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Understanding the rules of the game: marking peer assessment as a medium for developing students' conceptions of assessment

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Students need to understand assessment processes in order to succeed in higher education. However, recent research has identified how difficult it is for students to become absorbed into the assessment culture of their disciplines, with a recognition that providing written criteria and grade descriptors is not enough to make this tacit 'knowledge' transparent to novice students. This paper reports on an experiment where sports studies students used assessment criteria to mark their peers work coupled with an assessment of their peer marking and feedback comments. The latter was included to encourage students to engage with the peer assessment in some depth. Analysis of the data indicates considerable benefits for the students in terms of use of criteria, awareness of their achievements and ability to understand assessment feedback.

Introduction

Research suggests that assessment shapes students' perceptions of learning in higher education (Ramsden, 1992) and that students need to understand assessment processes in order to be effective learners (Elwood & Klenowski, 2002). However, the mechanisms by which students develop an understanding of assessment are unclear.

Rust *et al.* (2003) stress the tacit nature of assessment criteria and the difficulty of transferring such tacit knowledge to others. They draw on the analogy of developing 'connoisseurship', which is largely about socialization and experience 'involving observation, imitation, dialogue and practice' (p. 152). Higgins (2000), in writing about tutor feedback, points out that students struggle to use it effectively because they are 'simply unable to understand feedback comments and interpret them correctly' (p. 2). He argues that failure of communication has its roots in, amongst other things, the differing and often tacit discourses of academic disciplines from which students are frequently excluded. This is reinforced in work on 'academic literacy' by Lea and Stierer (2000), which views academic writing as a 'contexualised

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social practice' where the ground rules are not made explicit to students. They argue that the changing context of higher education, for example increasing student diversity, is important in researching student assessment. Likewise, Haggis and Pouget's (2002) research suggests that the greater heterogeneity of students in contemporary higher education means that we need greater clarity and explicitness about the approaches that students need to adopt in order to deal with 'students' confusion and disorientation in the working context of specific subjects and actual writing tasks, at the time they are experienced' (p. 332). Stephani (1998) also emphasizes the importance of tutors and students sharing their 'conceptions of the teaching and learning contract' (p. 339) as a process of empowering students to develop as effective learners.

Thus, a key element of the recent drive to make assessment more transparent to both students and tutors has been the articulation of assessment frameworks (Rust *et al.*, 2003),such as assessment criteria and grade descriptors, so that students are provided with written information regarding what is required of them and what standards must be obtained to achieve different grades. Q1

Of course, expressing standards and criteria in ways that students can understand is enormously difficult and Stephani points out that students' interpretations of criteria will be mediated by various factors in their social and cultural backgrounds. Rust *et al.* suggest that explaining assessment criteria includes the transfer of tacit knowledge which is gained through professional experience; 'something that we know but we find impossible or, at least, extremely difficult to express'. Sadler (1989) wrote:

> It is difficult for teachers to describe exactly what they are looking for, although they may have little difficulty in recognising a fine performance when it occurs. Teachers' conceptions of quality are typically held, largely in unarticulated form, inside their heads as tacit knowledge. (p. 126; cited in Orsmond *et al.*, 2000)

Recent research has also explored the difficulty of understanding assessment from the students' point of view (Lea & Street, 2000). Elwood and Klenowski (2002) draw on the notion of 'communities of shared practice' and a social constructivist theory of learning in recognizing that students only come to be absorbed into the 'culture of practice', and thus learn about assessment, through participation in the assessment process.

Therefore, various forms of peer- and self-assessment have emerged, in part because of the opportunity they provide for students to participate in assessment practice (Orsmond *et al.*, 2000). Active engagement with assessment criteria during peer marking is seen as beneficial in helping students understand how they will be assessed by tutors (Elwood & Klenowski, 2002). In addition, various writers stress the importance of student involvement in constructing marking criteria (Habeshaw *et al.*, 1993; Brown & Knight, 1994).

