



## Case study 7: Facilitating peer and self-assessment University of Hull and Loughborough University

### What this case study covers

- **Subject, mode and level:** Cross-disciplinary with a focus on first-year undergraduate biology and chemistry courses
- **Assessment topic:** Online peer assessment for formative or summative purposes
- **Technologies:** WebPA, an online tool that facilitates the peer-moderated marking of group work

### Background

In 2006, the Centre of Excellence in Teaching and Learning for engineering at Loughborough University gained JISC funding to develop further the prototype of a peer assessment tool originally produced at Loughborough University. Loughborough University's partners in this final stage of the development of the tool, later known as WebPA, include the University of Hull and the Higher Education Academy's Engineering Subject Centre and UK Physical Sciences Centre.

Current practice at both Loughborough University and the University of Hull has demonstrated that WebPA-supported peer assessment can be effectively integrated into the majority of subject disciplines in which group work is assessed. At Loughborough University, WebPA is used by 16 out of 28 departments, ranging from English and drama to civil engineering. At the University of Hull, WebPA has been fully integrated into first-year biology and chemistry and third and fourth-year forensic science undergraduate courses, and is now being adopted by the faculties of engineering, computer science and sports science and a postgraduate course in forensic science.

To date, WebPA has been adopted by faculties in 20 higher education institutions in the UK and overseas, and is used for both formative and summative assessment. An open source product, WebPA is available free to use and modify.

### Rationale

Peer assessment offers a significant range of benefits. At the simplest level, assessment of group work can become fairer if the mark assigned to the whole group can be adjusted to reflect the contributions each group member has made. Peer assessment can also enable tutors to apply an additional set of criteria alongside the discipline-specific objectives for the assignment – for example, the attributes shown by learners in the management of group work, such as leadership, collaborative and problem-solving skills.

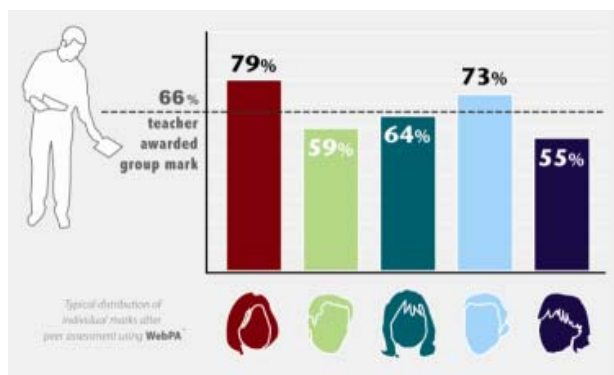
Additionally, there may be wider pedagogic benefits from peer assessment. Learners accustomed to giving feedback to their peers may become better equipped to assess their own performance – a prerequisite first step towards self-managed learning. As Sadler (1989) noted: *'A key premise is that for students to be able to improve, they must have the capacity to monitor the quality of their own work during actual production'*. Sadler further argued in 2010 (as quoted in Nicol, 2010) that learners who, through peer assessment, are able to develop the complex appraisal skills tutors use when assessing their learners rely less on tutor feedback to make improvements to their own work. Changing role from assessee to assessor enables them to internalise the value systems associated with assessment in their subject discipline – a process Sadler describes as 'an apprenticeship in judgment'.

Despite evidence of these benefits, paper-based peer assessment activities present logistical challenges, especially in large-group settings. Such activities are likely to be context-specific and may have little value in other disciplines. WebPA was developed in response to the urgent need for an easy-to-access online peer assessment tool that would be flexible enough to support the variety of approaches taken in different disciplinary contexts.

### Transforming assessment practice

As an online tool, WebPA addresses some of the common issues experienced in the assessment of group work. In particular, its algorithmic approach enables accurate assessment of the process as well as the product of group work.

The system works like this. Each student is asked to give a score of up to ten (for each criterion set) for each member of the group, using criteria decided upon in advance for the task. The score each student gives to another group member is translated by the WebPA tool into a fraction of the total marks awarded by that student to all the team members. (For example, if A gives B 4 out of the total of 14 marks A awarded to all his or her group members, B receives a score of 4/14, or .29.) This result is added to the fractionalised scores that other members of the group give to B to produce an overall WebPA score for B, and so on for each group member. The WebPA score can then be used to moderate the whole group mark if desired.



*Typical distribution of individual marks after peer assessment using WebPA*

Flexibility is built into the tool. Tutors can determine the size of the groups, the overall number of groups for the task, the assessment criteria and when and how the assessment is delivered. Different teaching approaches are also supported. Students may be required to include themselves in the assessment in order to develop skills of self-assessment, but on other occasions the tool may be used for peer assessment only.

Tutors are also able to change the criteria against which the peer assessment activity is run. For example, a peer assessment exercise using WebPA may be set up to enable students to give formative feedback to one another as they work on a longer group assignment. At other times, WebPA may be used summatively to capture evidence of the wider skills used in the completion of the assignment, such as timekeeping, communication and problem solving. In this latter case, WebPA provides an additional set of individualised data that can moderate or be set alongside the tutor mark for the group.

Recognising that peer assessment may generate different kinds of unfairness – for example, when group members fall out or become unduly critical of one group member – factors are built into the process to avoid misuse. The algorithm used in the WebPA tool enables the identification of any unusually low score or other significant marking pattern (although it remains the tutor's responsibility to decide whether this constitutes deliberate misuse). As a fail-safe procedure (and to develop

reflective and self-evaluative skills), students are asked to keep a log of their progress during a group assignment. Easily accessed from the VLE, students' logs reveal if any disputes have occurred; the WebPA outcomes can then be moderated by a tutor, if necessary.

