Peer Assessment: A Paradigm Shift in Case Pedagogy or an Abrogation of Lecturer Responsibility?

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Abstract

The use of case studies as a pedagogic tool is fraught with dangers, not the least of which is engaging students in the ownership of the experiential base where instead of being passive recipients of knowledge they become active participants. Essentially we attempted to overcome the inherent weaknesses of group work - limited student participation, limited student co-operation, attendance, mark allocation, effort, planning and work load scheduling. The model is interactive driven by a number of platforms that allow lecturers to fully adapt it to their own requirements. Results from this pilot usage have been encouraging and show how peer assessment can enhance the experiential base of case analysis and its teaching platform.

KEY WORDS: Peer Assessment, Group Work, Case Study Experiential Learning, Deep Learning, Student engagement, Student empowerment

Introduction

The genesis of this paper lies in a fortuitous collaboration between case lecturers, committed to interactive and blended learning and their establishment's links to TESEP (Transforming and Enhancing the Student Experience through Pedagogy http://extranet.lauder.ac.uk/tesep). This TESEP project aimed to encourage students to take ownership of their own learning, encourage group participation, improve negotiation skills and group working skills generally whilst still allowing for different learning styles. For the case lecturers the fit between support from TESEP to develop a tool to ameliorate some of the problems associated with group/peer participation/assessment and the effective encouragement of both active and deep learning was irresistible.

As part of the TESEP funding agreement dissemination of the Peer Assessment tool, as freeware to educational establishments, was agreed and the current demonstration model may be accessed and used from: www.napier.ac.uk/depts/imp. In addition the full version of this paper and the subsequent findings will also be available online.

The Case Study its Pedagogy and its Assessment

The most effective learning is grounded in experience – learning by doing. The lecturer sets a problem and the student attempt to solve it. However, in business schools it is unlikely that many of the students will have had any great exposure to real life business experience. Moreover, the depth of their experiences is often correlated with the level of the course they are embarking on. Furthermore, it would probably be true to say that in terms of the student body they are generally at the beginning of their careers and their experiential exposure is further limited. To ameliorate these limitations recourse is often made to business case studies that simulate real life situations. Arguably, cases are the most effective and the most efficient way for learning to take place. These cases place the student in positions where they have to make decisions, deal with the consequences of those decisions, and learn from the real mistakes they make. The thrust of this paper is to examine, not the use or appropriateness of business case studies per se in the learning process but rather, the efficacy of peer assessment as a means of coalescing and harnessing the disparate experiential baggage of a group of students through the creation of creative tension. This creative tension based on the application of case based decision points (DP) encouraged a realignment of information based on the development of new linkages (or

information relationships) as exposure to disparate experiential bases are harnessed to solve these emerging problems.

The stimulus for this paper was simple two pilot questionnaires were carried out one on the case study and student perception and the other a multimedia case study and its technology acceptance. From these questionnaires certain issues arose that questioned how case studies were developed and taught. Although the primary focus in this paper is on peer assessment nevertheless, recourse to its embedding in the holistic framework of the research into efficacy of the business case study format is necessary. For the business case study the authors' contention is simply that peer assessment is not a cure all for the problems associated with engaging the student in deep, active learning but rather a process for diminishing some of the problems associated with group work and its management

The case study, once written, forms the core narrative from which an interactive script will be produced and against which the interactive materials will be applied. The application of these multimedia techniques with their inherent flexibility appears to offer the best potential for ameliorating some of the problems associated with the use of business case studies:

1. **Not all students learn at the same rate,**
2. **Do not all start from the same educational base - in the area of business policy in particular they are likely to come from a range of disciplines,**
3. **Nor are all students as ready to contribute to class discussion.**

Perhaps then, we should redefine what we are trying to achieve in case study teaching. Are we really trying to get students to solve problems or are we trying to arm students with weapons and experiences that allow them to contextualise and substantiate the stance they take in their answers? If we dismiss the idea of definitive solutions and instead concentrate on the issues embedded in the case study, then perhaps we can achieve a more efficacious learning experience for the student through allowing them to self develop, triggered by the questions we ask [Gallagher 2006]. It is these questions that form the basis of the decision points, as shown in diagrams 1, 2, and 3, that are given periodically to the student groups during peer assessment.

Self-development by students is one thing but it is questionable whether education has quite reached the stage where it can allow the student full self assessment. At the end of the day the lecturer still has to assess the student. To facilitate this, assessment may be classed as diagnostic, formative or summative. In its rawest form the business case study is designed to facilitate learning and the purpose of assessment is to check that learning has taken place. So, if the role of the business case study is to achieve learning then formative assessment or 'assessment for learning' [Sorenson, 2000] should rightly be the mechanism to facilitate this. However, when the business case study is integrated with on-line, interactive materials both diagnostic and summative assessment may be embedded in the case study matrix and accessed by both the lecturer and student as and when desired [Gallagher 2004] and within this there will be a high degree of self assessment. In addition, augmentation of the learning experience may be achieved through group participation. An essential feature of which is that portion of the overall assessment that is abrogated by the lecturer to the student and is thus grounded in and driven by student self-interest.

