Moving the law school into the twenty-first century - embedding technology into teaching and learning

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Moving the Law School into the 21st Century – Embedding Technology into Teaching and Learning

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Abstract

Over the last twenty years phenomenal developments in technology have changed the nature of education. Students now have access to a vast range of resources 24/7. This instant access has created a certain expectation on the part of the student and there must now be very few, if any, courses taught in higher education where the lecturer does not maintain a virtual learning environment (VLE). This VLE will be used to communicate with the students and will commonly provide access to significant resources to support the teaching. A review of teaching and learning at Coventry Law School indicated that, although all staff used the VLE in this way, the extent to which technology was embedded into our pedagogy was limited and consisted, primarily, of a small number of online quizzes. As a Law School we had not taken the step of moving from using technology to deliver resources to embedding technology enhanced learning into our pedagogy. A recent JISC Report (2009) defines technology enhanced learning and provides examples of some excellent projects that have integrated technology into learning and teaching. This paper looks to evaluate our experience in further embedding technology into our pedagogy with specific reference to the use of multiple choice questions, clickers and peer review.

Introduction

In April 2010 the Law School had the opportunity to take part in a University project to increase, and evaluate, the use of technology in learning and assessment. The primary aims of the project within the Law School were: firstly, to consider the potential to further integrate the use of technology into our teaching and learning during the 2010/11 academic session; secondly, to evaluate the effectiveness of the methods used; and finally, to reflect on the experience and the potential for future use.

Following a review of the literature, and the advice of a learning technologist, the project focused on three main areas. Firstly, the use of extensive multiple choice questions in Equity and Trusts for formative assessment and revision. Secondly, to develop the use of an electronic voting system (EVS) as an interactive tool in a lecture style environment. Finally, to evaluate the potential for using Turnitin for peer assessment in a skills module. It is interesting to note that the NUS Report to HEFCE (2010, 51) recommended the integration of new technology into teaching and learning and this paper reflects on our experience in trying to implement this approach. In each case the technology was embedded into the day-to-day teaching. However, as we wished to formally evaluate the project, a questionnaire was designed, to gather student feedback, in respect of each of the three methods used. The questionnaires were subject to ethics approval from the University and students willing to provide feedback were required to indicate on the form that they understood that participation in the study was voluntary and that they were willing to participate. All feedback was anonymous and participants' questionnaires were numbered and are referred to by number in this paper.

Using MCQs in Formative Assessment

The first part of the project explored the potential for the use of multiple choice questions in a final year law module. There is no doubt that multiple choice questions are increasingly being employed by tutors as part of both formative and summative assessment. Indeed, although traditionally

disliked by some disciplines, multiple choice questions have increasingly become part and parcel of different forms of assessing students in professional disciplines, for example, medicine (Levine, McGuire and Nattress 1970). In so far as law is concerned, it is true to say that, at degree level, law tutors have in the past been reluctant to introduce such questions as means of assessing law students. Despite this, there is evidence to suggest that multiple choice questions have for a long time been tried and tested in the assessment of legal knowledge. For example, some Australian commentators explain that 'there is evidence that some law schools have over 60 years of history of using multiple choice questions as a component of their assessment. For example, as quoted by Selby, Blazey and Quilter (2008) the first edition of the *American Journal of Legal Education* from 1948 included a comment article titled 'The Validity of Objective Examination in Constitutional Law', which discussed the experiences of academics when introducing multiple choice assessment at Ohio State University Law School.

The traditional justifications for the employment of multiple choice questions as part of assessment have centred on the practical benefits that they bring when teaching large groups of students (Bull and McKenna 2004). The practical benefits arise for a number of different reasons. Firstly, there is an increasing pressure on law tutors, particularly in a consumer oriented student market, for quick feedback on assessment. It is not just the students' expectation but there are external factors which often influence prompt feedback on student work. For example, one of the questions under the assessment category of the National Student Survey conducted by the Higher Education Funding Council for England addresses the issue of prompt feedback on student work. Secondly, as explained earlier, all most all Law Schools, and indeed other subject areas, support their teaching through virtual learning environments such as blackboard or, as employed at Coventry University, moodle. Such virtual learning environments create an expectation amongst students for some form of learning and effective feedback during the course of their study on a particular subject. These learning environments provide many interesting facilities for the design and use of multiple choice questions with a varied range of options and release of answers and other forms of feedback. In this respect, one leading commentator in this field writes that 'the growth in this form of assessment has been driven by wider changes in the higher education environment such as the growing number of students, reduced resources, modularisation and the increased availability of computer networks. MCQs are seen as a way of enhancing opportunities for rapid feedback to students as well as a way of saving staff time in marking' (Nicol 2007, 53).