However, despite assertions by Purchase (2000) that peer-assessment requires specific criteria that students understand, research by Orsmond *et al.* (1996, 2000, 2002) and Rust (2002) indicates that even where there were both written and verbal

briefings, students still differed in their understanding of some criteria in comparison with both their peers and their tutors.

For Orsmond *et al.* (2000), misunderstanding particularly applied to criteria that involved higher order thinking skills, such as evaluating whether a poster demonstrated a 'clear and justified conclusion'. They experimented with students devising their own criteria, but, because the agreement between student and tutor marking was not enhanced, they concluded that there was no evidence that student-generated criteria improved their understanding of the criteria or how to use them.

Orsmond *et al.* (2000) also pointed out that, in some areas, students do not have the information to apply criteria, for example, students may not be able to recognize deficiencies in subject knowledge as readily as tutors. They also point out that there may be a gap between students' understanding of marking criteria and their ability to express that understanding. Indeed, they point to the range of student differences which might affect student use of criteria, including those who understand the criteria but cannot apply it because they do not have the subject knowledge and vice versa.

The research of Rust *et al.* (2003) also indicated that novice markers (1st year students) were inclined to focus on the 'visible' criteria, such as the presentation, structure or referencing of a piece of work, rather than using more 'invisible', yet possibly more important, criteria, such as analysis.

Rust *et al.* (2003) suggest that developments within the UK Quality Assurance Agency, such as Benchmarking Statements, only underline the difficulty in documenting and codifying academic standards. Undoubtedly, this new awareness of the intricacy of setting, marking and giving feedback was long overdue. Nevertheless, there is evidence that various interventions can help students to understand assessment and assessment criteria. For example, Orsmond *et al.*, in line with other research reported in Bostock (2000), received consistently positive responses to the exercise of peer marking. Students claimed they thought more critically, learnt more and gained in confidence. Likewise, the rigorous research of Rust *et al.* (2003), involving a large sample of business studies students, indicated that active methods of engaging students with marking significantly improved their grades in similar assignments. Elwood and Klenowski's activities, designed to 'unpack' the meaning of assessment criteria on a masters' module, also received positive student feedback.

Consequently, the thrust of developments in this area has been the devising of methods to engage students in assessment, and this is the focus of our enquiry. As with a number of the studies reported above, the intervention involved students in the assessment of their peers. However, in this case, the peer marking was itself tutor marked as an extra incentive for the students to think about the assessment criteria and the writing of feedback.

Aims of the project

This study aims to examine how involvement in the assessment process affected students' perceptions and performance. More specifically, this study explores how teaching about the assessment process might, firstly, improve students' understand-

ing of assessment criteria and, secondly, increase the likelihood that they would be able to use that improved understanding in achieving higher standards.

Teaching and learning process

The medium for this research project was a 24 week long, 2 h/week contact time module in sport sociology, part of a BA (Hons) Sports Studies. This module has two assessments, an exam at the end of the module and a poster presentation due for completion 9 weeks into the module. This study used the poster presentation.

All information relating to this module, including assessment details, was contained in a module handbook issued to students in the first lecture. More specifically, students were given the poster title, key concepts to include and guidelines for a successful answer (a bullet point list of the threshold assessment criteria), together with submission details. In addition, students received the college-wide marking criteria in both the College Student Handbook and the Programme Handbook.

Stage 1. Preparation for assessment

Tutors introduced the students to the notion of assessment over the course of five seminars each lasting 1 h. Tutors talked through the college-wide marking criteria, the guidelines for a successful answer and the marking and moderation process. Additionally, students engaged with the assessment process by both giving and assessing oral presentations. This afforded students the opportunity to develop their knowledge of sport sociology, develop their oral presentation skills and practice peer-assessment.

Stage 2. Assessment

Students completed a poster presentation in pairs. This accounted for 40% of the total module mark. Each pair of students blind marked two posters in 1 h, completing the standard school feedback sheet. Marks for the poster presentation are derived from peer-assessment (tutor moderated) of the poster (75%) and tutor marking of the feedback sheet written by students (25%), i.e. marking of the quality of the peer marking. Tutor marking of students' feedback sheets encouraged students to engage seriously with the process and replicated the moderation process undertaken by tutors across the school.