Diagram 1 combines [Kolb 1984], who described the experiential learning model as consisting of four stages; concrete experiences, observation and reflection, formulation of abstract concepts, and generalisations and testing implications of concepts in new situations. Business case studies encapsulate the process of Kolb's model (as shown in Diagram 1. Essentially diagram 1 depicts the case study as a complex, unstructured problem that is consistent with constructivist theory. Constructivism, [according to Savery and Duffy, 1995] is viewed from the stance that understanding comes from our interactions with our environment, cognitive conflict stimulates

learning, and knowledge evolves through social negotiation and evaluation of the viability of individual understandings.

If we wish to avoid gross errors of judgment in case analysis then forget definitive solutions and focus on *–problem definition and what are the issues.* This is probably the most crucial part of case analysis for, as in life, we often fail to see the real issue or problem and as a consequence devote our finite resources of time and effort to solving the wrong problem. The responsibility of the lecturer is to guide the student through the matrix, the grey area in diagram 1, which is driven by the lecturer who developed the business case study, created the teaching guide and trial ran it with the student body. Within this process the course materials are developed and linked interactively with the case study and its teaching guide and these are then linked with the central area of diagram 1 concerning the deep learning cycle [Gallagher 2007]. This central area is the focal point for peer assessment as it is where activity associated with the decision points drawn from identified issues are tackled by the group.

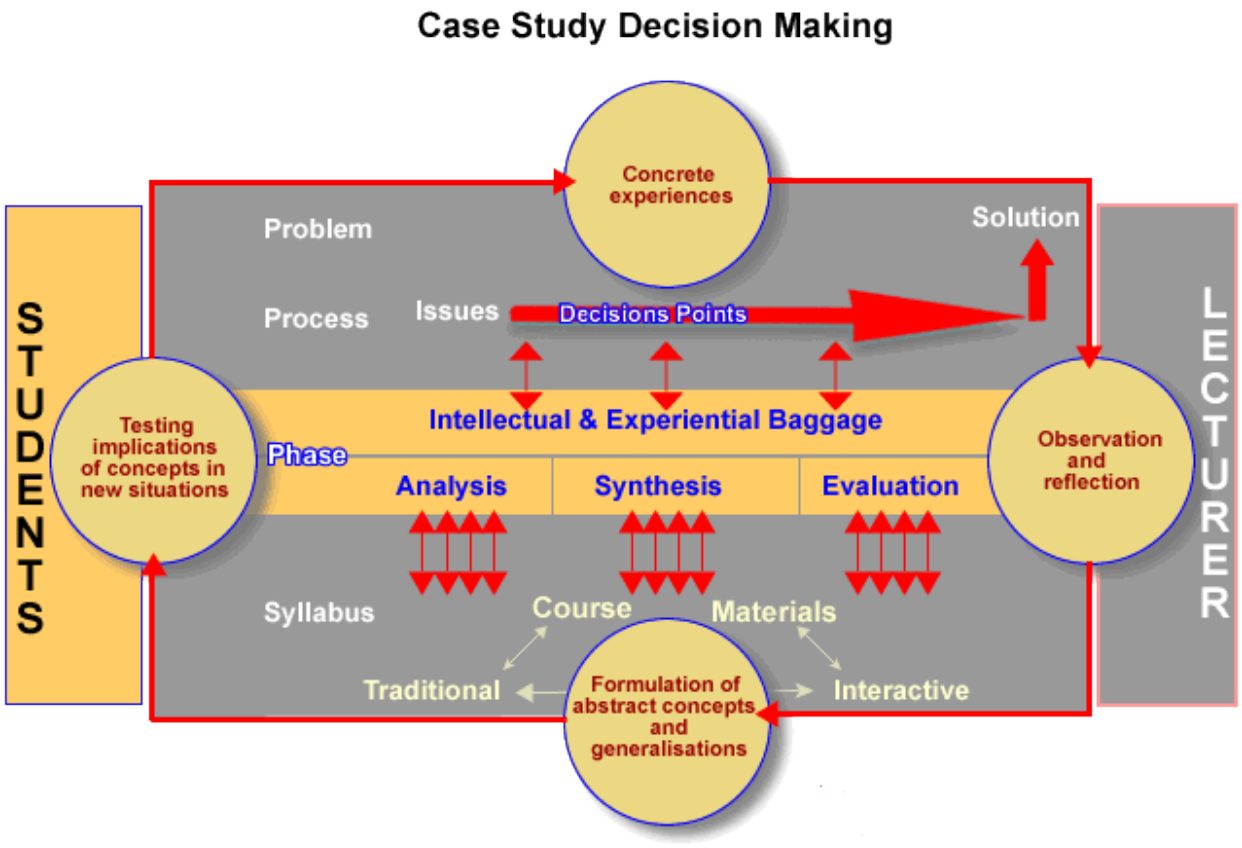

Diagram 1:

The fundamental tenet of peer assessment is that it involves students both in giving assessment (i.e., criticizing, appraising or evaluating the work of other students) and in turn receiving assessment (i.e., having their work criticized, appraised or evaluated by other students). The traditionalist view is that it is pedagogically unsound to have students assessing the work of their peers, as it is fraught with too many pitfalls. Students lack the depth and breadth of knowledge necessary, they are not trained to assess work, nor do they have breadth of skills required for

such assessment. Moreover, their motivations are not impartial. However, contrary to traditionalist views this pilot study found that, as diagram 2 shows, peer assessment if viewed, not as a panacea, but as an integral and focused tool with a high degree of specificity and targeted at an identified problem could provide a powerful weapon in the lecturer's arsenal.

