Peer Learning and Assessment

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ABSTRACT   *Various forms of peer, collaborative or cooperative learning, particularly small group activities, are increasingly used within university courses to assist students meet a variety of learning outcomes. These include working collaboratively with others, taking responsibility for their own learning and deepening their understanding of specific course content. The potential benefits of peer learning have long been recognised and are especially relevant today. However, many existing assessment practices act to undermine the goals of peer learning and lead students to reject learning cooperatively. If assessment gives students the message that only individual achievement is valued, and that collaborative effort is akin to cheating, then the potential of peer learning will not be realised. Inappropriate assessment practices may also lead to unhelpful forms of competition within and between groups that prevent groups functioning effectively. This paper examines some of the main assessment issues in connection with peer learning and suggests ways in which the benefits of this approach can be maintained while still meeting the formal assessment requirements of the course. It discusses the use of group assessment, peer feedback and self-assessment, assessment of participation and negotiated assessment and concludes with the identification of a number of issues which remain to be addressed.*

Introduction

The increase in use of peer learning in university courses in recent years has raised many educational and practical questions. While assessment may not be the first concern to be considered, acceptance of peer learning by students, and its ultimate success, often depends upon resolving the question of how peer learning can be assessed in ways which are credible and which also enhance its use. 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.

   In the context of this paper, peer learning refers to *the use of teaching and learning strategies in which students learn with and from each other without the immediate*

intervention of a teacher. Such approaches may be established and monitored by staff, and may even occur in their presence, but staff are not involved directly in teaching or controlling the class. Examples of peer learning include student-led workshops, study groups, team projects, student-to-student learning partnerships and peer feedback sessions in class. The paper emphasises the use of *reciprocal peer learning*. In reciprocal peer learning students within a given cohort act as both teachers and learners. This is in contrast to *peer teaching* in which there is a clear and consistent differentiation between the teaching and learning role, although all parties may be students. Peer teaching commonly involves advanced students in the same class, or those in later years, taking on limited aspects of a teacher's instructional or pedagogic role. The term collaborative learning is also used to refer to peer teaching and learning, particularly in North America. However, the range of practices included within collaborative learning is very wide and the adoption of that terminology does not aid clarity.

Although some common issues arise in both peer teaching and peer learning activities, reciprocal peer learning is a greater challenge to assessment practice. Commonly in peer learning situations the acquisition of particular facts and information is not the main focus. In this context, far fewer assumptions about the nature of the learning to be assessed can be made. Any discussion of assessment must therefore begin with first principles.

The present discussion arose from issues raised in a project supported by a National Teaching Development Grant to the authors on the effective use of peer learning (Anderson & Boud, 1996). The project drew on experience gained in the use of peer learning strategies in the School of Adult Education at the University of Technology, Sydney with mature-age undergraduate and postgraduate students. Currently, we are involved in applying these ideas to a range of disciplines and contexts involving younger students. While we found relatively little difficulty in considering the teaching and learning issues involved, and in drawing together useful ideas for the implementation of peer learning, we were confronted by a more substantial challenge in addressing assessment issues. Little guidance was found in the literature on the assessment of peer learning. While there is acknowledgment that peer learning can contribute to the social and psychological needs of learners (Griffths *et al.*, 1995; Slavin, 1995) most sources tend to treat peer learning mainly as an instructional strategy, rather than an approach which pursues a broader educational agenda. Successful peer learning has therefore been mostly judged in terms of its effect on subject content learning which is reflected in examination results. This limited view prompted us to reassess the role of assessment in learning and to apply considerations about how summative assessment influences learning to different peer learning approaches.

The aim of this paper is to examine the implications for assessment practice of the adoption of peer learning in university courses. It considers situations in which reciprocal peer learning is used as a significant component of a given subject, for example when the tutorial element of a subject is based on peer learning. The argument emphasises the importance of congruence between assessment practices and the kinds of learning a course aims to promote. It is suggested that the traditional individualistic conception of assessment taken for granted in universities needs to be reassessed if cooperation and collaboration such as that manifest in peer learning is to be fostered.

