ABSTRACT

        The use of advanced learning technologies enables various new
forms of collaborative learning and group assessment. This paper outlines a
radically different model of student assessment to that traditionally used in
most universities and other educational institutions. The model is
particularly suited to those using, or seeking to use, collaborative learning
techniques, which are themselves in turn greatly enabled by the use of
asynchronous learning technologies. The paper describes both a "capitalist
model" of assessment, where the final grade is based on the student's own
work and where students often compete for grades, and the "socialist model,"
where achieving the best outcome for a particular individual or small group
is regarded as secondary to achieving the best outcome for the class as a
whole. The paper proposes a mixed model of assessment that combines features
of both. The advantages and disadvantages are discussed, and various methods
of implementing the model are suggested. (Contains 21 references.) (Author)

COLLABORATIVE LEARNING AND GROUP ASSESSMENT: INTRODUCING THE CAPITALIST AND SOCIALIST PARADIGMS

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ABSTRACT

The use of advanced learning technologies enables various new forms of collaborative learning and group assessment. This paper outlines a radically different model of student assessment to that traditionally used in most universities and other educational institutions. The model is particularly suited to those using, or seeking to use, collaborative learning techniques, which are themselves in turn greatly enabled by the use of asynchronous learning technologies. The advantages and disadvantages of the assessment model are discussed, and various methods of implementing the model are suggested.

INTRODUCTION

Suppose that the instructor has a choice of two possible models of course delivery, and can reasonably predict in advance that if the first is employed, then 80% of students will pass, with varying grades (A, B, C, D etc), and that 20% of students will fail; and that if the second is employed, all 100% will pass, but mostly with low pass grades (Cs and Ds). Suppose further that the grades are actually a true and accurate reflection of the students' learning. Which model should be preferred, and why?

This is not a question that has been much debated in the literature, and the correct answer is not obvious. For example, suppose the former is preferred. Would the decision be different if the latter were to produce mainly Bs and Cs instead of Cs and Ds? What if the former produced only 70% passes? 60%? And so on.

The mean or median grade could be used to prefer one method over the other. If these are roughly the same in the two models, however, that cannot assist the decision. In such cases the former method, with a variety of grades is often preferred   perhaps because that is less likely to be questioned at subsequent examiners meetings!

At some point, however, a decision may have to be made between encouraging a variety of grades (usually considered a good thing) and increasing the number of students achieving passing grades (also usually considered a good thing).

THE CAPITALIST MODEL OF ASSESSMENT

There is no such thing as a standard method of assessment common across university courses. Rather, methods of assessment vary enormously from course to course, subject to subject, and university to university. For example, assessment may be comprised entirely of an end-of-term examination, or may be comprised of a number of assignments plus an end-of-term examination, or a number of assignments only. Assignments can be theoretical or practical in nature. The end-of-term examination may be open book, or closed book, or of a take-home type. All assignment items may count towards the final grade, or only a selection. And so on through many other possible variations.

Nevertheless in all of these cases the final grade is usually based on the student's own work, as demonstrated in one form or another throughout the

course. Students often "compete for grades even when assessment is criterion-based, and no element of competition actually exists.

In what follows, this will be referred to as the capitalist model of assessment.

COLLABORATIVE LEARNING AND THE CAPITALIST MODEL

Collaborative learning is hardly a new topic. The importance and relevance of social interaction to an effective learning process has been stressed by many theorists from Vygotsky [18], through advocates of situated learning such as Lave and Wenger [10], and has been confirmed by many more recent researchers and practitioners, such as Kagan [7] and Johnson and Johnson [6].

An up-to-date review of the research and the long history of peer/collaborative learning can be found in [11]. A small but select annotated bibliography on collaborative learning can be found at [12], while an excellent list of strategies and tips for those interested in introducing collaborative learning can be found at [2].

Salomon [17] amongst others has pointed out that despite the mass of literature praising collaborative learning, teams very frequently do not work well, and lists as common problems the "free rider effect [9], the "sucker effect [8], the "status sensitivity effect [3], and the "ganging up on the task phenomenon [16].

The use of collaborative learning techniques specifically within certain topic areas has not received much attention, though definite benefits have been found, for example, with their use in the teaching of a computer science curriculum [21].