Simply put, as a lecturer we can use case studies, as the top half of diagram 2 shows, to achieve student learning. That is, we can commit to providing the best and most wonderful materials and co-ordinate them through the marriage of case development, case analysis and case teaching. But, this does not necessarily harness or tap into the higher order learning of *analysis, synthesis and evaluation* associated with deep learning. In fact, it might only address surface learning of *knowledge, understanding and application.* Essentially, we have a choice in diagram 2 we can either view case teaching as a top down process where the student is the 'passive' recipient of wisdom and communication with limited sideways communication or we can see student learning as 'active' with communication being both top-down and bottom-up and with more positive sideways communication. If the latter is the choice of preference then a mechanism needs to be developed which will allow creative tension to be introduced into the learning process of case teaching in order to foster critical thinking. This tension, or the ability on the part of the student to use their imagination to develop new concepts and views based on the recognition of the dynamic linkages that emerge from group interaction drawing upon experiential learning and triggered by the introduction of 'decision points' (Diagram 1) was the key to peer assessment.

Effectively, what we tried to achieve through peer assessment was not an abrogation of assessment by the lecturer but rather a recognition that tapping into the experiential baggage of the students would lead to stronger answers to the problems set as the students took ownership for their learning. This meant that 'commitment' to the learning activity was seen as more valuable in the learning process than the solution. The student was therefore assessing commitment and contribution and not the quality of peer answers.

For the student it might appear that the peer assessment exercise was geared to solving problems set by the lecturer through the application of decision points. But, the reality was that the lecturer was trying to harness, through the marriage of their differing experiential baggage, a contextualised answer that they could substantiate and defend. Their answers might not be the 'right' answer but is there ever a definitive answer to a case study? If not, then the process and justification is more important than the solution and as such measuring student commitment and contribution is more valuable than grading a formulaic, representation of the definitive answer. Consequently, assessment on contribution and commitment in group activity may be best left to the student body.

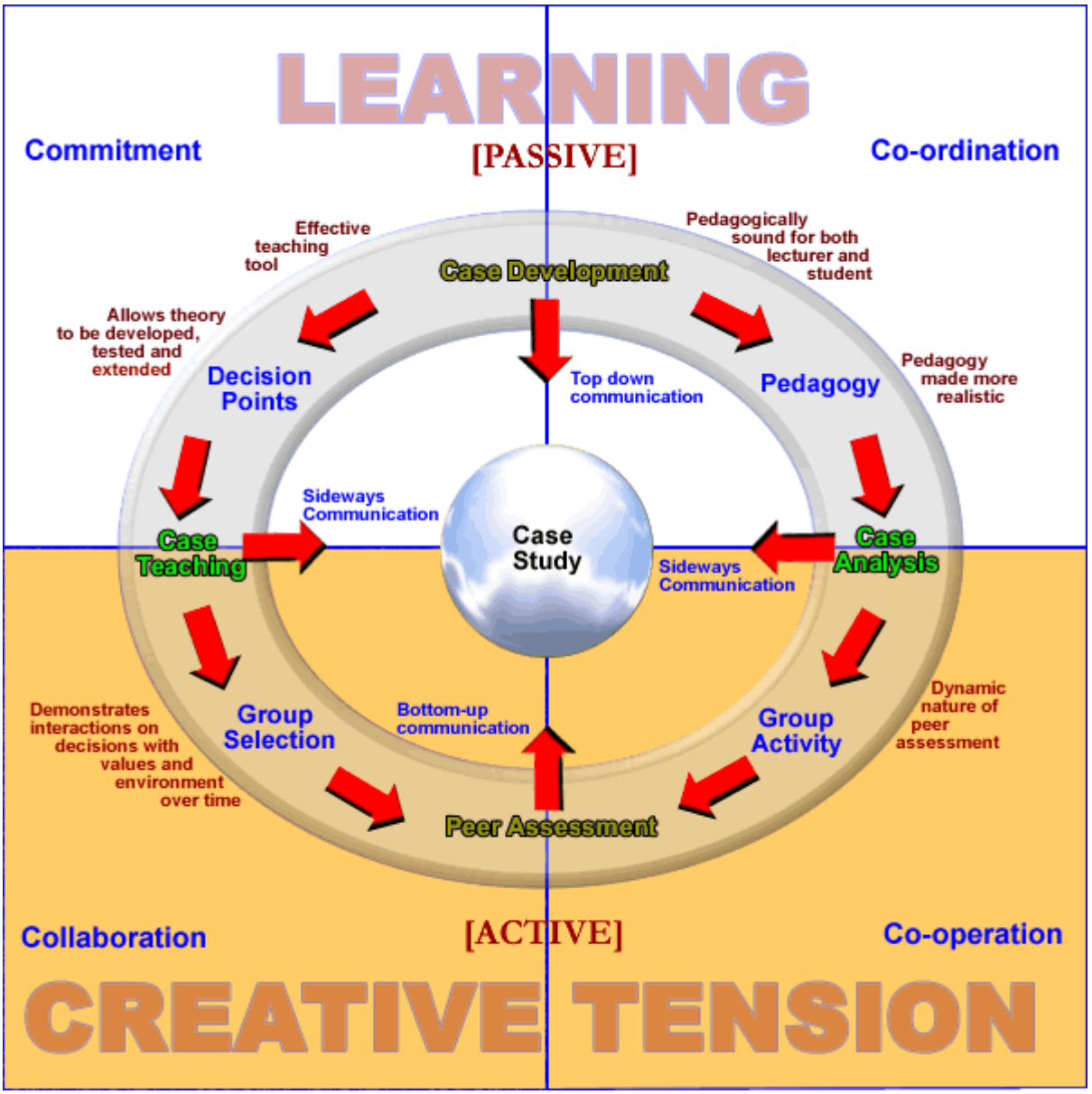

Diagram 2:

The peer assessment (pilot) model, allowed a sharper focus to be brought to bear on the sub-contextual problem of student engagement in case study learning. Although it cannot be claimed that it solved all the problems associated with peer assessment its refinement and adaptation for use with case studies goes a long way to facilitating deep learning through tapping into the individual experiential baggage that each student carries with them without abrogating too much of the assessment responsibility to the student.

The Peer Assessment Model Its Development and Use

System Developed

The system, as depicted in diagram 3 below, was designed to be flexible and adaptable in application to any form of peer assessment and simple in its usage by both the lecturer and the

student. Unlike many forms of student peer assessment it was decided that the lecturer would retain the responsibility for the grading of the students' final submitted work and that the students themselves would be empowered to grade each other's contribution to the group work. In order to facilitate this the students would have to assess each other on a regular basis in this instance at given decision points in the case study (DP), and that the average mark for each student would then be used as the final peer assessment mark (PAM). In this way any students who contributed in a limited way would be identified and marked accordingly (NM). Equally, those who were consistent contributors would be rewarded appropriately. The effect of the peer assessment element on the overall assignment mark would be determined by the lecturer and would be reflected in the weighting given for the peer assessment mark (PAM).

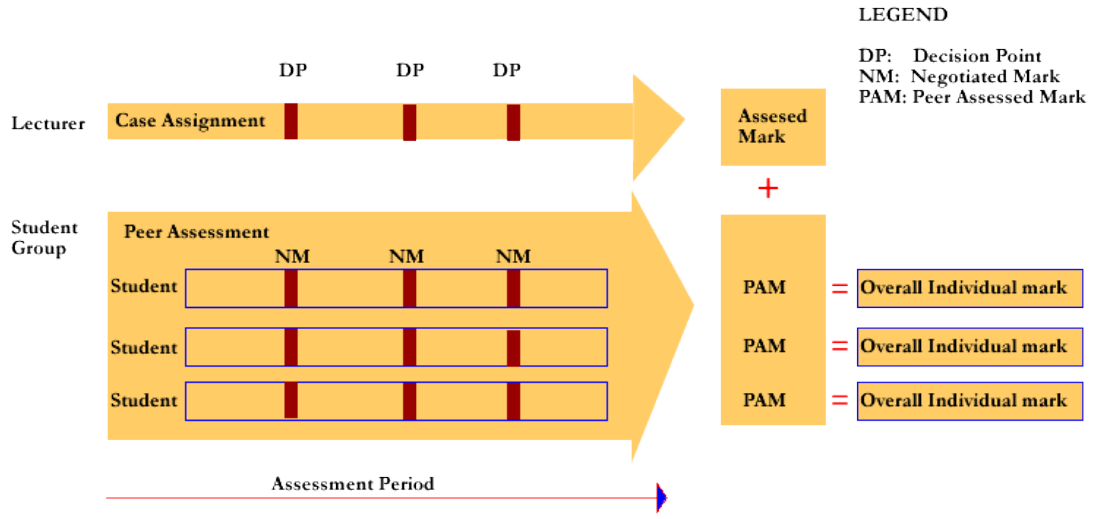

Diagram 3:

For every grading period, or decision point, each student would be given a mark out of 10. This mark, had to be arrived at as a result of the group coming together and assessing each other's contribution to the work for that period. A set of criteria for the students to allocate the marks was given at the start of the assessment, in keeping with the overall aims of the project, but ultimately the students themselves would be responsible for the allocation of workloads and contributions between themselves and the consequent expectations for their contributions. The students were also advised to keep copies of any physical contributions to the group work and also of attendance/contributions at meetings. The use of on-line meeting rooms was also encouraged as a forum for exchanging information/ideas and also as a record of contribution to the group work.

With this kind of peer assessment there is a very great danger that students will merely allocate each other maximum marks and not engage in negotiation and the fair allocation of marks. In an effort to alleviate this to some extent, it was recognised that it would not be possible to entirely eradicate this; a maximum number of allocated marks was given for each group, depending on the group size. This was based around a mark of 7 for each group member. Therefore a group of 5 students would have 35 marks to allocate between themselves. If each student contributed equally, then they would be able to allocate themselves 7/10 each. Those students who had a greater contribution; perhaps led the group, arranged the meetings, motivated others, provided academic leadership etc. would be rewarded with a mark of up to 10. In this case the marks available for distribution between the rest of the group would be reduced in line with their contribution. Similarly those who are deemed not to have contributed much would be given a lower mark, which would then leave a greater number of marks for distribution between the other group members who were effectively 'carrying' them. There were two penalty clauses included in the system:

1. If any group neglects to mark and submit a period's mark, a mark of 0 was recorded for the whole group for that period.
2. A final addition to the marking scheme was that any student whose final average PAM was 2 or less would be deemed to have had a negligible contribution to the group and would receive a mark of 0 for the whole assignment, not only the peer assessment element.

