Decoding the rubric for dissertation writing: a pilot workshop

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Abstract

Discussion of exemplars of student work is a productive means of explaining tacit knowledge and guiding students into the requirements of academic writing. Through a pilot workshop on dissertation writing, this study examines how exemplars marking can be used to better understand grading criteria and of quality; and to promote positive transfer of skills from exemplars to assessment task.

A student-led workshop involved student group analysis and annotation of a series of example extracts showing a range of good examples and common mistakes from different sections of a scientific dissertation. For each section of the report the students were shown the assessment criteria and asked to mark it and additionally to explicitate the marking criteria by rephrasing them as a list of do's and don'ts.

Student perception of the usefulness of the workshop was positive and was reflected in improved assessment outcomes. Teaching implications of these results are discussed, and some avenues for future workshop applications are outlined.

Keywords:
Exemplars, exemplars; quality; deconstructing; peer discussion; teacher guidance

Introduction

A writing crisis?

The recent expansion of ''writing intensive'' courses across a wide range of disciplines, including and not limited to the STEM disciplines (Science, Technology, Engineering, Mathematics), has led to discussions regarding how the benefits and the mechanisms of writing within the disciplines encourages learning, socialization and radically changes student's attitude towards the discipline (Carter, Ferzli, and Wiebe 2007). However, many students do not have a wide experience in writing lab reports in a professional, "publishable" style. On the other hand, it is not uncommon to hear undergraduate instructors lament over the weak writing skills of many of their students, and the concept of a "Writing crisis" has been circulating for many years, often perpetuating a long-standing

'moral panic' about the poor quality of students' academic writing (French 2013; Kim et al. 2009).

Some solutions outlining design implications of a dialogic approach to student writing pedagogy have been highlighted as calling for dialogue to be at the centre of an academic literacies stance (Lillis 2003). The more the subject lecturer is involved in this integrated writing instruction, the better are the opportunities to elicit student perspectives, consider 'the resources that writers bring to the academy'(Lillis and Scott 2015). Fernsten and Reda, support the idea that writer self-awareness provides students with a better understanding of the writing process, additional tools with which to attempt writing assignments, and greater confidence to move through the multiple literacy tasks of the academy and beyond. By inviting students to examine their beliefs about writing, these activities are useful in any classroom and across disciplines (Fernsten and Reda 2011).

Decoding the rubric

One tool which is available for the students to consider their beliefs about writing and for decoding the discipline is the use of rubrics. Educators tend to define the word 'rubric' in slightly different ways. A commonly used definition is a document that articulates the expectations for an assignment by listing the criteria or what counts and describing levels of quality from outstanding to poor.

The number of studies in this field is limited, and the results are of complex interpretation. On one hand, some studies (Greenberg 2015; Petkov and Petkova 2006; Reitmeier, Svendsen, and Vrchota 2006) suggest that including students in the development and use of rubrics or sharing the rubric prior to an assignment was associated with improved assessment outcomes, while other studies have shown no differences between students' marks with and without rubrics (Green and Bowser 2006). This would appear to suggest that simply circulating a rubric to the students cannot be expected to have significant impact on student work and perception - students must actively make use of a rubric (e.g. in assessments or revision) in order to gain benefits.

However, if students do not understand the rubric terminology and cannot differentiate between academic standards, rubrics have little value for either preparation or feedback. Such 'barriers to learning' can be particularly significant for students from unusual backgrounds as students, at all levels, do not necessarily 'know what to do' in response to conventional assessment tasks, essay criteria, or instructions about styles of referencing. Many of the problems experienced by learners are at least partly being caused by the cultural values and assumptions which underpin different aspects of pedagogy and assessment. In particular, "Problems in decoding and responding to expectations appear to be particularly acute in relation to assessment criteria " (Haggis 2006) and terms such as 'critical analysis' are often unclear to students and need further explanation (Reddy and

Andrade 2010). Haggis 2006 also makes a cogent argument against the risks of considering these findings as an reason for 'dumbing down' or as an indication of the erosion of standards – it highlights instead the need to shift the framing of the 'problem' from a static, condition-based view of the individual learner ('what is wrong with this student') towards a dynamic, process-based view which tries to identify problematic aspects of higher education discourse and practice (what elements of the curriculum are preventing some students from being able to access this subject?') (Haggis 2006).