The paper starts by noting the reasons for current interest in peer learning approaches and is followed by a discussion of why assessment is a particularly significant issue in the context of peer learning. It then considers the effects of assessment on learning in general before exploring what features of assessment design need to be taken into

account. Finally, it identifies the kinds of assessment practices to which considerations of this kind lead and ends by pointing to issues which need further debate before they can be resolved.

Why the Need Now to Focus on Peer Learning?

There are both pragmatic and principled reasons for the current focus on peer learning in university courses. The pragmatic reason is the most obvious. Financial pressure on university funding has lead to staff teaching more students. This has prompted a search for teaching and learning strategies to enable staff to cope without increasing their overall load. Peer learning has considerable promise as it involves maintaining the level of student learning without more input from staff.

In parallel with this pragmatic push there has been a reassessment of the goals of university courses and a new emphasis on generic learning outcomes. Encouraged by demands from employers for graduates to possess a broader range of skills and to be able to communicate effectively beyond their specialisation, courses now are expected to develop what are variously termed transferable skills (Assiter, 1995), key competencies (Mayer, 1992), generic attributes (Wright, 1995) or capabilities (Stephenson & Yorke, 1998). These are being conceptualised as part of a repertoire of skills and strategies to foster lifelong learning. Candy *et al.* (1994, p. xii) in discussing characteristics of teaching methods in undergraduate courses that encourage graduates to become lifelong learners cited 'peer-assisted and self-directed learning' as the first of five characteristics which also included those which developed 'reflective practice and critical self-awareness'.

In addition to these motives, it is also being argued that collective forms of learning may better suit some students (e.g. women and those from minority groups) than the common individualistic teaching and learning practices of traditional courses (Chalmers & Volet, 1997; Slavin, 1995). Peer learning values cooperation over competition and greater respect for the varied experiences and backgrounds of participants can occur. However, there are major group management and pedagogical challenges to be faced when groups are composed of students of substantially different ages, life experiences and cultures who are unused to interacting freely with one another.

Peer learning approaches have been promoted to foster certain types or aspects of lifelong learning skills which are not as readily pursued by other means (Slavin, 1990). Among those skills or attributes associated with peer learning are: (1) the development of learning outcomes related to collaboration, teamwork, and becoming a member of a learning community; (2) critical enquiry and reflection; (3) communication skills; and (4) learning to learn. There are a variety of reasons for a focus on these. They include:

(1) Peer learning necessarily involves students working together and developing skills of collaboration. This gives them practice in planning and teamwork and involves them as part of a learning community in which they have a stake.
(2) There are increased possibilities for students to engage in reflection and exploration of ideas when the authority of the teacher is not an immediate presence. Whether these possibilities are realised however depends on the ways in which peer learning is established and the context in which it operates.
(3) Students gain more practice in communicating in the subject area than is typically the case in learning activities when staff are present. They are able to articulate their

understanding and have it critiqued by peers as well as learn from adopting the reciprocal role.

(4) Peer learning involves a group of students taking collective responsibility for identifying their own learning needs and planning how these might be addressed. This is a vital learning-how-to-learn skill as well as providing practice for the kinds of interaction needed in employment. Learning to cooperate with others to reach mutual goals seems a necessary prerequisite for operating in a complex society.

Peer learning approaches also provide for additional flexibility in courses. For example, there are increased options in timing of classes, as staff and student timetables do not always need to coincide.

Why Assess Peer Learning?

Peer learning can of course be introduced without reference to the issue of formal assessment. Indeed, it is easy to argue that, if any activity is perceived by students as sufficiently worthwhile, then it will be readily adopted. There are many examples of students spontaneously setting up their own peer study groups without any prompting from staff (e.g. Tang, 1993). However, there are difficulties in taking such a *laissez-faire* approach. Students may not perceive the value of peer learning until it is too late for them to benefit from it. Not all students may have an opportunity to benefit. Staff may underestimate the power of assessment, particularly assessment practices such as examinations, in other aspects of a course. These may distort an entire programme leading students to attend to some aspects and neglect others in ways not planned nor predicted.

Assessment needs to be taken into account when considering peer learning for three main reasons:

(1) *Addressing important educational outcomes*
    Peer learning is a process for aiding students in achieving particular learning outcomes which might be pursued in other ways, but it can be used to address course goals not readily developed otherwise. These include both course-specific goals, such as those related to professional teamwork, as well as broader goals for lifelong learning. If these outcomes are important, assessment should reflect this.