It was decided to use Microsoft Excel to build this system initially as this was software that all students had access to either at university or at home. Excel allowed the inclusion of error trapping in the inputting of marks. These were easily distributable through WebCt or e-mail and could be easily tailored to each group. The system was set up so that each period's marks were on a separate sheet, and all but the current periods were hidden. After each period's deadline was reached the next period was automatically shown and the previous period's marks were protected to avoid any retrospective changes being made. From the second period onwards the average mark for each student was also shown, both numerically and graphically. The students were required to e-mail the lecturer a copy of their spreadsheet after they had input the marks for each return period deadline. Initially the system was set up to automatically do this.

Initial Trials

The system was initially tested on the assignment on a second year undergraduate Marketing Research module. This module mostly consisted of marketing students, but also had students from other degrees in the Business School. Being second year students they would be more likely to carry under-performing group members as their marks did not directly count towards their degree classification and would be a good test of the system.

The assignment was a report with several elements: produce a research proposal, create a questionnaire and test it, analyse a data set using SPSS and submit a report. The students had 6 weeks to complete this assignment and, in previous years, tended to do it in the final week before submission. Overall there were 13 groups of between 3 and 5 members, with 9 of the groups having 4 members, 3 having 5 and 1 having 3. The students were given an opportunity to self-select their groups and groups 1- 6 were self-selected. The lecturer randomly populated groups 7 – 13 with the remaining students.

In an effort to encourage the students to take a more measured approach to the coursework the periods set for the peer assessment were set at weekly intervals. Although there would not be much work to do in the first week or so, it was hoped that the students would organise themselves, plan the work etc and apportion marks on the basis of this administrative work. As a reminder, notes on group working were distributed to the students and half a lecture was dedicated to the coursework and the peer assessment. The Peer Assessment element of the coursework was worth 25% of the overall coursework mark. This was to reflect the importance of the skills to be gained from the group work

Example of interface.

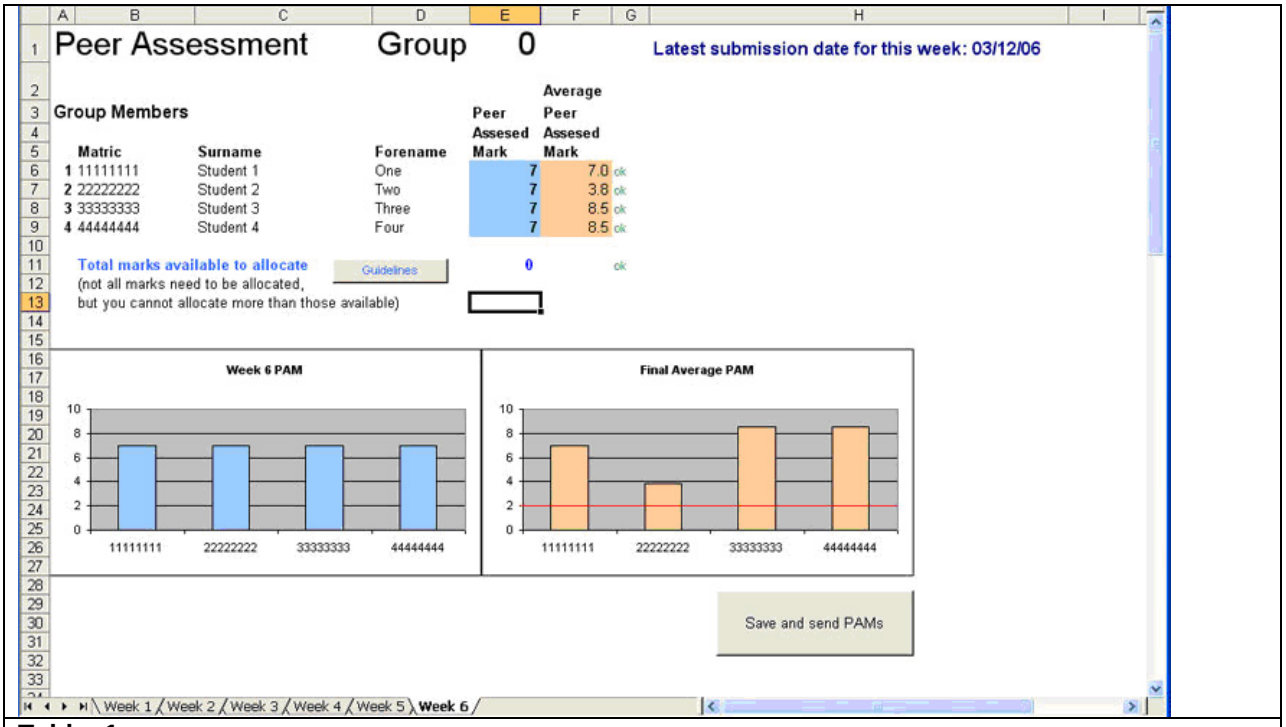

Table: 1

The most immediate feedback from the system was that, despite numerous reminders, some students had tried to run the system through WebCt and although they could input marks, this would not save. This was quickly resolved by reminding the students individually to save the spreadsheet and not run it through Webct. The other problem, which emerged, was that of automatic e-mailing. Since this did not take into account students who used internet-based e-mail, it did not always work. Removing it from the system and redistributing the spreadsheets to the students quickly resolved this. These problems came to light before the first hand-in date due to one of the groups sending their spreadsheet in early, so these changes did not cause much disruption.

