W005

Discover WebPA: An online self and peer assessment system

Steve Loddington (s.p.loddington@lboro.ac.uk)[1], Nicola Wilkinson[1], Melanie Bates[1] and Dr Adam Crawford[1] and Dr Peter Willmot[2]

[1] Engineering Centre for Excellence in Teaching and Learning (engCETL) Loughborough University, UK.
[2] School of Mechanical and Manufacturing Engineering, Loughborough University, UK

***Abstract**:In October 2007, WebPA was released as Open Source Software by the two-year collaborative JISC funded WebPA Project, which is led by the Faculty of Engineering at Loughborough University. A paper version of the peer assessment tool was developed to assess group work at Loughborough in 1998, with WebPA being the latest iteration. WebPA is an online tool which facilitates both self and peer assessment that aims to provide a quick, easy and fair way of assessing individual students working in teams. To this end the software aims to provide an effective method of differentiating individual contributions to group work, to improve the overall student learning experience through encouraging self and peer reflection and improve understanding of the assessment process.*

Participants will be asked to carry out two group tasks. Firstly, each group will create a poster on a selected topic. Secondly, each member will assess their own performance and that of each group member in respect of carrying out the first task. The individually assessed scores will then be input into the WebPA software, to demonstrate the methodology which will generate individual scores for each group member. Participants will be guided through software features and benefits, including individual preferences that can be selected by the tutor.

The experiences, benefits and challenges of using WebPA from both an academic and student perspective will be explored. Participants will be invited to share their ideas at various stages and to identify how WebPA might be used within their own teaching. The associated benefits of using the software will become transparent. Participants will be invited to share their ideas at key stages throughout the workshop.

1. Background and introduction

1.1 Background to group work and peer assessment

Boud et al, (1999, p.413) identify that “assessment is the single most powerful influence on learning in formal courses and, if not designed well, can easily undermine the positive features of an important strategy in the repertoire of teaching and learning approaches”. This highlights the significance of designing assessments that stimulate the student learning process whilst achieving the aims and objectives of the module or course. Some potential benefits of setting group work are also identified by Boud et al. (1999 p.415). They confirm that collaborative forms of

learning, such as, group tasks can help foster certain aspects of lifelong learning skills including;

- collaboration, teamwork and becoming a member of a learning community,
- critical enquiry and reflection,
- communication skills,
- learning to learn.

(Boud et al. 1999, p.415)

The University of Technology, Sydney (2007) recognise three ways in which group work can be assessed;

1. individual assessment (where a tutor assesses individual outputs from group work such as individual reports),
2. same mark allocation (where each student receives the same mark)
3. weighted mark allocation." (where students receive a mark that comprises of a group mark and an individual element)

It clear that such assessment may be carried out formatively or summatively with the latter being the most common. In the past, the benefits of group work have been overshadowed by concerns relating to the assessment method chosen, especially where students within a team are allocated the same mark. The term 'peer assessment' (which is sometimes referred to as peer-moderated marking) is used to describe the process undertaken by students to assess the performance of themselves and their peer group, in relation to a group task. From this, individual team member scores are generated from the assessment scores that the students have input, resulting in an individual weighted mark being obtained. The fairness of allocating equal marks has been questioned by Willmot and Crawford (2007) who believe that "a lazy student might benefit from the efforts of team-mates or particularly diligent students may have their efforts diluted by weaker team members". Those students that contribute the most do not get the recognition they deserve and those that contribute less do not get penalised accordingly. Pond et al, found that "bunched group marks often show a low standard deviation and the use of peer review [assessment] can help to spread this when marks are reviewed at an individual level" (Pond et al. 2007 p.11), which, supports this theory.

The term 'free riders' is frequently used to describe those who rely on others to carry out a large proportion of the group work. Tutors should not be solely relied upon to identify and penalise free riders. Moreover, it can be very difficult or near impossible for a tutor or project supervisor to assess students' individual effort of a group task when it is common that the majority of work takes place during non-contact periods. One solution is to involve students in the assessment process.