(2) *Valuing peer learning*
    The presence of formal assessment is often regarded as an indicator of importance. If something is not assessed it can be seen by students and by staff to be of lesser importance than those aspects of a course which are assessed. Students' attention is therefore focused on those course goals which appear to be assessed over others which are not. As peer learning has not previously been highly valued in formal courses, assessment can be a way of indicating the shift of importance.

(3) *Recognising commitment*
    Assessment can act as a form of academic currency providing compensation for the extra effort which might be involved in undertaking peer learning. Peer learning is often introduced into courses to encourage the pursuit of a wider range of learning outcomes than occurs otherwise, such as those discussed above. If students are expected to put more effort into a course through their engagement in peer learning activities, then it may be necessary to have this effort recognised through a commensurate shift in assessment focus.

An illustration of the influence of assessment can be seen by setting a group of students to work on a specific project. Questions raised often include those about how the project will be assessed and what weighting it might have as part of the overall assessment requirements for the course. In other words, what will it count for? If the weighting is low or if the form of assessment does not appear to acknowledge the expected achievements, then students may be less inclined to take the project seriously.

We believe that it is necessary not only to develop peer learning processes to complement other aspects of teaching and learning, but also to associate assessment with them. It is likely that the more competitive a course is and the greater the focus of student attention on assessment, the more necessary it will be for formal assessment to be associated with peer learning.

However, it is equally important not to use assessment as a device to get students to engage in peer learning activities if they cannot be justified on educational grounds. Assessment should normally follow educational goals and fit with the design of courses, not determine them. It may be necessary to modify assessment processes or drop them if they act to undermine desirable peer learning processes. It is important not to take an excessively instrumental view of assessment, to be sensitive to student views, needs and interests on this and not use assessability as a compliance device.

Having decided that assessment should be associated with peer learning, the question arises: what should be assessed? Should it be peer learning *per se*? If so, what aspects? Or should assessment be linked to particular learning outcomes which are readily promoted through peer learning? There are difficulties in both cases.

Difficulties in Assessing Peer Learning

While there are good reasons for linking assessment to peer learning cautions need to be raised.

Assessing outcomes related to peer learning may not make students engage more actively in it. Students already engage in many valuable learning activities in courses without them being directly assessed. The addition of assessment should only occur when it will enhance this engagement and not if it is likely to lead to undesirable consequences, such as encouraging conformity in return for grades.

Assessment of peer learning may be more trouble than it is worth. If peer learning is seen as an everyday aspect of teaching and learning and of intrinsic value, then assessment may not be necessary. An example of this is in the use of learning partnerships in part-time courses for busy professionals. Assessment is not needed because students often find involvement in such partnerships intrinsically satisfying (Robinson *et al.*, 1985).

Assessment can easily inhibit the processes it is designed to enhance if it is not implemented sensitively. Peer learning typically pursues learning outcomes traditionally hard to assess, for example, those related to group work, oral communication, planning and self-assessment. There is a well-developed repertoire of assessment practices to judge knowledge acquisition, writing skills and problem-solving. Indeed, it might be argued that these are over-assessed relative to other outcomes in most university courses. However, peer learning is particularly vulnerable to being affected by inappropriate forms of assessment. The assessment repertoire is less well developed and staff assessment skills less finely honed in areas with which it is most associated. Assessment

criteria need to be appropriate for the overall learning outcomes. Some restraint may also be needed in limiting the assessment. If too many things are assessed within a single activity, there is a danger that one or all of them may be devalued. Great care needs to be taken to avoid students automatically assuming that the presence of assessment implies that it is inappropriate to work with others.

Consideration of outcomes of peer learning is an especially useful test for the application of principles of good assessment practice. Because of the vulnerability of peer learning to poor assessment, it provides a good challenge for assessment design.

It is ironic that consideration of peer learning throws up problematic assessment issues. Popular use of peer learning is seen in novels, movies and ethnographic studies where small groups of students in professional schools informally band together to 'beat the system' and cope with the demands of oppressive assessment practices (e.g. *The Paper Chase*; *Making the Grade*). This raises the question of the effects that the formalisation of a traditionally informal process has and what assumptions need to be confronted in the formal context.

