ABSTRACT
Providing detailed feedback in large classes is challenging. We describe how we develop an archive of comments while marking — noting good points, what needs improvement, and how to correct shortcomings. Comments are recorded in a single document with codes. Relevant codes are marked on students’ work where issues arise. Each student’s annotated assignment is returned with a copy of the comments for the class. Thus, they receive specific feedback on their own work, plus all comments given to the class. Instructors save on marking time because comments are written once on the master list, and only codes and a personalized summary statement are written on the assignment. Markers may collaborate in preparing comments to assist in moderation; some generic comments (e.g., presentation and grammar) are portable across different assignments and years; and comments from past years may form a rubric for sharing with students before they start an assignment.

Key Words: Feedback; assessment; workload.

Introduction

The numerous models of learning and teaching described in the educational literature (see short review in Buckley, 2012) all highlight feedback as vital. Feedback corrects errors, highlights what has been done well, indicates shortcomings, and shows where improvements can be made (Gioka, 2007; Buckley, 2012). In these ways it is remarkably similar to peer review in professional scientific publication (Calver & King, 1999). In practice, though, busy teachers often struggle with time pressure in providing good, timely feedback and may fall back on summative assessments involving multiple-choice questions or true-false questions rather than detailed comments on written work (Gioka, 2007; Halinen et al., 2014). Here, we describe an innovation we use in our teaching whereby we record comments in a single document with codes, then mark relevant codes on each student’s work where the issue arises. Comprehensive feedback to each student consists of the annotated assignment, together with a copy of the master list of comments for the whole class, placing the specific comments on the student’s work in the context of the class feedback. This saves considerably on our marking time because we type each full comment only once. Feedback from our students indicates satisfaction with the approach.

Context
We applied this approach in teaching the one-semester undergraduate unit BIO244 Animal Diversity (118 enrollments in 2015), which aims to

• provide a broad knowledge of the animal kingdom, with particular emphasis on its evolutionary history; and
• develop the skills required for identifying the major phyla and classes of animals, practical skills, and independent learning.

Specific learning outcomes include demonstration of skills in written scientific communication to present in-depth knowledge of the field. Students demonstrate their achievement of these outcomes by writing an essay of 3000 words. Examples of essays published in the peer-reviewed literature (Longcore et al., 2009; Godfrey-Smith, 2013) are provided as examples of good practice and to dispel the common fallacy that professional biologists do not write essays. A rubric outlining the marking allocation is also provided. Essays are submitted, assessed, and returned online using Learning Management System software.
Table 1. Examples of positive (P), negative (N), and neutral (NC) comments provided on feedback sheets to students.

<table>
<thead>
<tr>
<th>Comments</th>
<th>Positive or Neutral Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4</td>
<td>Good to see the introduction ending with a plan for the essay.</td>
</tr>
<tr>
<td>P5</td>
<td>You use subheadings effectively to signpost your argument.</td>
</tr>
<tr>
<td>P7</td>
<td>Pleasing to see you include genetic considerations in the evolution of jaws.</td>
</tr>
<tr>
<td>P11</td>
<td>Referencing is complete and accurate.</td>
</tr>
<tr>
<td>P12</td>
<td>Good to see you noting the problems of fossilization.</td>
</tr>
<tr>
<td>P13</td>
<td>Good on you for making good use of the primary literature (journal articles).</td>
</tr>
<tr>
<td>N9</td>
<td>Major new ideas should have a new paragraph of their own.</td>
</tr>
<tr>
<td>N14</td>
<td>Check your referencing. You’ve omitted some references cited in the text, or included sources in your reference list that aren’t cited in the text.</td>
</tr>
<tr>
<td>N18</td>
<td>Here’s a crash course in the use of the apostrophe: (i) For possession (e.g., the echinoderm’s mouth). Note that the apostrophe is only used in this way for a noun, never for a pronoun (e.g., the cat’s tail, its tail; there is no apostrophe for possession in the “its,” because it is a pronoun). (ii) For elision (when letters are omitted from a word or expression; e.g., can’t, won’t, it’s – note that ‘it’s’ here is a contraction of “it is”). Apostrophes are not used to indicate plural. For more, see <a href="http://www.ccc.commnet.edu/grammar/">http://www.ccc.commnet.edu/grammar/</a>.</td>
</tr>
<tr>
<td>NC3</td>
<td>The version submitted included extensive tracked changes. I accepted them all before grading the essay. If you are concerned that you may have submitted the wrong version, please contact me.</td>
</tr>
</tbody>
</table>

○ Procedure

Topics were divided among instructors so that we each marked a topic exclusively. When marking, we kept a Microsoft Word file open and entered any comment directly into the file under one of three headings: positive comments (code P; acknowledging a strength in research or presentation), negative comments (code N; highlighting a shortcoming, with suggestions for correcting it), and neutral comments (code NC; discussing an issue raised by the student, with neither an endorsement nor a correction). Each point under each heading was numbered, ultimately producing a list of comments (coded P1, P2, N1, N2, NC1, NC2, etc.). Examples are shown in Table 1. The relevant code, not the full comment, was typed where applicable on the assignments. While typing the comments the first time was tedious, marking time improved rapidly as the list of comments increased. All we needed to type on the assignment was the relevant codes where they applied and a unique, personalized summary comment to each student. Full comments were not typed for each student.