Although multiple choice questions undoubtedly offer many practical advantages over other forms of assessment, their effectiveness from a learning perspective has for a long time been questioned by some tutors. For example, one Australian commentator (Scouller 1998), after carrying our research with a group of second year undergraduate students, has argued that multiple choice questions simply encourage surface based learning as opposed to deep learning strategies which are usually associated with traditional essay based assignments. He comments that 'students [are] more likely to employ surface learning approaches in the MCQ examination context and...perceive MCQ examinations as assessing knowledge based (lower levels of) intellectual processing. In contrast, students [are] more likely to employ deep learning approaches when preparing their assignment essays which they perceive as assessing higher levels of cognitive processing.' It is precisely for this reason that most critics of the use of multiple choice questions argue that such questions are no more than just memory tests rather than testing a critical understanding of the subject area. More importantly, in the context of the study of law, the use of multiple choice questions have been further disliked for not encouraging the student to demonstrate competency in applying law to factual situations as well as critically analysing a set of legal rules. Despite these criticisms of multiple choice testing, this paper, as will be explored later, seeks to argue that multiple choice questions can be designed to test higher levels of cognitive skills.

Further still there are a number of myths associated with the use of multiple choice questions which have been highlighted and investigated by Higgins and Tatham (2003). Higgins and Tatham explain that multiple choice testing is perceived by some critics as encourage dumbing down, allowing

students to obtain unrealistically high grades and allowing students to guess their way to success, see also Aldridge (1997). However, both writers quite rightly explain that these myths can be challenged and that the key to successful multiple choice questions lies in the design of such questions. In challenging the allegation of dumbing down, Higgins and Tatham (2003,3) write that 'with multiple choice questions, the difficulty level depends upon the nature of the questions asked and also how the multiple choice questions fit into the overall scheme of assessment...multiple choice questions need not be limited to testing knowledge; tests can include more challenging comprehension/application-based questions, and these might well allow more of the learning outcomes for a unity to be assessed efficiently and thus be valid for summative assessment.'

Multiple Choice Assessment and Blooms Taxonomy: Levels of Cognition

Although multiple choice questions undoubtedly have many practical advantages as a means of assessing students, this paper attempts to show that such questions can be used to test higher levels of knowledge. With reference to a level three law module, Equity and Trusts, a series of multiple choice questions were devised and loaded onto the module web page. The purpose of these multiple choice questions was to serve as formative assessment in the first instance and to be used as part of summative assessment in the following academic year. Given the existing literature on the subject of multiple choice testing, and the concerns that such questions were not seen to test higher levels of knowledge, it was important to design such questions with reference to established learning theories in mind. To this end, the multiple choice questions in Equity and Trusts were designed with reference to the well established Bloom's Taxonomy which was initially formulated by Bloom in 1956 and to this day stands as an authoritative theory of measuring levels of cognitive skills.[1] The taxonomy provides an extremely useful tool for measuring levels of thought process in the design of learning and assessment.[2]

So what exactly does Bloom's Taxonomy tell us about learning skills? The taxonomy, despite some re-formulation in the mid 1990's, classifies thinking according to six levels of cognitive or mental complexity.[3] These levels are illustrated in Diagram 1 below. Bloom's classification is structured in a hierarchal manner with levels of thought process increasing as you move up the hierarchy. There are six levels of cognition, namely; knowledge, comprehension, application, analysis, synthesis and finally evaluation. The simplest and the lowest of all mental skills is knowledge, which requires the learner to recall data, information or basic ideas that have been disseminated at some earlier stage. Comprehension requires an understanding of the meaning of certain concepts or other information. It is more than just recalling information. It requires the learner to describe, explain or illustrate with examples the meaning of information.   Application, the third cognitive skill, requires the learner to use information to resolves new situations requiring a solution. It requires an ability to transfer knowledge to new situations with a view to arriving at a conclusion which reflects what has been taught. Moving onto higher cognitive skills, analysis requires the student to breakdown information into its constituent elements with a view to comparing and contrasting those elements as well as their relationship between each other. Synthesis requires the creation and development of existing knowledge and skills to produce new sets of information. Finally, evaluation involves the judgement

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[1] B. S. Bloom, *Taxonomy of Educational Objectives. Handbook 1. The Cognitive Domain.* (1956) New York, McKay.

[2] Bloom's Taxonomy has been used by others in assessing the effectiveness of multiple choice testing, for example, K. Woodford & P. Bancroft , 'Using Multiple Choice Questions Effectively in Information Technology Education, http://www.ascilite.org.au/conferences/perth04/procs/pdf/woodford.pdf. See also, J.Selby, P.Blazey & M. Quilter, 'The Relevance of Multiple-Choice Assessment in Large Business Law Units', *Journal of Australasian Law Teachers Association* (2008) Vol.19 at p.205.