What are the Effects of Assessment on Learning?

Before turning to the problem of assessment design for peer learning, it is necessary to focus on the effects of assessment on learning generally so that these might be taken into account in developing appropriate policies and processes. The following points summarise a complex literature.

Individuals are emphasised. There is a tradition of individual, competitive assessment in most educational institutions even when the notion of competition is not directly espoused. While there is a move towards criterion-referenced or competency-based assessment it is only partial and there are still remnants of an earlier, more explicitly competitive, conception. Norm-referenced assessment implies and requires competition against others rather than cooperation. In an individualistic view of assessment collaboration is regarded as cheating (Kohn, 1992). Assessment is conventionally framed to de-emphasise collaboration fostered in peer learning.

Assessment exercises power and control over students. Assessment is the principal mechanism whereby staff exercise power and control over students. Assessment practices not only exercise direct influence over students, but promote forms of self-surveillance which discipline students through their own self-monitoring without them even being aware of what is occurring (Edwards & Usher, 1994). Choice, in assessment, is often illusory and the rhetoric of students collaborating for assessment purposes, as might happen in peer learning, is discouraged through the influence of overriding assessment paradigms. The effect on learning is to circumscribe it to the range of outcomes unilaterally defined as legitimate by staff. Students learn first to distrust their own judgements and then act as agents to constrain themselves.

Assessment exerts a backwash effect on learning. Studies of students' experiences of learning have drawn attention to the strong influences that assessment practices have on their approaches to learning (Marton *et al.*, 1997). Inappropriate forms of assessment appear to encourage students to take a surface approach to learning, that is they emphasise rote learning, conforming to the narrowest interpretations of assessment tasks and working to 'beat the system' rather than engage in meaningful learning. If such

forms of assessment are used in a peer learning context, then cooperation will ensure the rapid spread of instrumental approaches to learning.

Overload of tasks discourages deep approaches to learning. In a similar manner, courses which students perceive as overloaded also contribute to students taking a surface approach to learning tasks (Ramsden & Entwistle, 1981). This has considerable implications if peer assessment is used as a supplement to courses in ways which add to the overall study burden on students, rather than as a substitute for other forms of teaching and learning activity. Overloading is likely to lead peer learning activities to be either ignored or fall into disrepute.

Assessment practices need to be matched to outcomes. The matching of assessment tasks and approaches to the desired learning outcomes is at present taking on a renewed significance. Assessment needs not only to reflect outcomes in a narrow technical sense, but in terms of the basic knowledge, understanding, communicative and competency aims which are being pursued in a course (Brew, 1995). As discussed earlier, the desired learning outcomes promoted by peer learning must feature strongly in assessment tasks.

Formal assessment processes should encourage self-assessment. Assessment in higher education has a dual function of judging for the purpose of providing credentials and for the purpose of improving learning. As far as the latter purpose is concerned, assessment should leave students better equipped to engage in their own self-assessments. Unless assessment fosters this, it acts to undermine an important goal of lifelong learning (Boud, 1995a).

Consideration of findings such as these leads to the need to design assessment processes carefully so as to avoid the many unintended and negative consequences.

What Features of Assessment Design Need to be Taken into Account for Peer Learning?

In a paper on the need for assessment practices to promote desired forms of learning, Boud (1995b) identified a number of issues which need to be addressed if assessment was to meet the challenge of enhancing rather than undermining learning. Some of these are presented here and critical questions for the design of assessment are raised.

Focusing on key outcomes. Assessment needs to focus on the central outcomes desired as part of education for a given discipline, field or profession and engage with the most important concepts and practices valued in the course framework. Clarity about the particular outcomes sought from the use of peer learning must be obtained before assessment activities are designed. If the emphasis is on using peer learning to improve subject-matter learning, it will lead to one kind of assessment design. If the emphasis is on promoting teamwork then design for assessment will need to be quite different.

Holistic design. One of the main traps of assessment design is to create an array of assessment techniques each of which may be suitable for assessing different outcomes, but which, when put together have a different effect altogether. This is a particular danger in the assessment of peer learning. Given that in many situations peer learning will only form part of a course, it is likely that familiar and conventional forms of assessment which apply to the other part will tend to dominate perceptions of staff and students. For assessment to be holistic, emphasis needs to be given to the strategy and process of what is required to achieve the specific result. Assessment tasks which engage

learners in the whole of a process rather than in fragments should be considered so that the activities of peer learning are not inadvertently marginalised. Holistic design also needs to ensure that staff and students interpret assessment tasks in the same way. If they do not, then they are not working towards the same ends.