This paper extends the topic of collaborative learning, to include, as an integral component, group assessment. Webb [19] lists six positive reasons for employing some form of group assessment. It is suggested here that there may also be other more important reasons specifically, that its use can have a significantly positive effect on the learning outcomes of the students.

FROM COLLABORATIVE LEARNING TO GROUP ASSESSMENT

It is important at the outset to distinguish collaborative learning from group assessment. There are a number of forms of collaborative learning that can be used, from small informal group discussions where the groups vary from week to week, through to formal group projects where the groups remain fixed throughout the term.

Even in such cases, assessment may still be carried out on a completely individual basis.

Where this is not the case, and some form of group assessment has been used, many schemes have been devised to try to award appropriate grades to particular individuals for example, by dividing the group work into separate items for which a particular individual is responsible, or by having the group members report on who provided the most input within the group, or a variety of other factors.

One particularly noteworthy case of implementing collaborative learning in an asynchronous learning environment is the so-called "radical model [13,14,15]. The radical model dispenses with traditional face-to-face teaching almost entirely, and places the emphasis on the students themselves to learn within a group setting, using the Web for resource material and email discussion groups for communication and presentation of assessment items, with the instructor providing guidance and feedback as required.

At the beginning of the course, the instructor randomly assigns students into groups. Each group is assigned one of the weekly topics, and has to make a single online presentation. Students are assessed not just for their group's presentation but also for their comments about other presentations. Each group presentation is also assessed on the quality of the discussion that follows. Typically, by the end of semester, students will have received over 100 inputs on their work from other students in the group, other groups, and the instructor.

In the last week of term, students are invited to submit a recommendation in writing on each other's group performance. The instructor considers any such recommendations when allocating individual marks for group performance to members of the group. A student that a group decides did not contribute sufficiently may as a result suffer a reduction in mark.

Different assessment criteria may be used for example, for the electronic presentation, clarity and structure of presentation, originality of ideas, and ability to substantiate arguments by relevant data; for other contributions, understanding the arguments that are

made by other presenters, linking them to the relevant literature, and making pertinent critical comments about these arguments.

The students' final marks are based on a combination of their group work throughout the semester, and their performance in an end-of-semester examination.

In common with some other forms of collaborative learning, the radical model points the way towards other possible forms of assessment in an asynchronous learning environment. However, as presently constituted, the model still represents an example of the capitalist model of assessment, since the grade awarded is based on the standard paradigm of attempting to assess the individual's own efforts, even within the context of an online collaborative learning environment.

THE SOCIALIST MODEL DESCRIBED

In the socialist model of assessment, achieving the best outcome for a particular individual or small group of individuals is regarded as secondary to achieving the best outcome for the class as a whole.

In all instantiations of the socialist model, effort is expended in ensuring that the most able students assist the least able. In this way, knowledge and skills can be successfully passed on outside the presence   real or virtual   of the instructor.

This is often achieved via various forms of collaborative learning, where it is hardly controversial. To incorporate the same philosophy into group assessment is, however, another matter.

At its minimalist, this philosophy can mean dividing the class into groups, and assessing each group as a whole, without attempting to differentiate the grades of the individuals within the group. Providing this strategy is made clear at the start of the process, it is clearly in the best interests of the individuals within the group to ensure that the group as a whole performs to the best of its ability. Unfortunately, this is often achieved in practice by one or two members of the group performing the bulk of the work, and in such cases it is common for the weakest members of the group to learn little or nothing [8,9].

Other strategies can be employed to overcome this difficulty, however. The first is to make it known that one or more member(s) of the group will be chosen at random to represent that group in each item of assessment, be that a written test of some sort, or an oral examination, or whatever. Another strategy is to let it be known that the instructor will deliberately select the member(s) of the group perceived to be weakest in that subject area on each occasion. In either event, all members of the group are awarded the marks attributable to the selected member(s).

Hence there is enormous incentive for skills to be passed amongst the group. To avoid any "rigging   of the system, students who withdraw prior to an assignment task should not be eligible for any mark for that assignment, while all other members should receive equal marks.