An example of such an approach is represented by the work undertaken as part of the WhatWorks? Student retention and success change programme which was recently implemented at the University of Wolverhampton. The initiative focused on implementing and evaluating an inclusive assessment intervention, which included a student led assignment unpacking session where students discussed in groups their understanding of the assignment requirements and fed them back to the group and the lecturer (Debra Cureton 2012). The initiative saw the students as active parts and co-creators in the further development of the inclusive assessment curricula, empowering them and resulting in improved attainment and confidence (Curran 2017; Debra Cureton 2012).

The support of exemplars

While the rubric can improve students attainment by clarifying the outcomes, it relies on the assumption that the description of such outcomes is clear and unequivocal, giving the 'tools of the trade' for granted (Lillis and Scott 2015). Students often find it difficult to understand assessment criteria and the nature of good quality work in their discipline. Under these circumstances, they face challenges in identifying and providing what teachers are looking for in an assessment task (Sadler 1987).

Royce Sadler has been a remarkably influential promoter of the value of using exemplars, and he defined exemplars as key examples chosen so as to be typical of designated levels of quality or competence (Sadler 1989, 2002). Exemplars are therefore given examples of best or worst practice which are designed to assist students to increase their understanding of competences, content or knowledge and to explicate established criteria and standards (Greenberg 2015). In contrast with model answers – which are single "perfect" answers – exemplars often show a grade range and can indicate how the exemplar satisfies the stated criteria for assessment or they may simply be presented as they were submitted for assessment by the former student (Huxham 2007; Newlyn 2013).

Handley and Williams have observed that exemplars can be effective tools in increasing students' engagement with feedback (Handley and Williams 2011). In addition, Scoles, Huxham, and McArthur al observed that students showed great support for the use of exemplars. They identified exemplars as a practical tool that students can access to help close the gap between feedback and exams, as it allows students to take control of the

feedback process, and increasing exam marks (Scoles, Huxham, and McArthur 2013). They state that the exemplars helped “understand what was wanted from their lecturers”, especially “ in conjunction with conversations with lecturers” (Scoles, Huxham, and McArthur 2013, p. 6-7).

Issues of time and consent are very important considerations in the argument against the use of exemplars, as well as the idea that providing exemplars 'gives students the answer' and may lead to plagiarism (Newlyn 2013; Newlyn and Spencer 2009). Such issues need to be considered and could potentially be addressed by making the exemplar as generic as possible, therefore ensuring that the exemplar could be multiple cohorts.

An interesting example of intervention which merged the benefits of using exemplars with the benefits of rubrics has been reported by Jones et al. Their intervention comprised of (1) deconstruction of the rubric and standardising the marking method; (2) examples and exemplars; (3) peer review; (4) self-review; and (5) a reflective diary; and resulted in improved marks and students confidence (Jones et al. 2017).

A specific UH perspective

The BSc in Pharmaceutical Sciences at the University of Hertfordshire programme was designed with extensive input from external stakeholders from pharmaceutical and biotechnology companies to meet the needs of the ever-evolving pharma industry in the UK and worldwide, to produce graduates who are able to contribute to research, discovery, development and production in the pharmaceutical industry and related areas (LMS 2019). To “communicate effectively both orally and in written form” is included among the intended learning outcomes for the programme and is supported through exercises on report writing, feedback on written assignments personal academic tutors and seminars at level 6 (LMS 2019, p.5). However, in line with the larger higher education context, students appear to struggle in writing extended reports in an academic style and this can lead to negative perceptions of the student writer identity and anxiety, in particular for students from varied backgrounds (Fernsten and Reda 2011). At Level 6 the BSc in Pharmaceutical Sciences includes two written assignments for which the assessment criteria are available, but often misunderstood es exemplified by the questions received in relation to the assignment as “How much detail the critical analysis should be?”, “I just wanted to ask how much detail and information do we need to include”.