Stage 3. Feedback on assessment

Tutors moderated the marks awarded for the posters according to practice adopted within the School. Where student and tutor marks differed by more than 3%, students received the tutor mark. The mark was left unchanged where student and tutor marks were within 3%. All instances of student-tutor variation in marks occurred where students failed to give sufficient credit for knowledge and appli-

cation of theory on posters that were visually less appealing, and this was explained to the students on return of their work.

Stage 4. Review of assessment

Tutors returned to students their poster mark, the feedback sheets completed by their peer assessors and a tutor feedback sheet on the feedback sheets. During this session, the student pairs completed two questionnaires as detailed below. Whilst one purpose of these questionnaires was to collect data from the research project, they also encouraged the students to discuss and interpret the feedback in order to improve their understanding of it.

Research methodology

Sample

The sample for this study comprised all students enrolled on a Level 1 sociology of sport module undertaken as part of a BA (Hons) degree in sports studies. Students completed the poster and the feedback sheet in self-selecting pairs ($n = 22$). Student' ages ranged from 18 to 34 years (mean 19.4 ± 2.5), of whom 16 were female and 27 male. Of the 22 pairs, 19 were same sex pairs.

Data collection

Quantitative data was collected in the form of the marks awarded by students marking their peers' posters, tutor marking of the poster and tutor marking of the feedback sheets. Students were also asked to predict their mark prior to receipt of their poster mark. Qualitative data was obtained through an in-depth group interview and two primarily open-ended questionnaires.

Group interview

Immediately after submission of their posters and peer reviewing the posters a member of staff from the Centre for Development of Learning and Teaching interviewed a small group of students ($n = 6$). The purpose of group interview was to explore the students' experience of developing and using assessment criteria both at the assignment preparation stage and during peer marking. Additionally, students were invited to offer opinions about peer marking, its long-term benefits if any and the extent to which any increased understanding and awareness of assessment criteria affected their behaviour.

Questionnaires

Immediately prior to receipt of their grade, students were asked to complete a questionnaire in the same self-select pair that had collaborated to create the poster.

It's purpose was to explore how well they understood the criteria, how much they used criteria in preparing their poster, how aware they are of their own standards of work and the effects of the peer marking procedure.

A second questionnaire was administered to the same pairs immediately after they had received both grades and feedback from peers and tutor. Students were encouraged to discuss their views with each other before recording their response on paper. Through both open and closed questions, students reported how well they understood and learnt from the feedback and discussed how well their expected matched with their actual attainment. Finally, students were asked to say whether they would change their behaviour as a result of any improved understanding of assessment requirements.

Data analysis

Means and standard deviations were used to describe the quantitative data. Pearson's product moment correlation coefficient was used to explore the reliability of marks awarded by tutors for the poster and for the feedback sheets, poster marks awarded by students and final mark. Student's independent *t*-test was used to identify significant differences between the poster marks awarded by tutors and student. Full transcripts were obtained from the group discussions and the open-ended questionnaire responses were coded. Common themes were identified in both instances. These common themes provided the framework for the discussion section.

Findings

Use of assessment criteria

All but 4 of the 22 pairs explicitly mention using the assessment criteria to help them decide what tutors were looking for in their posters: 'We looked at the task outline in the module handbook and religiously followed it' (awarded 74%). Only one pair said that they did not take the criteria into account when preparing their poster (awarded 42%). The students were also overwhelmingly positive about the helpfulness of the assessment criteria. Many described them as providing a basic outline which they could follow and/or indicating what they had to do to 'deserve a decent grade'.

Interestingly, one pair suggested that the criteria 'outlined everything we had to include to obtain a good mark. In future perhaps less criteria should be given so we are made to think a bit more'. Their view might be echoed by some tutors who are concerned that over-specification of assessment criteria encourages instrumentalism and deters more able students from extending themselves as they only focus on meeting the criteria.