When assignments were returned, students were also provided with the full list of comments applicable to all topics for the entire class. They could thus note the comments relevant to their own work, as well as all those made to the class for all topics, with no indication of which comments were made to which students.

○ Student Response

Murdoch University offers all students the opportunity to provide anonymous online feedback on each unit, by responding to items on a six-point Likert scale (three grades of “agree” and three of “disagree”; there is no neutral option) and offering written comments if desired. Thus, feedback about our marking technique was not flagged to the students, and they would have responded in the context of being asked for feedback routinely in all their other units. In the 2015 end-of-semester unit evaluation, 31 of 32 respondents (97%) from the class of 118 slightly agreed (5), agreed (11), or strongly agreed (15) that “The feedback on my marked work was useful for my learning in this unit.” The only specific written comment on our feedback was that it “provides good feedback without depressing you to the point you don’t want to try again.” Another student sent a separate e-mail stating that “Also the key is incredibly helpful, try push [sic] other lecturers to use something just like it.” Unfortunately, the student who chose “slightly disagree” provided no further comments. Given that the evaluations are anonymous, we could not follow up.

○ Reflection

Students vary in the types of feedback they prefer and find useful (Buckley, 2012), so we do not claim that the procedure described here or the examples of feedback provided are definitive or ideal. Nevertheless, written feedback does improve learning, and students don’t need to rely on memory to return to it and apply it (Buckley, 2012). Drawbacks include the risk that students can feel overwhelmed with too much feedback, or that they may not respond to written feedback as promptly as they do to verbal feedback (Buckley, 2012). Furthermore, the approach as implemented does not involve students in a dialogue over feedback, recommended as a valuable extension by Price et al. (2011). On balance, this approach allowed us to deliver comprehensive feedback to more than 100 students at a level of detail we could not have provided if we wrote each comment in full on each essay. For example, comment N18 on the use of the apostrophe (see
Table 1) would have appeared on approximately 10% of essays, and without this feedback technique we would probably never have made it. Furthermore, many of the generic comments are transferable to marking in other units or to new essay topics in future years, so there are continuing savings in time. Comments from past years may also form a rubric for sharing with students before they start an assignment, to showcase common errors.

In our case, we each marked all the essays on a particular topic, so although we shared comments, we did not develop lists collaboratively. However, if multiple markers are assessing the same topic, they could develop comments collaboratively using online freeware such as Google documents (https://www.google.com/docs/about/). This might also be helpful in inducting inexperienced markers and ensuring moderation when multiple markers are involved, including laboratory reports and essay questions in exams. In summary, this technique should reduce time in marking, inducting, and moderating, while providing students with more extensive feedback than is normally available.

We did wonder if students would find the use of the coded comments impersonal, or the detailed comments sheet for the class overwhelming. Such sentiments may have been held by the sole student who expressed dissatisfaction with feedback, but overall our students were satisfied. While research suggests that students find more than five suggestions for improvement on one assignment too much to take in (Buckley, 2012), we suggest that it may be better to provide extensive feedback and let students choose what to focus on, rather than assuming what they will find most useful. Given the strong positive evaluation from our students and our own satisfaction with the process, we will be continuing this initiative in future years. Students have not asked for modifications as yet, but we will incorporate any future suggestions. A student’s written suggestion (quoted above) to share the initiative with colleagues is being met through informal conversations and this paper.

Acknowledgments

We thank our colleagues at Murdoch University for helping us refine our ideas on feedback through many valuable conversations, and the anonymous reviewers who offered numerous helpful comments on the manuscript.

References


MICHAEL C. CALVER (m.calver@murdoch.edu.au) is an Associate Professor and JAMES R. TWEEDLEY (j.tweedley@murdoch.edu.au) is an Adjunct Lecturer in the Environment and Conservation Cluster, School of Veterinary and Life Sciences, Murdoch University, Murdoch, Western Australia, Australia 6150.
Over the last decade, textbook costs have more than doubled. And who pays the price? Enterprising students like Chheang Khim. At OpenStax, we don’t think that’s fair. That’s why we offer free textbooks that are professionally written, peer-reviewed, and available in both printed and digital format. Plus, they meet your scope and sequence requirements. So your students can open their minds, instead of their wallets.

What will I Do with the money I saved? Probably Take more Classes.

CHHEANG KHIM
Class of 2018

Over the last decade, textbook costs have more than doubled. And who pays the price? Enterprising students like Chheang Khim. At OpenStax, we don’t think that’s fair. That’s why we offer free textbooks that are professionally written, peer-reviewed, and available in both printed and digital format. Plus, they meet your scope and sequence requirements. So your students can open their minds, instead of their wallets.

Access. The future of education.  OpenStax.org

RICE  openstax
Stellar Service
Makes a Measurable Difference

When you’re teaching students to collect and analyze scientific data, count on Vernier.

Founded by a science teacher, our company puts student understanding and teacher support first. So when you use Vernier data-collection technology, you always get educator-developed solutions, resources, and support. From professional development and personalized customer service to grant opportunities, online training videos, and more, you’ll always find what you need for hands-on experiments and learning.

When science teachers succeed, students succeed—and that makes all the difference.

Discover the Vernier difference at
www.vernier.com/stellar-service