Distinct benefits of peer assessment, from a student perspective, are explored by Cassidy (2006), who emphasised that it can enhance core skills that are useful within industry. It is true that the assessment of your own performance (often referred to as self appraisal) and that of others (peer appraisal) are common practices carried out within the workplace. Russell et al. (2006) support such conclusions identifying that peer assessment could improve a number of transferable skills including; "decision making, negotiation, communication, empathy and delegation". Being ultimately involved in one's assessment is conveniently described as 'taking ownership' of the process.

Whilst providing educational benefits to students as a useful bi-product peer assessment is an unique way of fairly assessing the contribution of each team member and, attempts to improve the level of student satisfaction. In relation to the latter, the National Student Survey results for 2005 and 2006 (HEFCE 2005; 2006) show that out of the seven categories, 'assessment and feedback' obtained the lowest mean score being 3.55 and 3.49 respectively. The 'Likert' scales used were from 1-5 (with 1 being the lowest (definitely disagree) and 5 being the highest (definitely agree). On this basis, one could argue that the mean scores were above the neutral and therefore, were rated positively, however, it has certainly prompted institutions and individual tutors to review their assessment strategies. In a world where the use of group work is growing, the introduction of a peer assessment element for group work, is seen as one method for addressing the associated problems and increase in student satisfaction. The assessment policies of both the Civil and Building and Mechanical and the Manufacturing Engineering departments at Loughborough University, require a moderated marking mechanism that provides individual scores for students within all modules contain significant group work.

Race (2001, p.9) identifies a potential challenge with peer assessment, in terms of the time it takes to set up assessments, however, he also identifies that the "benefits [of group work] start to accrue when large numbers of students need to do assessed tasks". This is clear if we take the cohort of 200 students as an example; for which each student had to write an individual report the tutor could significantly reduce the marking assignment time if the assignment were set in groups spend a vast amount of time marking each of these. Instead, the tutor can ask for one report from each group yet still generate to generate by using individual marks by using peer assessment to modify the group marks. Saved time and reduced workload are the primary incentives for tutors to use peer assessment, and this is supported by a study carried out by Hughes (2001). The session itself explores the logistics of setting up and running assessments in order to provide convenient solutions to such potential challenges.

Online self and peer assessment further enhances academic and student benefits allowing a series of tasks to be carried out electronically, very quickly and with ease. One example is that the majority of online systems automate the calculation of individual scores, whereas, paper based systems tend to require large amounts of data input.

1.2 Introduction to WebPA

Web Peer Assessment (WebPA) is an online automated system which facilitates self and peer assessment of group work. Since its original conception in 1998, WebPA has gone through a number of iterations at Loughborough University. In 2004, the WebPA system was made available for use by any Loughborough University department through the Engineering Centre of Excellence in Teaching and Learning (engCETL). In 2006 the engCETL successfully gained funding under the JISC e-Learning Capital Programme to enable further development and roll out the application to other institutions. Led by the Faculty of Engineering at Loughborough University, the project partners include the University of Hull and the Higher Education (HE) Academy Engineering and Physical Sciences Subject Centres.

In terms of current usage, WebPA is now being used by 49 academics across 16 of the 28 departments (57%) at Loughborough University, with the student cohort sizes ranging from 4 to 292 students. Group team or size is not restricted and is determined by the tutor when setting up the assessment. Four other UK Higher

Education Institutions (HEIs) and one Australian University are at different stages of use. There is a thriving special interest group that is growing rapidly and discussions are being held with other institutions who have expressed interest. Over the next year, the project is anticipating that more institutions will adopt the software.

2. Session outline

2.1 Session summary and identification of learning outcomes

WebPA is used to demonstrate the facilitation of self and peer assessment. Whilst demonstrating the sound principles of WebPA, participants will experience the steps taken by a tutor in creating, setting and delivering a peer assessment through a demonstration. They will then carry out a short task and perform two different methods of peer assessment, one of which is currently built into WebPA. One of the main aims of the workshop is to experience peer assessment from the student perspective. Finally, participants will review their perceptions of the two peer assessment methods, the WebPA software and how such methods could be used within their teaching.