Taking account of consequences. Assessment must always be judged in terms of its consequence on student learning, both intended and unintended. The question to be asked is: does assessment act to encourage quality learning (e.g. deep/meaningful approaches to study) and discourage undesired learning practices (e.g. short-term memorising for tests, avoidance of collaboration)? When peer learning is used, the question is also: how can assessment activities support meaningful engagement by students in the learning activities being promoted?

Contributing to lifelong learning development. The range of assessment tasks in a course should leave students better equipped to engage in continuing learning and their own self-assessment. If peer learning explicitly and effectively pursues lifelong learning outcomes such as working with others, planning and organising learning, moving beyond dependence and independence to interdependence this criterion should be met, so long as assessment focuses on these.

Using appropriate language and assumptions. Avoidance of 'final vocabulary' (Rorty, 1989) is especially important in assessment related to peer learning. That is, abstract judgemental vocabulary is excluded and feedback is given about particular task-related accomplishments. Care also needs to be taken that assumptions are not made about the subject matter or the learners which are irrelevant to the task and which are differentially perceived by different groups of students.

Promoting a self-reflexive view of assessment practice. Peer learning activities have an advantage over other teaching and learning strategies in that they have considerable potential to promote critical reflection. Critical reflection can focus on the topics being considered, the assessment activities themselves and the peer learning processes in which participants are engaged. They can do this if sufficient attention is given to the creation of a climate for learning and assessment which encourages reciprocal communication and openness to feedback.

Not all of these features can be encompassed in every assessment task, or indeed every subject, but they provide a yardstick against which assessment practices compatible with peer learning can be judged.

To What Kind of Practices do Considerations of this Kind Lead?

To validly assess the collaborative outcomes of reciprocal peer learning requires an approach differing from traditional methods which rely on assessment as a means of ranking students. Ranking, or rather the anticipation of ranking, is a sure way to inhibit cooperation. Whether the goal of peer learning is developing conceptual understanding or attitudinal change, the criteria for judgement needs to be first accepted by the group of peers. This may involve either criteria determined by them, negotiated with a staff advisor, or proposed by an advisor and agreed to by peers. From these criteria, assessment activities can be directed at determining what sort of outcomes, if any, have resulted.

While acknowledging the need for substantial development of a range of strategies for assessment of peer learning, it is possible to point to some examples and identify

strengths and weaknesses of each. We focus here on strategies taken partly from the literature and partly from our own practice. They are group assessment, peer feedback and self-assessment, assessment of process, negotiated assessment and the use of cumulative rather than weighted assessment. In many of these processes students are involved in identifying and/or creating assessment criteria. The ability to do this is important, but as it is discussed in detail elsewhere (Boud, 1995b), it is not considered here. Summative assessment, i.e. assessment which contributes towards students' recorded performance in a course, is emphasised as it is this aspect of assessment which often proves to be most problematic in peer learning.

Group assessment. If students are expected to cooperate and work together, the notion of assessing them in terms of group rather than individual outcomes can appear attractive. Group assessment is justified on the grounds that if teamwork and collaborative learning are valued, this must be reflected in an assessment process which emphasises that students are judged on their collective efforts, not those of just any one person. There are many variations on this theme, ranging from situations in which all members of a group are given an identical assessment, to others in which there is a separation of individual assessments for some features and group assessments for others. Another option, designed to prevent freeloading, is to make the group assessment the sum of individual members' assessments.

The unfamiliarity of group assessment can create difficulties. Students are used to being judged in terms of their own efforts and can resent others gaining credit for what they perceive as their own contributions, particularly within the context of a competitive course. Unless there are sufficient opportunities to build group planning and group accountability skills, then the use of group assessment is premature. Schemes in which there is an explicit mix of individual and group assessment for common tasks might provide a bridge to wider use of group assessment in these circumstances (Goldfinch, 1999; Goldfinch & Raeside, 1990; Brew, 1995).