This study focuses on the preliminary evaluation of a workshop designed to offer these students a chance to bridge this lack of clarity for them to achieve the learning outcomes more easily and perform better.

Methods

A student led workshop was piloted as part of the Advances in Pharmaceutical Formulations and Drug Delivery (APFDD) optional level 6 module (n= 15 students). The module assessment includes a written report on lab-based activities which accounts for 30% of the final module mark.

The workshop was designed as a tool to clarify the assessment criteria by analysing and discussing as a group and annotating a series of example extracts showing a range of good examples and common mistakes from different sections of a scientific dissertation. The exemplars were based on published research papers, amended to include frequent variations and mistakes frequently observed by the author in previous year's marking. The workshop was delivered in 1.5 hours, students were provided the exemplars as printed version to annotate. For each section of the report the students were shown the assessment criteria and asked to annotate the exemplar (Figure 1 and Figure 2) and to additionally explicitate the marking criteria by rephrasing them as a list of do's and don'ts. Each group compiled a list in real time on post-it notes and then handed it to the teacher who transcribed the criteria onto the slides (Figure 3). The updated slides were subsequently circulated to the students to be used as a support during the write-up.

Immediate evaluation was performed using Brookfield's critical incident questionnaire ("What was the most engaged/disengaged moment?", "What was the most confusing moment?", "what was the most useful moment?") and collecting anonymous feedback on post-it on a voluntary basis. Delayed evaluation was based on comparing responses to mid-module feedback questionnaire and written assignment marks of the cohort that was administered the workshop with the previous year cohort that was not administered the workshop (2018/19, n=15; 2017/18, n=16). Welch t test was performed given the different sample size.

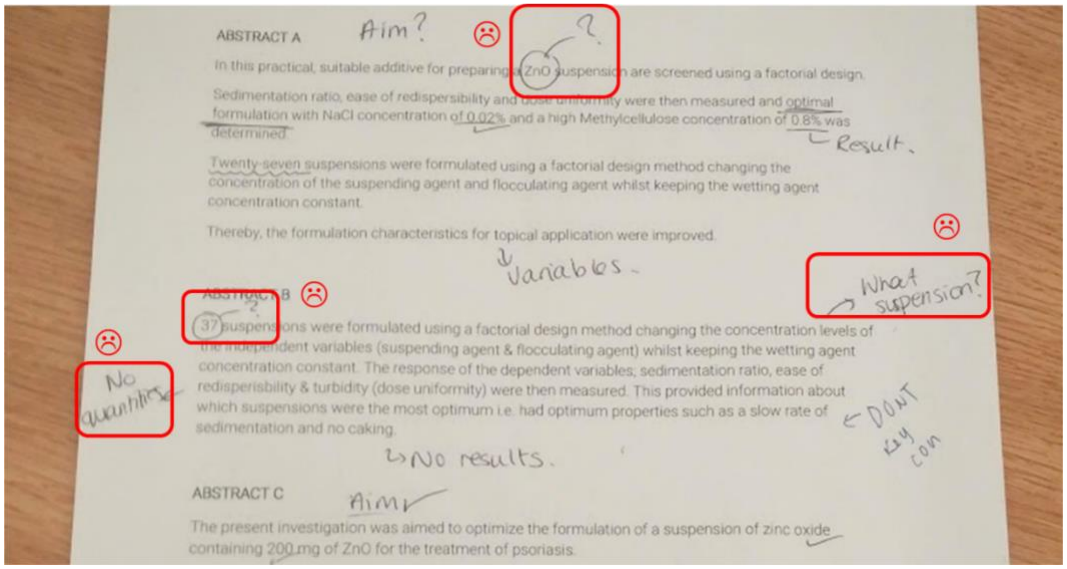

Figure 1. Example of annotated exemplar (1)