Overall, as previously stated, it was expected that these students would be less likely to make use of the peer assessment. In practice, however, 5 of the groups gave each other equal marks. The remaining 8 of the 13 groups did differentiate the marks returned to some degree. Interestingly, and perhaps obviously, of the 6 groups who had self selected their members, 2 returned differentiated marks. Of the remaining 7 groups (randomly selected members) all 7 returned differentiated marks. In fact all of the groups expect one gave equal marks in the first week. Five of the groups were penalised with a mark of 0 for one (or more) of the weeks for a non-return of marks for that week. None of the students had a mark of 2 or below.

During informal chats with the students it transpired that in some groups they were content to 'carry' others in the beginning, but as the work progressed, they began to resent the fact that students who were not pulling their weight were getting equal marks and this then changed the way the marks were apportioned from that point on. This was seen to be easier for those groups who did not have much in the way of established relationships between the members. Although the majority of the self selected groups returned equal marks, one of the major basis on which the students made their selection of group members was each individual students past 'performance' in group work, i.e. how they were seen to have performed in the previous year (1st year), with the best performers tending to stick together both formally and socially.

As stated earlier only one group differentiated their marks in the first week. This group was to prove to be an interesting one, in a sense the exception that proves the rule, in that they were

troubled with conflict from the very beginning. The group members had been randomly selected and had four members. One of the members turned out to be obstructive, intransigent, aggressive and prone to tantrums when they did not get their own way. This came to a head in week three with the problem student taking no part in the groups work that week. This resulted in meetings between the group members and the lecturer to try to help resolve the problem. The lecturer, however, did not intervene directly and the students had to arrive at a working relationship themselves, although it would be safe to say that there was no love lost between the problem student and the others. This resulted in a demotivated group who performed badly in their report (which was uncharacteristic of the other three students, whose performances in other subjects to that point had earned them marks in the high 60's to low 70's percentage points).

				Peer Assessment Marks							Report Marks			Total
	Matric Number	Surname	Forename	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Final PAM	Section A	Section B	Total	Mark
Group 8	11111111	xxxxx	xxx	5	7	0	7	7	7	5.5	48.0	20.0	31.2	37.2
	22222222	*****	***	0	7	9	7	7	7	6.2	48.0	20.0	31.2	38.8
	33333333	*****	***	10	7	9	7	7	7	7.8	48.0	20.0	31.2	43.0
	44444444	*****	***	10	7	9	7	7	7	7.8	48.0	20.0	31.2	43.0
Group 9	11111111	*****	***	7	2	4	0	6.25	5	4.0	66.0	71.0	69.0	61.9
	22222222	*****	***	7	6	4	0	6.25	1	4.0	66.0	71.0	69.0	61.9
	33333333	*****	***	7	9	9	0	10	10	7.5	66.0	71.0	69.0	70.5
	44444444	*****	***	7	9	9	0	6.25	5	6.0	66.0	71.0	69.0	66.9
	55555555	*****	***	7	9	9	0	6.25	2	5.5	66.0	71.0	69.0	65.6
Group 10	11111111	*****	***	7	8	8	9	10	10	8.7	45.0	67.0	58.2	65.3
	22222222	*****	***	7	8	8	9	10	10	8.7	45.0	67.0	58.2	65.3
	33333333	*****	***	7	5	5	3	1	0	3.5	45.0	67.0	58.2	52.4

Table: 2

Figure x shows the actual marks returned for three of the groups, with Group 8 being the problem group and student 11111111 being the problem student. Sadly the students report mark reflected the amount of work that the students finally put into the assessment. They did, however, base the peer assessment marks on the actual contributions to the reduced level of work.

Overall the Peer Assessment worked better than anticipated with this group of students with regard to the contribution to group work. The students used the Peer Assessment mechanism as designed and there were no complaints from students about the marks, either to the lecturer or in any of the formal channels which the students have available.

Where this trial was not so successful was in the frequency of the returns, i.e. every week. As stated previously this was an attempt to encourage the students to have a more measured approach to the coursework. In this it seemed only to be partially successful as only a few groups worked consistently. In the other groups where no work was done in some weeks equal marks were allocated on the basis that everyone did no work that week. Basically there was a mismatch between the frequency that the students were asked to submit returns and the natural 'return points' within the assignment.

As a consequence of these results the system was modified and the weekly returns were scrapped and changed with 'periods'. The length of time each period covers is dependent on the assignment and the lecturer's requirements and is pre-programmed into the spreadsheet. The rest of the system was kept the same. This new iteration of the system was then tested on a 3rd level module – Direct and E Marketing, which had a mix of 3rd and 4th year students. At this level the student's marks count towards their honours classification and the students tend to be wary of group work. Again the students were mostly marketing students, but also from other courses within the university. This module is a self-study module, delivered through WebCT with only 4 contact workshops. The module is accredited by the Institute of Direct Marketing and the coursework assignment is the IDM's Student Competition Case Study, which is a group assignment. The students are required to produce a Direct Marketing plan based on the case

study and the requirements within. In previous years students have complained about 'carrying' group members who were not contributing and it was hoped that this system would address that problem as well as encouraging the development of group working skills.