What if one or more members of a group are particularly weak? This unfortunate, but not uncommon, situation can be remedied in part by ensuring that the membership of each group is changed for each assessment item.

Another factor that can be varied is the allocation of students into groups. For example, whether to (a) let groups decide membership for themselves, or (b) randomly allocate students to groups, or (c) allocate students to groups according to some prearranged strategy. The composition of each group plays a far greater role within socialist models of assessment, and so this decision assumes some importance.

In (a), the socialist model is mitigated to some extent, since there is some evidence that the most able students will seek to group themselves together by choice, leaving the lesser able to form their own groups. In such cases, the final range of grades is likely to be not dissimilar from a standard capitalist model.

In (b), the random option, the socialist model is likely to work best   since both the perception and the reality is that one's fellow group members are there as a result of the luck of the draw. It is therefore incumbent on each group to work together as best it can.

The danger with (c) is that, whatever strategy is employed, the final group structure can be perceived as having been deliberately set up to advantage or disadvantage certain students. It is therefore a high-risk strategy for the instructor, even if the method of selection is made transparent.

ADVANTAGES OF THE SOCIALIST MODEL

The socialist model has so far been suggested primarily as a means of assisting the lesser-able students to achieve better grades than might otherwise be expected; and it has been implied that this usually occurs at the expense of exceptional grades for those more able.

However, it is quite possible that the socialist model of group assessment might in fact advantage all students. It is often said by academics and instructors generally that the best way to learn a subject is to teach it, and for good reason when teaching, one needs to gain a thorough knowledge of the subject, not only to prepare material, but also to be able to answer questions confidently. No matter how good the preparation on the part of the instructor, further questions will almost inevitably arise during the course of instruction, thus leading to an even better understanding.

It seems naïve in the extreme to assume a similar process will not occur when the students themselves take on the role of instructors to other students within their group. Thus, it can be expected that in many cases the socialist model of assessment will increase the learning of all students within the group, and not just those who are least able to learn for themselves. This conclusion seems to be supported by previous research in this area.

For example, Webb and Sugrue [20] report that "amongst groups with above-average students....the higher level of discussion translated into an advantage in the achievement tests for the below-average students (in those groups) , both when they were tested on a group basis and also individually. On the other hand, "high ability students performed equally well in heterogeneous groups, homogeneous groups, and when they worked alone. Both of these results have also been shown in different contexts by other researchers [1,4,5].

THE MIXED MODEL

Despite the possible advantages listed so far, it is unlikely that many instructors will be prepared to embrace the socialist model whole-heartedly, for fear of falling foul of either aggrieved students or institutional procedures, or both.

There is a half-way house, however: in a mixed model of assessment, the pure socialist model is combined with the capitalist model. For example, one valid mixed model would be for each student's final grade to be dependent upon a number of group assessments throughout the semester, and an individual examination. Clearly in such cases the weighting of each can be easily varied from zero to one hundred per cent, thus allowing the instructor to select the appropriate mix with which they feel most comfortable.

SUMMARY

A non-standard model of student assessment has been described, which is best suited to those courses where collaborative learning is already in use or is being seriously considered.

It is of course of vital importance that the students be made fully aware from the commencement of the subject as to the assessment model to be employed, and understand its implications for the class as a whole and for themselves as individuals. The use of a form of the socialist model described here can then be expected to benefit the less-able students, resulting in an increase in the percentage of students able to achieve passing grades.

Since a shift to the socialist paradigm may seem too radical a step for many instructors, a mixed model has been described which may enable experimentation, and hence the gathering of empirical results in this area.

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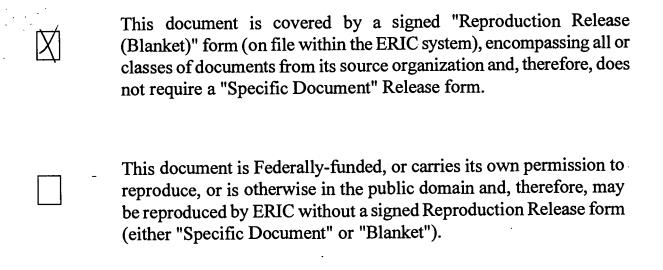
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