In practice, complaints of malpractice have hardly ever occurred in the experience of tutors at the University of Hull; students do not see the individual scores they have been given by their peers and view the chance to add to the tutor-assessed group mark as a fairer way of marking group work. To establish a culture of constructive feedback when the tool is first used, the criteria the tutor sets for the exercise can also include the quality (for example, the objectivity) of the marks students give to their peers:

*'Students know that they can report any unusual circumstances that prevented them from contributing fully to a group assignment and then, as a fail-safe, the results of the WebPA grading can be moderated outside of the tool by me to ensure complete fairness. In my experience, though, this has hardly ever occurred.'* Paul Chin, First-year Biology Module Coordinator and Manager of the UK Physical Sciences Centre, University of Hull

Finally, if one group member fails to submit a mark, the tool compensates by calculating a multiplication factor to bring the total number of scores back to the number in the group. (The number of WebPA scores for every student should equal the number of students in the group.) To encourage full use of the tool, a non-completion penalty can also be applied to a student's overall grade; the percentage of the deduction is again under the control of the tutor.

The WebPA score is then set alongside or added to the overall group mark to provide a reflection of the individual student's contribution to the achievement of the group. At the University of Hull, both sets of grades are recorded in the VLE and can be accessed by central student information services.

### **Lessons learnt**

Since peer assessment should aim to make assessment a more collaborative and motivational process, it is vital to help students understand how the WebPA process works. When introducing students to the system, Paul Chin allocates a face-to-face session at the University of Hull to discuss the aims of peer assessment and the criteria to be used in the WebPA exercise. Experience has shown that allocating class time gives the activity a higher profile, enables its purpose to be made clear and saves time in the long run:

*'It is critically important to allocate time within a face-to-face session to set up a peer assessment activity. Students will then see the importance of the activity and will understand what they have to do and understand better the criteria they are to use. In that way they come to see how the activity fits into their curriculum and why it is important. Problems further down the line are then much less likely to occur.'* Paul Chin

Using a face-to-face session to demonstrate how a peer assessment exercise works also enables students' concerns to be brought to the surface and answered – some students may feel anxious when embarking on self- or peer assessment as a result of deep-seated beliefs that the responsibility for assessment lies with the tutor rather than with themselves.

A powerful way of increasing students' ownership of the peer assessment exercise is to ask them to develop the criteria to be used in the assessment. At the University of Hull, students are sometimes asked as individuals to list the attributes of a good seminar presentation, report, essay or other assignment format before forming groups to check their criteria against those put forward by other students. This exercise places students in the role of assessment designers and is a valuable way of developing their ability to judge what is desirable or undesirable.

## Advantages gained

Benefits from WebPA have been experienced in a range of contexts in which group work is the norm.

Assessment of group work is fairer and educationally more powerful if students are actively engaged. Peer assessment with WebPA has enabled large first-year cohorts of students taking science degrees at the University of Hull to develop a greater sense of ownership and control over their learning – and to get to know one another in the process. Taking part in WebPA activities increases opportunities for dialogue and social interaction and so can help first-year students integrate into a new environment.

Experiences at Hull also suggest that students work harder to ensure a successful outcome when they know they are to be assessed by their peers – the feedback of peers is difficult to ignore. Thus, peer assessment may improve students' engagement with the curriculum as well as break down barriers in the critical first semester of a first-year undergraduate course. From a student's point of view, the opportunity to participate in and even co-design peer assessment also enriches the overall experience of learning.

From the tutor's point of view, WebPA, as a secure online tool, offers a range of advantages over paper-based peer assessment. The tool can be accessed from any location and at any time, and the results are both confidential and accurately and immediately collated. Furthermore, WebPA provides the opportunity to assess attributes and skills that were previously difficult, if not impossible, to assess, providing a unique insight into the workings of student groups.

Both self- and peer assessment are valuable because they encourage high levels of reflection during learning and they help develop attitudes and skills that are valued beyond university. The power of these processes can be enhanced when students rather than teachers formulate the assessment criteria for the group work, and when students have opportunities to discuss or respond to the feedback provided by their peers.

## Key points for effective practice

- **Active participation in the design of assessments clarifies for learners the goals and standards they are aiming for**
- **An online system makes peer and self-assessment achievable anytime, anywhere**

## Learner perspective

*'Overall I enjoyed this assignment and feel that the peer assessment gave very good self-motivation ... Do we get to do it again?' Biology student, University of Hull*

## Tutor perspective

*'WebPA is simple to use and affords me a unique insight into the operation of my groups.'* Rob Parkin, Head of the Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University

## References

- Nicol, D. (2010) '[Four recent papers on assessment and feedback with significant implications for practice](#)', *Graduates for the 21st Century: Integrating the enhancement themes*, Glasgow: Quality Assurance Agency for Higher Education
- Sadler, D.R. (1989) '[Formative assessment and the design of instructional systems](#)', *Instructional Science* 18(2), pp. 119–144

## Further reading

Loughborough University, [Briefing papers](#) on WebPA for IT administrators, senior managers and academic tutors

### **Key words**

Peer assessment, self assessment, online assessment

### **Links**

Information about [WebPA](#)

[Try out](#) WebPA

[Download](#) WebPA

### **Reflect and discuss**

To what extent are there formal opportunities for reflection, peer or self-assessment on the courses that you teach? How might technology make these more feasible to implement?

See also: Effective Assessment in a Digital Age video case studies, Loughborough University and the University of Hull [Facilitating peer and self-assessment](#)