Peer feedback and self-assessment. Our own experience suggests that the use of peer assessment in which students make formal assessments of others within a working group can inhibit cooperation. Students have raised questions about the contradictions between a learning process of working together to help each other and an assessment process which implicitly or explicitly pits one person against another.

However, the input of peers into assessment decisions is valuable and ways of using data of this kind must be found. A useful way of doing this is through an emphasis on self-assessment informed by peers. Peers provide rich information which is then used by individuals to make their own assessments (Boud, 1995b, pp. 200–206). Peer comments are systematically sought with respect to criteria identified either by the group or the learner. The use of grades, marks or other agglomerations of judgements which are not transparent is avoided in this feedback for the sake of information which is specific and relates to the detailed qualities of the work under consideration.

The balance between self and teacher assessment in any given course is a function of many considerations. As far as peer learning is concerned, the emphasis on the kind of assessment processes discussed here should be directly related to the priority given to peer learning and the specific learning outcomes associated with it.

Assessment of process. An alternative focus on peer learning is to shift the emphasis away from learning outcomes towards learning processes. The assessment of participation in which students' contributions towards the process of learning are rewarded is an example of an assessment practice of this kind (Armstrong & Boud, 1983).

While assessment of knowledge will be very familiar to all students, assessment of process is likely to be new. Assessment may well begin with making judgements about the effectiveness of each phase of the activity. The focus may then shift to consider some specific processes such as leadership, negotiation and conflict management, participant interactions, task performance, provision of feedback, etc. The insights that emerged from analysing these types of processes and the changes in learning that occurred can then be identified and critiqued within the group and jointly documented as evidence of learning for assessment purposes.

Negotiated assessment. There is considerable scope for the use of negotiated assessments for peer learning. Negotiated assessment involves the parties concerned agreeing on the assessment process in the light of their learning goals, activities and anticipated outcomes, recording the mechanism and criteria of assessment and applying this to their own deliberations (Anderson *et al.*, 1996). For peer learning, the parties would principally be the learners themselves within any given group, but would normally involve a teacher if the results were to be used for formal assessment. The role of the teacher might be to ensure consistency across groups and to see that non-negotiable criteria applicable to the course were included.

There are many variations on this theme, ranging from individually negotiated learning contracts which take into account group criteria to fully negotiated group contracts which include individual criteria within them. Deciding which to adopt is a choice based upon the desired learning outcomes being pursued and the acceptability of group agreements for assessment purposes within any given course rules. In some of these approaches there may be a need for some non-negotiable criteria to be included specific to the learning outcomes associated with peer learning.

Negotiated assessment is often needed in order to accommodate the varying opportunities which exist in peer learning to demonstrate performance. It is common in peer learning activities for students to have differentiated roles. Their assessable products may not be the same. Negotiation can vary details of assessment across students to allow equal opportunities for demonstration of desired outcomes.

Use of cumulative rather than weighted assessment. When the weighting of any given element of a course is less than 20%, it can give the message that this aspect is valued very little, and students might be prompted to ignore it or put little energy into it. Peer learning is seldom given a high weighting even under the most favourable circumstances.

One solution is to treat each element of assessment as a prerequisite for completion of a subject or course unit. When this is done, assessment associated with peer learning (and indeed all other elements) can be regarded as 100% of the final assessment as all need to be completed at a satisfactory level before students can be regarded as having completed. For example, participation in a study group, project team or a learning partnership could be integrated into a course in such a way that it is not possible to pass the course without demonstrating such involvement even if no actual marks are awarded for the participation itself.

What Issues Remain to be Addressed?

As in any discussion of assessment, as soon as practices are examined in any detail, many issues are raised. Some may pose very real dilemmas in particular contexts. However, it is important not to be excessively negative as many of the assessment issues related to peer learning are equally applicable to other forms of assessment and they do

not appear to provide insurmountable barriers in those. It is unreasonable to apply higher and more difficult standards to the assessment of peer learning than to traditional, lecturer-directed means of assessment. While it is easy to indicate that there may be some difficulties (such as potential freeloaders), prior to dismissing assessment in the peer learning context, it is worth examining whether there is any possibility for students to beat the current system! If the answer is yes, it is not a sufficient reason to neglect the overall value of the assessment of peer learning because there may be some who abuse it. In addition, assessment of peer learning is likely to be a learning event, in useful ways that traditional summative testing rarely achieves. If an ultimate goal of higher learning is lifelong learning which automatically includes forms of reflection and self-assessment, then engaging in assessment in conjunction with peer learning provides a useful start.

