatively low marks in the essay-type questions in the end-of-module exam, as shown in Table 2. Students in the treatment group, which included a supervised process of essay writing development (a dedicated summatively assessed workshop with prompt feedback to aid the search for relevant literature sources linked to a course work essay assignment subject to a drafting process), achieved higher marks in the exams over each of the 4 yr that the study was carried out. This improvement in performance reached statistical significance in 3 of 4 yr.

However, for individual students, there was no correlation between the mark obtained in the course work essay with the mark obtained in the exam essays. Figure 1 shows, as an example, data from the second year of this study. These data are similar to data in all the other years of the study. There was also no relationship between the mark obtained in the workshop assignment with either the course work essay mark or the exam essay mark (data not shown).

<table>
<thead>
<tr>
<th>Year</th>
<th>Control Group Exam Marks</th>
<th>Treatment Group Exam Marks</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30.1 ± 18.0</td>
<td>46.1 ± 23.9</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>n</td>
<td>67</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>31.1 ± 19.2</td>
<td>52.8 ± 14.1</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>n</td>
<td>73</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>48.7 ± 15.7</td>
<td>50.1 ± 14.4</td>
<td>NS</td>
</tr>
<tr>
<td>n</td>
<td>74</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>43.6 ± 14.8</td>
<td>57.2 ± 14.9</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>n</td>
<td>77</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

Values are means ± SD; n, no. of students. NS, not significant (P = 0.6351).
While the workshop-supported course work essay seemed to have generally lifted exam essay performance in each of the 4 yr (as shown in Table 2), the mark gained by each individual student in the treatment group on the course work essay was apparently no predictor of performance on the exam essays (Fig. 1).

Further analysis. However, further analysis of the data from the treatment group in years 3 and 4 revealed, surprisingly, that many students (36% over the 2 yr reanalyzed) answered a question in the exam unrelated to the essay they had done as a course work assignment within the module. This reanalysis involved checking off the course work essay subject matter and mark with that of the exam essay marks and subject matter for each individual student. This could only be done for administrative reasons for 2 yr of the study.

When the data were reanalyzed taking this fact into account, it was discovered that researching and writing an essay as part of the module course work and then answering an essay on the same general topic in the exam yielded a significantly higher mark ($P = 0.007$) in the exam ($56.7 \pm 15.1\%$, $n = 52$, 64% of the students over the 2 yr reanalyzed) than if the student answered an unrelated question in the exam ($46.2 \pm 14.5\%$, $n = 29$). So, while a structured supervised process of essay writing throughout the module did raise exam performance on essay-type questions generally, further benefits were gained by the students writing an essay that related to the same topic they had written about in their course work.

DISCUSSION

Assessment and feedback. Orsmond et al. (18) contended that “assessment tends to shape every part of the student learning experience.” Bearing this in mind, it would seem imperative to ensure that students use feedback from their assessments appropriately to improve the quality of their learning. It may be advisable then to find some means of ensuring that students take full advantage of the feedback processes afforded by marked essay assignments, by doing exam questions directly relating to this assessed work. As Mackenzie (16) observed over 30 yr ago, “much remains to be known, in any detail, about the average student’s use of his tutor’s comments.” The results presented here show that when students are given feedback that relates to a specific future task and are encouraged to understand and act upon the feedback, this will improve their performance on that future task.

Of note here perhaps is the wide choice of essay topics available to each student. Boud (1) suggested that by allowing students to choose their own essay topics, it is possible that a higher degree of student involvement in the task is cultivated. Indeed, Hughes-Jones (12) showed that students who are actively interested and have some personal investment in the topic under discussion do better at essay-writing tasks than those students who have no choice in their topic of essay and have no interest in the subject matter. A lack of interest in the material being studied has also been described to surface approaches to learning, whereas engagement with the subject matter leads to deep approaches to learning. Additionally, assessment involving an overwhelming amount of material drives the student to use surface learning coping strategies, which leads to an incomplete understanding of the material being written about. Therefore, in the present study, strategies were employed to point out the most relevant literature to avoid the use of such coping strategies and encourage deep learning.

Another factor identified in the literature (6) as being a barrier to student performance is that unless a task is associated with marks, students may be reluctant to undertake the task. Students may therefore see no point in undertaking formative assessments as they are increasingly geared to perceive degree grade and absolute marks as the benchmarks for their success or failure in the education process. For this reason, the importance of the workshop outlined here for the treatment group was reinforced by being summatively assessed and contributing 12.5% to the overall course work essay mark.

Students in the control group, on the other hand, did not have a workshop to introduce essay-writing skills to them and to assess the relevance of the literature sources they found for the purposes of writing essays. Additionally, they also did not have the chance to submit drafts of their work for preliminary feedback before the submission of their work for summative assessment.

Timeliness and relevance of feedback. Much work has focused on the timeliness of feedback as another factor that greatly influences whether or not students benefit from tutor comments on corrected work (16). Students place great store on receiving feedback, according to Higgins et al. (8), and a majority of students have been shown to believe that feedback will help them gain better marks in the future (13). For this reason, immediate, informal feedback was given throughout the workshop session in the Learning Resources Centre. Harris (7) argued that the tutor in this context is ideally placed to guide students in their selection of literature relevant to the question being addressed. More formal written feedback on the literature sources and the way they would be used was provided no more than 1 wk after the workshop session. This strategy was adopted so that the feedback would be used by the students with the task still fresh in their minds and still be relevant as the feedback formed part of an ongoing process in the writing of a complete essay. Additional feedback was also provided on draft versions of the course work essay, which had to be promptly acted on by the students for them to meet the formal submission deadline for their finished work.

Real-world assessment. It has been previously demonstrated that student learning can be facilitated by just this type of incremental development of a single piece of work subject to frequent and prompt feedback (9). Interestingly, this model of assessment (review and redrafting) may be thought of as akin

Fig. 1. Representative data showing the lack of correlation between the course work essay score and exam essay score in year 2 of the treatment group.
to the process academics themselves undergo when publishing peer-reviewed journal articles and may therefore be providing students with relevant real-world skills.

In the specific area of scientific writing, it has further been observed (26) that it may be beneficial to get students to undertake essay-writing tasks more relevant to real-world situations. Venables and Summit (26) made the point that scientists compile reports and write papers after a prolonged period of formal and informal peer review and frequent redrafting but do not allow their students to follow this same methodology in essay assignments. When students have been allowed to follow this process and have been taught the necessary skills, learning has been shown to improve.

That more traditional assessment and feedback practices may be of limited utility has been known for some time. For example, Hudson (11) studied the undergraduate records of Fellows of the Royal Society and found they did not correlate to later success in independent research. It may be then that not only is student work assessed differently to the way scientists’ work is usually assessed but also that these assessment procedures are not even successful in engineering the outcomes, in terms of student learning and acquired skills, that are desired.

It is apparent then that there is a need to reflect upon feedback and assessment practices so that they both improve and support student learning. In particular, it should be noted that incremental assessments and associated feedback may be deemed important in developing the kind of deep learning that is desirable in students (8) and that provides the necessary skills for lifelong learning.

ACKNOWLEDGMENTS

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REFERENCES