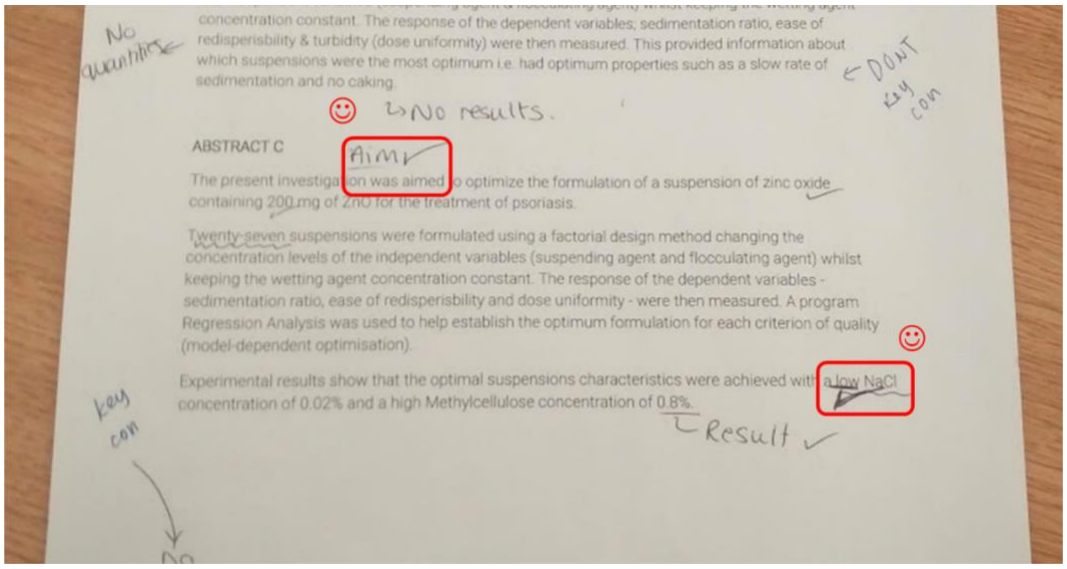

Figure 2. Example of annotated exemplar (2)

Abstract (10%)	Professional standard in terms of quality and comprehensiveness. Cites key conclusions. Contextualises the work effectively and succinctly.

Key features:

☺
- Include values
- What is the formulation for?
- Key conclusions (clear structure: context/methods/results)
- Explain formulation used
- How were properties improved?

☹
- Don't have continuous paragraph
- No bullet points

Figure 3. Example of "translated" assessment criteria

Results and discussion

Brookfield's critical incident questionnaire has been reported to be a beneficial instrument for educators to assess their own teaching, make adjustments to class delivery based on student feedback to engender greater student engagement, and encourage future teachers to engage in the process of self-reflection (Jacobs 2015). A simplified version of the questionnaire was answered by 8 in 15 participants (53%) and results are represented through a word cloud in Figure 4. The immediate feedback was overwhelmingly positive in terms of perceived usefulness and (e.g. "engaged throughout the workshop", "would have been useful before dissertation"), no elements of confusion were identified and the only criticism concerned the general character of the workshop (not very specific to lab report, to

reports in general", "should be more specific to the actual assessment"). The latter is not unexpected as the exemplars were purposely designed as generic in order not to provide a report "template" and to be potentially administrable to multiple cohorts (Newlyn 2013; Newlyn and Spencer 2009).

The good perception of the intervention also found a correspondence in the improved assessment outcomes as shown in Figure 5, and the introduction of the workshop corresponded to a 12% increase in the written assignment marks. Such increase was observed across the coursework written assignments average marks (written assignment: 12% increase, lab report: 28 % increase) but not in end of module examination which on the contrary showed a 7.5% decrease in final marks. This suggests that the increased coursework marks cannot be explained by an overall higher academic strength of the cohort and appear instead to be produced by the effectiveness of the workshop.