Individual Versus Group Focus

Peer learning has essentially a group focus, while assessment in higher education has almost exclusively focused on individuals. It is in this aspect that the greatest challenge exists. There is a danger that assessment of peer learning is so tokenistic or so loaded against the kinds of learning outcomes which peer learning promotes that it becomes irrelevant. It is not simply a matter of designing assessment processes to accommodate peer learning. A basic issue to be faced is whether assessment can foster group learning whilst not inhibiting individual achievement. This can be done, but it requires a broader view of assessment to be adopted within institutions, a view which does not systematically privilege an individualistic rather than collective orientation. Without this change severe limits to what is possible in practice will remain.

There are also practical questions to be addressed. These include how the exploiting of peers by unscrupulous students can be avoided? How can we avoid peer-pressure and 'group-think' (Janis, 1983) which may act to encourage surface approaches or 'beat the system' attitudes? There is not a simple solution to these questions, they must be the subject of continual vigilance to ensure they do not become significant problems in any particular context.

Process Versus Task or Product

What should be the balance between assessing process and outcomes? Should there be a balance and how might that be determined in specific contexts? It is perfectly reasonable to use assessment of the process of peer learning as an initial learning phase within a total assessment scheme. Satisfactory experience of process assessment of this kind can lead to students developing confidence in the outcomes of peer learning. This is critical to using peer learning more widely. Assessment of process, task or product will of course necessitate clear criteria being developed.

Perhaps initially assessment can be conducted with input from the total class. As reasons and explanations are forwarded for awarding specific results, be they on the basis of pass/fail or grading, values and hidden assumptions (old paradigms) are articulated and a greater understanding of the holistic nature and purpose of assessment is likely to emerge. What makes university level learning can also be raised as a matter to be considered.

New Approaches Versus Traditional Assessment

How do new forms of assessment which support peer learning relate to the need for marks and grades? Indeed, if marks and grades are not used for peer learning in courses in which they otherwise feature strongly then peer learning may appear to be of lower status than other aspects. Where lecturers want to tread cautiously, including peer assessment processes as a requirement for completing the subject but not necessarily attaching a grade to the outcome may be one way of developing skills in this area and becoming confident about its use—for both staff and students.

Control Versus Responsibility

How do we deal with the effects of an oppressive assessment regime which is not within the power of either staff or students to alter? If course requirements specify a particular form of assessment, incorporating an additional or different element within this specification may prove problematic. There are some important aspects of peer learning which probably cannot be readily assessed (e.g. personal reflection, interpersonal relationships). In common with all forms of assessment, peer assessment uses a sampling process—so not all aspects can be assessed all the time. Deciding what to assess is as important as deciding how best to assess it. It is here that some degree of responsibility for assessment must be passed from the lecturer to the learners themselves.

Conclusion

Assessment can foster peer learning, but only if it is consciously planned to be compatible. If peer learning is introduced into a course this should act as an immediate prompt to review assessment practices. It is not possible to think about assessment and peer learning in ways uncontaminated by the issues of power and control central to assessment of students by teachers. Assessment is a highly loaded term with strong connotations and associations for everyone. Where peer learning is used assessments need to at least acknowledge if not reward collaboration. The key concern is not compromising assessment practices for the sake of peer learning, but making assessment tasks friendly to peer learning, through the promotion of positive practices and the avoidance of those which are inhibiting.

There are also implications for curriculum development. As Newble and Jaeger (1983) have noted "examinations have a massive steering effect on the curriculum" despite the philosophical tendencies of staff using more innovative teaching methods to de-emphasise the role of assessment. It is therefore unrealistic to discuss assessment in isolation from curriculum content and teaching strategies. If peer learning is to play a part in university experience, as we strongly believe it should, ways of assessing its value must be explored together with strategies for its effective implementation. Such an exploration will also raise questions in regard to the assumptions and traditions underpinning other forms of assessment currently in use. This in itself is no bad thing and in some cases probably long overdue.