Understanding of performance

It is one thing to have attempted to use assessment criteria in preparing an

assignment, it is another to understand them, and the marking scheme, sufficiently well that you can predict your own grade or mark others accurately. In order to test this, we compared the student's predicted grades with their tutor marked grades and we compared the peer marked scores with the tutor marked scores.

In relation to the students' capacity to assess their own performance, 40% of the pairs predicted their grade within the same grade boundary (i.e. predicting a C and gaining a tutor mark between 50 and 59). A further 28% correctly identified their mark to within one grade boundary. These were first year students who had received no formal feedback or summative grades. These results are very promising in terms of their apparent understanding of how they were performing based only on assessment of their own and others work on an unfamiliar assessment mode (a poster). Only 9% over-estimated and a further 9% under-estimated their performance beyond the actual grade boundary that they achieved and of these, only one pair was more than one grade out.

The students' explanations for their predictions were two-fold. Over 50% claimed explicitly or implicitly to have met the requirements for the grade, stating: 'we thought we met the criteria for this mark' or 'we understood the key aspects but we didn't apply them as well as we could have done'. The remainder explained performance in terms of the amount of work they had done: 'put a lot of time and effort into the poster'. From the tutors' point of view, the former judgement is more hopeful for the future in that time and effort, whilst often necessary for student success, is not always sufficient.

In relation to the second test, i.e. comparing the peer marked scores with the tutor marked scores, the marks awarded by students compared favourably with those marks awarded by tutors with a mean difference of just 0.37%, with tutors awarding a slightly higher mark. This difference was not significant ($t = 0.163$, d.f. 42, $P = 0.871$). These results also confirm the view that these students were able to apply the assessment criteria and marking scheme to a suitable level of accuracy. It reinforces the view that this process has assisted the students in understanding both the requirements of the task and how to recognize it in the work of themselves and others. It also replicates the broad thrust of other studies, indicating that peer-assessment is reasonably reliable when tutors train students in its use (Bostock, 2000).

Impact of use of criteria on performance

The data referred to so far indicate that the students largely perceived assessment criteria to be useful in preparing their work and, when used with a marking scheme, to assess others. In addition, the assessment criteria appeared to help them predict their performance and mark others with a degree of accuracy that might not otherwise be expected. One might argue that students' perceptions are of little use unless this enhanced understanding of the criteria enabled them to perform better in their assignment. However, at this stage it is only possible to make limited claims about the extent to which performance has improved. This is because it would have been unethical to have adopted a true experimental design with a control group not exposed to the process of learning how to mark. The only evidence that can be

drawn upon is last year's cohort of students who also completed a poster assessment in the same module. A comparison of the mean marks reveals that this year's cohort outperformed last year's by 6%. Marked by the same tutors, last year's cohort achieved a mean mark of 51.7% (± 7.4), compared with this year's cohort who achieved a mean mark from the tutor of 55.3% (± 6.8). Although the tutor was constant, the poster title was not the same for both cohorts, nor was it possible to control for overall student performance across the cohorts.

Experience of peer marking

In relation to the experience of both marking and being marked by their peers, over two-thirds of the students were positive, with less than one-third offering some disquiet. Reasons included 'we felt mature enough to mark other students' posters accurately without bias'; it is 'good practice and helps us learn to understand what lecturers are looking for'; 'You can see where you've gone wrong and where you can improve next time' (group interview). Students also reported that it gave them a chance to look at others' work, it was better than tutors marking their work and it was 'OK because no one saw any names'. Other positive reasons were offered and one member of the interview group stated 'Once you were in the swing of it, it were all right … it were dead fun'!

However, there was some feeling that peer marking led to higher or lower grades as a result of over-generous or mean marking by their peers. Interestingly, all these comments were made before students had actually received their marks, suggesting either assumptions or inside knowledge about what might have happened.