For this trial, all the students were allowed to self select their groups and three submission periods were given. The first submission date was three weeks after the coursework was handed out. This was to give the students time to organise their groups, allocate roles and start working on the coursework. The second period was another three weeks later and the final submission date coincided with the hand-in date. Again the PAM was given a weighting of 25% of the coursework mark.

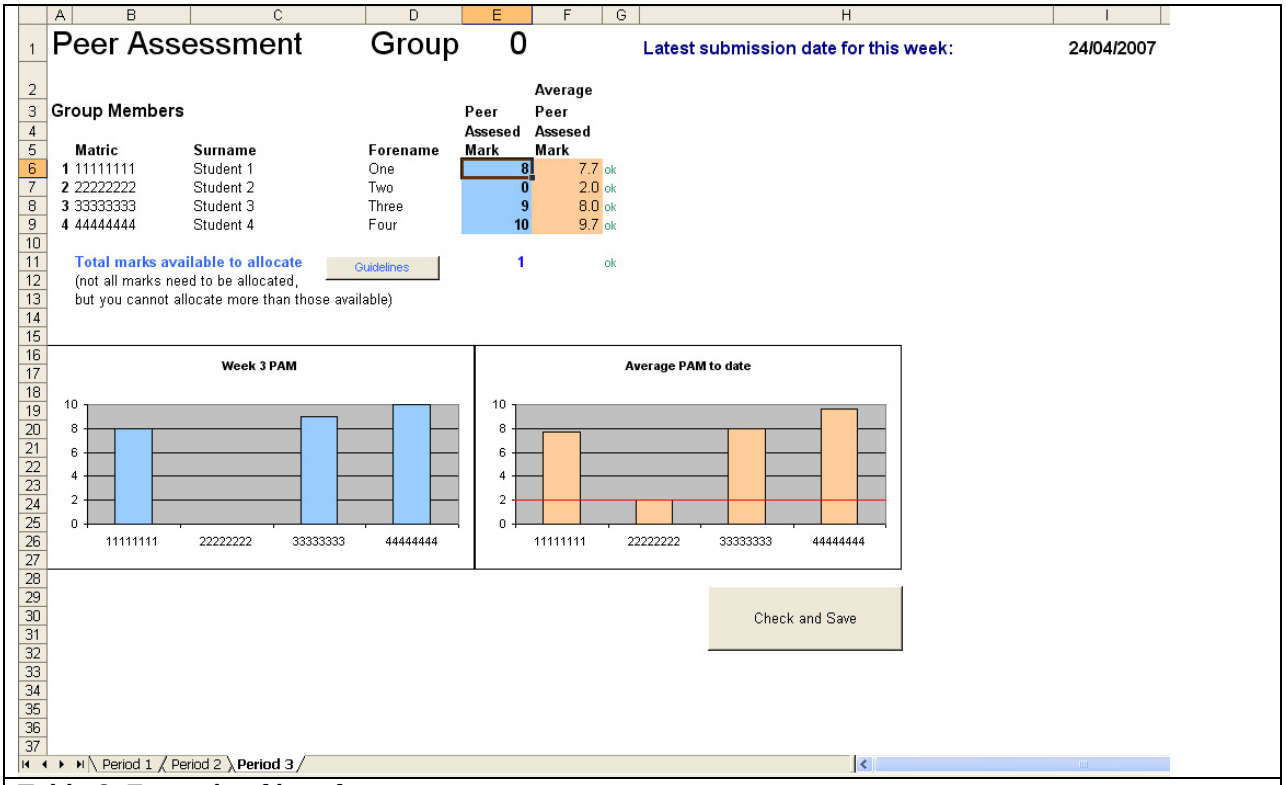

Table:3 Example of interface

The three periods worked better than the original weekly return in trying to even out the workload over the assignment time, but was still not completely satisfactory in this regard. The first deadline was still a bit arbitrary, with the second and last coming at natural 'points' e.g. before the holidays and the hand-in date. Again, through informal chatting and points raised at the Staff/Student Liaison Committee it transpired that 3 of the 12 groups of students didn't feel that the first deadline had any meaning as they only really started their coursework at the second period and just 'allocated equal marks for period 1'. Interestingly the 3rd and 4th year student reps, whilst putting forward these views also stated that these students were generally lazy and had not done much work in any case. However, it is just these sorts of students, which this project is aimed at.

From this trial it became obvious that in order for the system to be wholly effective, there must be an exact match between the hand-in dates set by the lecturer and the natural points in the assignment itself. It is in this way that the students will be more willing to take the responsibility for their own contributions to group work.

Preliminary Findings

Students general judgment on peer assessment

Table 4 asked the student what they thought of peer assessment in general. A five-point Likert interval scale, where 1 represented 'strongly support' and 5 represented 'strongly oppose', was used to measure the extent to which students approved/disapproved of peer assessment. Table 4 shows the responses to this question. Around 65% of responses either strongly supported or supported the use of peer assessment within the overall grading scheme.