At the end of the session participants will have;

- an understanding of the basic principles of self and peer assessment and discussed the potential incentives and barriers of peer assessment from both an academic and student perspective;
- visualised the steps that an academic would take in designing the criteria, forming groups and setting the assessment within WebPA;
- experienced and discussed two different assessment methods from the student perspective;
- discussed and identified how to use WebPA within current teaching practices;
- discussed opportunities for embedding WebPA within their institution.

2.2 Session activities

2.2.1 Outline of activities

The 90 minute session will be broken down into the sections shown in Table 1.

Table 1: Breakdown of session activities

0-15 minutes: Background to self and peer assessment
15-30 minutes: Participant task (see section 2.2.2)
30-40 minutes: Assessment of participant task (see section 2.2.2)
40-45 minutes: Break
45-60 minutes: Demonstration of WebPA (see section 2.2.3)
60-70 minutes: Example results of the participant task and discussion (2.2.4)

2.2.2 Participant task and assessment

Participants will be placed into random groups and will produce a poster on the following question;

What are the barriers and drivers to setting group course work? How can these issues be addressed? (You might want to consider these issues from staff and student perspectives and pay particular attention to the assessment process).

Participants will therefore be given the opportunity to identify a number of drivers and barriers and be able to discuss them in small groups.

Three different types of peer assessment will then be carried out.

Method One: participants will allocate a percentage of marks which are added on to the tutors mark. This method gives a weighting of tutor and student marks which totals up to 100%.

Method Two: Secondly, participants will discuss, as a group, the performance of each group member and share out a percentage of marks.

Method Three: Each participant will individually assess their own and their team members' contribution to the task in relation to the criteria provided.

2.2.3 Demonstration of WebPA

A demonstration of WebPA will be provided, from the perspective of the academic, highlighting the three distinct areas of the software being; **'my forms', 'my groups'** and **'my assessments'.** These which reflect the workflow of assessment generation within WebPA. The steps required to generate an assessment are as follows;

Step one: In 'my forms', the tutor defines the criteria that is to be used to assess themselves and their peer group (e.g. the criteria is set). Referring back to the literature emphasised earlier, Boud et al. (1999) believe this is a crucial aspect of the workflow.

Step two: In my 'groups', students are assigned to a group or team (e.g. groups are formed).

Step three: In my 'assessments' the tutor sets the timeframes for the data to be entered and how the marks are to attributed.

Forms can be saved or cloned for reuse verbatim or for modification. This facility saves the tutor time should they want to reuse the criteria again.

The options for choosing groups is flexible and left to the tutor. Popular methods for determining group membership are;

- Random (where students are randomly allocated to a group);
- Seeded (where the tutor distributes one or more high achieving students into each group);
- Self-selected (where students choose their own groups);
- Mixed groups (Group membership is determined by the tutor based on specific attributes such as mixed; ability, academic background, gender or culture).

2.2.4 Results of the participant task and discussion

In practice, only one of the three scoring methods would be used, however, a pivotal aspect of the workshop was to demonstrate different methods. This will form the basis for a discussion. Some results will be inputted into WebPA demonstrating this aspect of the system.

Whilst discussion may be taken at appropriate stages the final part of the session will allow participants to will be able to discuss a number of topics related to the session. Below are some example questions that are of relevance to the session and may want to be discussed. Alternative suggestions for discussion are welcomed.

- How to facilitate peer assessment within existing teaching practices?
- How to install and embed applications such as WebPA into an institution?
- Is the WebPA scoring algorithm fair?
- How other tutors within your institution might be encouraged to use such software?
- What criteria could be used for peer assessment and are there any example questions sets?
- Should some form of peer assessment be mandated in institutional/departmental assessment strategies?

3. Further information

Although it is not essential, participants will benefit from using the WebPA demonstrator before the session to familiarise themselves with some of the functionality. Participants are welcome to bring any questions along to the session. The demonstrator can be found at http://webpaos.lboro.ac.uk/login.php where you can log in as an administrator, student and tutor. Participants can also use this demonstrator after the session and are encouraged to introduce it to colleagues. More information about the WebPA project can be found at; http://www.webpaproject.com. A CD will be provided, to take away, which will include a wide variety of materials relevant to peer assessment and the WebPA software.

4. References

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