There were also comments that the tutor involvement in the marking gave students more confidence in the fairness of the process. In addition, the assessment of the student 'feedback sheets' was mentioned by one couple as inspiring greater confidence: 'Unhappy initially because of bias marking but when told that students were marked on their marking we relaxed a bit'.

There was an interesting recognition that despite worries about peer marking, it was important for their learning: '(Peer marking) is not a problem as long as they are marked sensibly and fairly, I would prefer a proper examiner or lecturer though but that doesn't help us learn'.

The negative responses to peer marking included the view that students do not provide useful or accurate feedback (view expressed before feedback received), do not make proper use of the criteria or lack experience in marking. One pair mentioned that it would have been helpful to have seen some examples first in order to help them in their judgement.

Overall, the students express strong support for the view that they made positive gains from being involved in peer marking. Only three pairs (13%) claimed to have gained 'nothing' or 'not a lot', whilst 50% felt it had given them a greater insight into the marking. Others felt they benefited from seeing the range and quality of other students' work or knowing what they need to do to achieve a certain grade. One student claimed to have become 'more critical of my own work 'cos usually just hand your work in and you don't think of it being assessed'.

Thus, the data strongly suggests that the students, despite some procedural worries, saw peer marking as a positive experience which assisted their understanding of the assessment process. Anecdotal evidence indicates that some higher education tutors and students have a less positive view of peer marking, seeing it as tokenistic or likely to lead to unrealistically high marks. However, this research suggests that if the tutors place emphasis on the quality of the peer marking students can see its greater benefit for their development. This outcome replicates a number of other studies (for example Orsmond *et al.*; Stephani, 1998; Purchase, 2000). Q2 Whilst students may express some anxiety about bias and the ability of their peers to assess accurately, there is little evidence here that such fears are founded, or evident in a majority of students.

Experience of feedback

The students were also asked to describe the main points of the feedback they received and the questionnaires indicate that they were able to articulate these points in very concrete ways: 'The main points were that we addressed the issues we had to do, but there was a lot of confusion in how we presented the information as there was a lot of arrows' and 'lack of examples, better referencing, needs intro and conclusion'. The straightforward way by which the students seemed to understand and articulate their feedback may be a positive result of receiving feedback from other students expressed more plainly than tutors might be able to do. However, even though students claimed to understand the feedback, it was not something with which they always agreed.

First year students are likely to be operating as novices within the academic discourse of their subject but the nature of the peer marking process had required them to begin using and understanding academic terms. Thus, perhaps the bridge they were making for themselves in interpreting what they were marking in terms of 'academic' criteria was helping them to generate feedback for others that also bridged that divide. Clearly, this is an area for further investigation. Furthermore, the nature of the research required the students to engage with their feedback, not something that tutors can normally take for granted! In a sense, the research had inadvertently done what Rust (2002) suggests when he advocates creating 'feedback exercises that force students to actively engage with that feedback' (p. 153).

Virtually all the students felt that the feedback they received linked to the assessment criteria although, unfortunately, the nature of the closed question on this matter may have prevented more comprehensive responses. One or two pairs did identify some reservations: 'It links to the marking criteria but I feel it isn't a fair reflection on our poster'; 'yes we do (understand it), we feel that the student feedback was rather harsh'.

Nevertheless, if students gain a strong sense at an early stage that their grades are clearly linked to criteria, it does offer some promise that they can control their achievement. As Biggs' (2003) discussion of student motivation indicates, motivation occurs where students both value their studies and have some expectation of success. Clearly expressed and meaningful criteria may provide a key stage in

developing the expectation that they can succeed. As a member of the interview group stated: 'You can see where you've gone wrong and where you can improve next time'.

Impact on future behaviour

As discussed in the literature review, there is some evidence (Orsmond *et al.*, 2002) that signalling to students what they had to produce did not necessarily help them know how to do it. There is also some evidence of that in this study in that there was no consistent relationship between the students' capacity to mark others and their own grade for the assignment. A non-significant relationship was observed between the final poster mark and the mark awarded by the tutor for the feedback sheet ($r = -0.22$, d.f. $= 20$, $P > 0.05$). Therefore, students who received high marks for their poster did not necessarily write better feedback sheets on their peers' posters.