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REFERENCES

ANDERSON, G. & BOUD, D. (1996) Extending the role of peer learning in university courses, *Research and Development in Higher Education*, 19, pp. 15–19.
ANDERSON, G., BOUD, D. & SAMPSON, J. (1996) *Learning Contracts: a practical guide* (London, Kogan Page).
ARMSTRONG, M. T. & BOUD, D. (1983) Assessing class participation: an exploration of the issues *Studies in Higher Education*, 8(1), pp. 33–44.
ASSITER, A. (Ed.) (1995) *Transferable Skills in Higher Education* (London, Kogan Page).
BOUD, D. (1995a) Assessment and learning: contradictory or complementary?, in: P. KNIGHT (Ed.) *Assessment for Learning in Higher Education* (London, Kogan Page), pp. 35–48.
BOUD, D. (1995b) *Enhancing Learning Through Self Assessment* (London, Kogan Page).
BREW, A. (1995) Self assessment in different domains, in: D. BOUD *Enhancing Learning Through Self Assessment* (London, Kogan Page), pp. 129–154.
CANDY, P., CREBERT, G. & O'LEARY, J. (1994) *Developing Lifelong Learners Through Undergraduate Education*. NBEET, Commissioned Report No 28 (Canberra, Australian Government Publishing Service).
CHALMERS, D. & VOLET, S. (1997) Common misconceptions about students from South-East Asia in Australia. *Higher Education Research and Development*, 16(1), pp. 87–98.
EDWARDS, R. & USHER, R. (1994) Disciplining the subject: the power of competence, *Studies in the Education of Adults*, 26(1), pp. 1–14.
GOLDFINCH, J. (1994) Further developments in peer assessment of group projects, *Assessment and Evaluation in Higher Education*, 19(1), pp. 29–35.
GOLDFINCH, J. & RAESIDE, R. (1990) Development of a peer assessment technique for obtaining individual marks on a group project, 15(3), pp. 216–231.
GRIFFITHS, S., HOUSTON, K. & LAZENBATT, A. (1995) *Enhancing Student Learning Through Peer Tutoring in Higher Education* (Coleraine, Educational Development Unit, University of Ulster).
JANIS, I. L. (1983) *Groupthink* (Boston, Houghton Mifflin).
KOHN, A. (1992) *No Contest: the case against competition* (Boston, Houghton Mifflin).

MARTON, F., HOUNSELL, D. & ENTWISTLE, N. (Eds) (1997) *The Experience of Learning: implications for teaching and studying in higher education*, 2nd edn. (Edinburgh, Scottish Academic Press).

MAYER, E. (1992) *Putting General Education to Work: the key competency report.* Committee to Advise the Australian Education Council and the Ministers of Vocational Education, Employment and Training on Employment-related Key Competencies for Postcompulsory Education and Training. (Canberra, Australian Government Publishing Service).

NEWBLE, D. I. & JAEGER, K. (1983) The effect of assessment and examinations on the learning of medical students, *Medical Education*, 13, pp. 263–268.

RAMSDEN, P. & ENTWISTLE, N. (1981) Effects of academic departments on students' approaches to studying, *British Journal of Educational Psychology*, 51, pp. 368–383.

ROBINSON, J., SABERTON, S. & GRIFFIN, V. (1985) *Learning Partnerships: interdependent learning in adult education* (Toronto, Department of Adult Education, Ontario Institute for Studies in Education).

RORTY, R. (1989) *Contingency, Irony and Solidarity* (Cambridge, Cambridge University Press).

SLAVIN, R. E. (1990) Research on cooperative learning: consensus and controversy, *Educational Leadership*, 47(4), pp. 52–54.

SLAVIN, R. E. (1995) *Cooperative Learning* (Boston, Allyn and Bacon).

STEPHENSON, J. & YORKE, M. (Eds) (1998) *Capability and Quality in Higher Education* (London, Kogan Page).

TANG, K. C. C. (1993) Spontaneous collaborative learning: a new dimension in student learning experience?, *Higher Education Research and Development*, 12(2), pp. 115–130.

WRIGHT, P. (1995) *What Are Graduates? Clarifying The Attributes of 'Graduateness'* (The Higher Education Quality Council (HEQC), Quality Enhancement Group).