Student Group 2006
MBA

Table 4: General Judgment on Peer Assessment

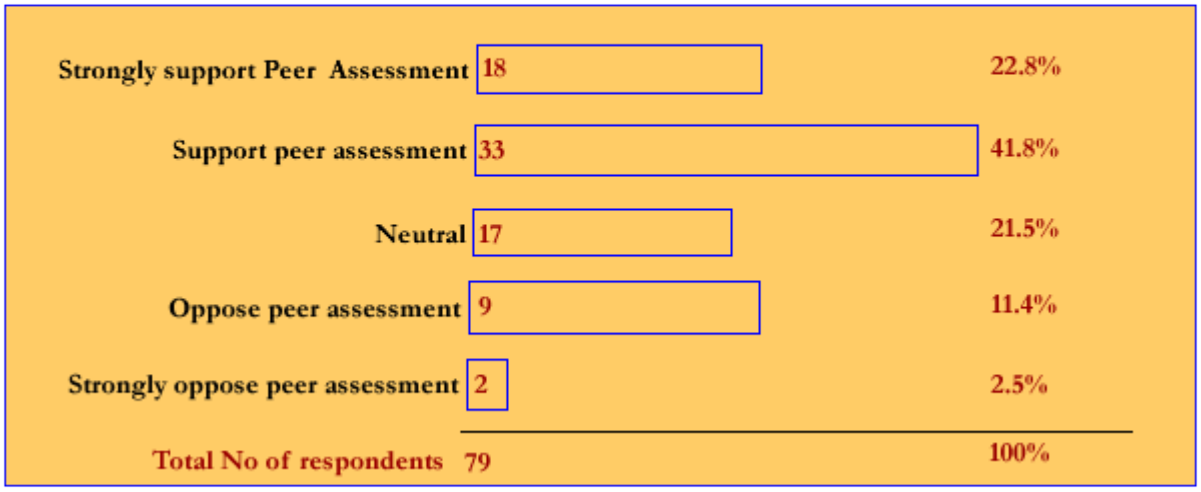

Table: 4

Around 66% of the students (Table 5) saw peer assessment as a means of rewarding effort and ensuring a fair assessment of contribution. Additionally 18% saw it as a means of enhancing their skills levels. Interestingly though 11% saw peer assessment as a means of achieving easy marks.

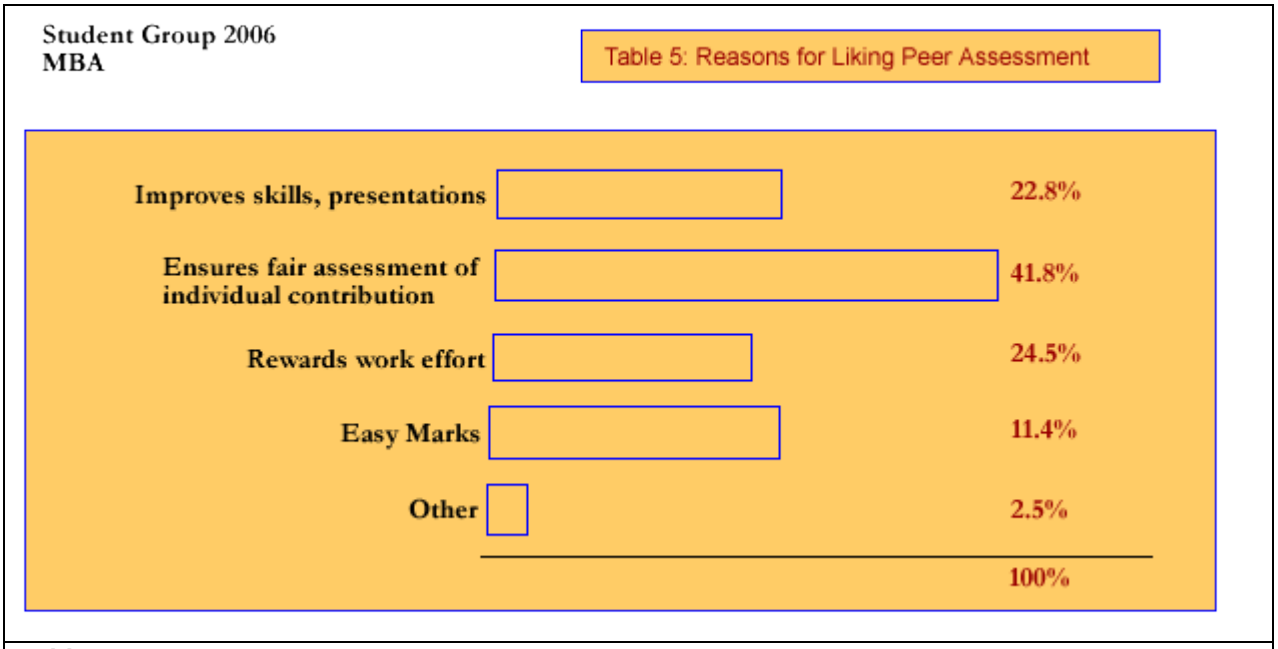

Table: 5

Conclusions

Problem based learning should influence the "whole" student, or, at least, as many aspects of the students' learning experience as possible. The object of this exercise was to build and examine a peer assessment model that could ameliorate some of the inherent problems associated with this process. In the instance of case study teaching the problem centred round the experiential base associated with deep learning and active participation. The model as designed and refined attempted to empower the student by permitting control over the assessment of contribution and commitment of each individual in the group. By doing such it engendered a learning environment that called upon many aspects of deep learning but did not attempt to simply abrogate responsibility for assessment to the student body.

One of the most serious flaws associated with peer assessment is that of negativity engendered by peer group participation through non-participating members. The system was designed to

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