There are various possible reasons for this. It could be because the students paid more attention to the criteria when they were marking others than they did when constructing their own assignments because they were obliged to with the former. In other words, we would not necessarily expect a correlation between the capacity to judge work accurately and achievement in a past assignment. However, one would expect to see some correlation with the grades for future assignments if the grading of peer marking was an indication of the students' understanding of the assessment criteria.

Another explanation for a lack of relationship between the poster and feedback mark might be because whilst students 'know' what to do, some find it more difficult to convey this on paper. Future use of exemplar posters so that students can practice use of assessment criteria and the marking scheme before they complete their posters may reduce this inconsistency.

A further, interesting, reason may be that students were set different tasks in grading work. For example, it may be easier to write comments about 'weaker' posters than about those that fulfil most of the criteria. Tutors also struggle to find useful things to write about 'good' work, so this would not be surprising. This explanation suggests that we need to help students make positive comments about their peers' work so that they are not disadvantaged when the marking is graded.

There is no doubt from the questionnaires that the students have gained a sense of what they need to do to improve their future grades and they list a range of activities. A good proportion of these are specifically related to future posters that may be of limited use as it is not an assessment task that they will face frequently. However, others indicated more generic changes, such as improving time management, more research, following criteria more closely and improving the conclusion. Undoubtedly, the students' capacity to transfer their learning from this assignment to future studies is the real test of whether they have really learnt more about the demands of their academic discipline as opposed to any given assignment and is another important topic for future research.

Nevertheless, these students were in almost universal agreement that they will make changes in the future following their experience of this assignment. Only one

student said it was not very likely and a member of the focus group suggested that habits may be hard to break: 'The thing is when I think you've got to this age if you've got a way of doing things it's quite hard to get someone out of a certain routine. The poster idea I think is a really good idea because it gets—it's a break from just doing essay after essay after essay and it's something different' (interview).

Conclusions

This is a small-scale, largely qualitative study and therefore it makes only a small addition to the debate rather than making a major contribution to research in this field. However, it does suggest certain outcomes that would benefit from further study.

The systematic, incremental exercise of involving students in generating and using assessment criteria, applying a marking scheme, generating feedback and being assessed on the quality of their peer marking do appear to have a number of beneficial effects on the students. They had engaged with the criteria in preparing and marking the posters such that a high proportion were able to accurately predict the grade they had achieved. Many also recognized the benefits of peer marking for their own development as learners, with a few feeling that their marks had been affected either positively or negatively by their peers.

Furthermore, the innovative element of this experiment; marking the students' marking, appears to have a number of positive affects. It exposed students to the complete marking procedure, including moderation, it may have helped students to pay better attention to the assessment criteria and marking scheme, such that they were able to generate and understand feedback more effectively, and it appeared to increase students confidence in the peer marking process. At the end of this process they were able to articulate what they needed to do to improve and were very positive about their intention to make changes in the future.

Further research is currently being undertaken with the same group of students to investigate whether there has been any long-term impact of the peer marking process on their approach to assignments, for example making active use of assessment criteria in planning their writing. This research has not been able to separate the effects of peer marking itself from the impact of having the peer marking 'feedback sheets' marked by a tutor. However, it is reasonable to assume that this additional element can only have added to the seriousness with which the students approached the peer marking and thus the amount they gained from it. Nevertheless, there is, undoubtedly, a need for further research in relation to the link between the use of peer marking and students' developing awareness of their current achievements in relation to the explicit and tacit requirements of higher education assessment.

From the tutor point of view, the experiment was very positive and will be repeated in future years after some modification. For example, we have obtained the permission of current students to use some of this year's posters as exemplar materials to help future students better understand the assessment criteria and marking scheme. However, tutors also recognize that the process needs careful planning from start to finish and requires, as suggested by Bostock (2000), consid-

erably more up-front preparation than conventional marking procedures. It is not for the faint hearted or less organized lecturer!

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