A last point of investigation was the effect of the workshop on students understanding of the assessment processes, and on module structure and learning outcomes. While there was no direct metric available to measure this, the mid-module feedback for APFDD shows an increase in understanding of the assessment, and of the module structure and learning outcomes (Table 1). This is however an indirect measure and suffers of two main limitations: it is a global evaluation of the module, and not of the single assessments, and of the reduced number of participants (2017/18: n=10; 2018/19: n=7). This calls for further investigation, however it does not disprove a positive effect of the workshop introduction.

Figure 4. Word cloud summarising the answers to critical incidence questions for immediate feedback assessment

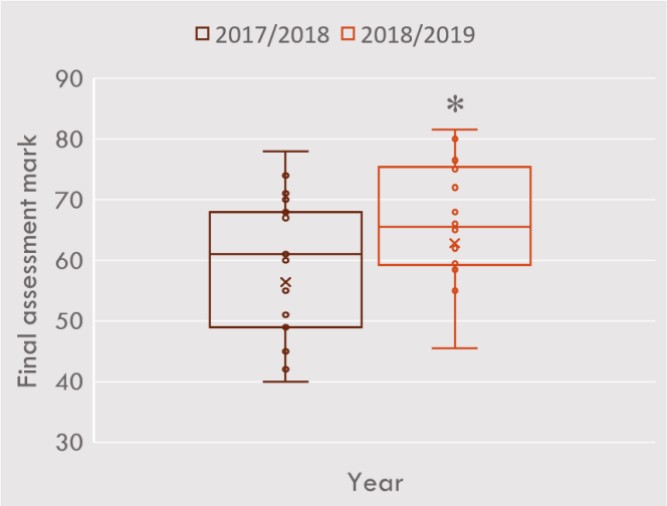

Figure 5. Written assignment results before and after workshop trial (* indicates p<0.05)

	2017/18 (n=10)	2018/19 (n=7)
At this stage in the module I understand how my learning will be assessed on this module	4.6/5	4.7/5
At this stage in the module I understand the structure and learning outcomes of the module	4.5/5	4.7/5

Table 1. Average responses to mid-module feedback questionnaire before and after workshop trial

Conclusions & future developments

This study focused on the preliminary evaluation of a workshop designed to bridge the gap between defined criteria (the rubric) and standards to help students to achieve the learning outcomes more easily and perform better. The positive outcomes, namely the students' positive response to the introduction of the workshop and the increase in student marks, suggests that this workshop represent a promising strategy to achieve such aims, probably due to the active role of the students in "decoding" the rubric – in line with the previous research (Curran 2017; Debra Cureton 2012; Green and Bowser 2006; Jones et al. 2017).

It has to be noted that another advantage of the intervention is that it is versatile and time effective, and could be easily integrated in most higher education courses – in contrast to other studies which contemplate 11-weeks interventions (Jones et al. 2017). The main limitations are represented by the small number of participants, which makes it difficult to draw final conclusions, and by the reduced reflection element in this work. Cultivating reflective and critical practice with rubrics has been reported to support the development of engaged, self-regulated learners capable of applying their knowledge and appropriate skills

to new tasks and the incorporation of a reflective journal should be considered for future embodiments of the workshop (Bryan and Clegg 2006; Race 2007).

Future work will focus on continuous monitoring of the workshop within the APFDD module, and potentially on the exploration of widening its application to larger cohorts of adjacent disciplines, for example level 6-7 of the Master of Pharmacy course. In addition, since the rubric is an integral and routine component of assessment, and the goal of educators is to enhance academic performance, it is in the student interest to support their understanding of how to effectively utilise a rubric early in their university career – therefore it could be imagined to pilot similar interventions across the whole duration of their course and not just in their final year.

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