[3] For a re-formulation of the taxonomy see, L.Anderson & L. Sosniak. *Bloom's Taxonomy: A Forty-Year Retrospective* (1994) Chicago, Chicago University Press.

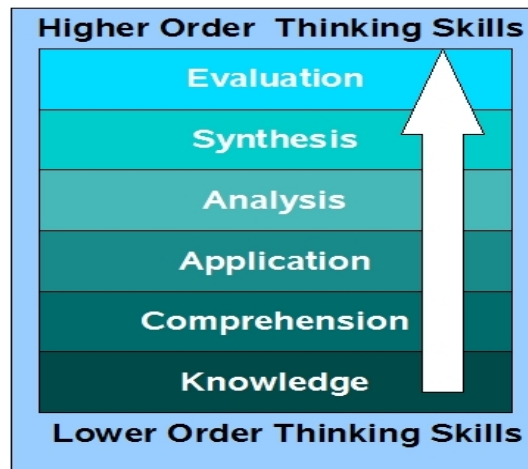of information, whether in a qualitative or quantative manner, with a view to producing a value judgement.

Diagram 1: Blooms Level of Cognition

Designing MCQs for Equity and Trusts with Higher Levels of Cognitive Skills

Bloom's Taxonomy provides an excellent starting point for those tutors attempting to incorporate multiple choice testing in their subjects. The taxonomy, with its respective categories of cognition, provide a starting point for the careful construction of multiple choice questions which can promote deeper based learning strategies and higher level of cognitive skills. What is important in the successful use of multiple choice of questions is the design of such question. This section of the paper looks at some of the questions used in Equity and Trusts and the design which was used to test not only basic knowledge but also higher levels of understanding such as comprehension, application and to some extent analysis.

(a) Testing Knowledge

One of the strongest criticisms of multiple choice questions is that they only serve as a basis for testing knowledge and are, therefore, nothing more than memory recall tests. Multiple choice questions undoubtedly provide a useful vehicle for testing knowledge; however, this should not be seen as a bad thing. Knowledge based questions should form a small part of a wider range of questions and should be set with particular features in mind. For example, some questions can be simply set as 'true or false' type of question. Other questions can be presented with a multiple number of distracters requiring the students to think carefully about the correct answer. Such questions testing knowledge can serve as an invaluable revision aid. See for example the following question used to test knowledge but with a number of different distracters.

 In a fully secret trust, if the testator communicates the existence of the trust to the intended trustee but not the terms of the trust, then the result is that

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In addition to setting the above multiple choice question, a particular design feature of such questions was a 'hint box' as illustrated below. The hint box would automatically appear where a student gave an incorrect answer, the aim being that the hint would then allow the student to think more carefully about the correct answer.

Hint:	The fact that the intended trustee is aware that he is a trustee, he cannot keep the property and the normal trust law principles will apply when there is uncertainty of objects.

(b) Testing Comprehension

As explained above, comprehension requires the student to explain the meaning of information of material which has been taught. Thus, multiple choice questions in this respect should be designed to assess whether the student has grasped the meaning of key rules, principles or other legal concepts. Testing comprehension can take the form of an understanding of a judgment in a case and the grounds upon which the case was decided. Questions testing comprehension can also be designed to test whether the student can classify concepts or rules or even locate relevant information out of larger amounts of information. As illustrated by the next multiple choice question, comprehension can also be used to test a student's skills in identifying, locating or selecting the right answer out of a number of possible outcomes. Such a question is not phrased in the manner asking 'what is the rule'? or is the following 'true or false'?; rather the question requires the student to understand, for example, in the context of the question below, the basis upon which the judgment in the case was arrived at.

In *Re Rymer* [1895] 1 Ch. 19 a testator left some money to St Thomas's Seminary for the education of priests in Westminster. The Seminary had ceased to exist before the testators' death and the students had been transferred to a seminary in Birmingham. When the question arose as to whether the seminary in Birmingham was entitled to the money, the court held that it was not because:

(a)	there was no general charitable intent on the part of the testator such that he did not mind which seminary took the money;
(b)	the seminary in Birmingham had not been named in the testator's will;
(c)	the seminary in Birmingham had other students as well as those who had been transferred from Westminster;
(d)	the testator intended the money to result back to him should the seminary in Westminster cease to exist.

Hint: A pre-condition for applying funds *cy-près* is that there must be a general charitable intent on the part of the testator or settlor to benefit any charity of the description he has referred to.

(c) Testing Application

As explained earlier, testing application requires the student to apply existing knowledge to new factual situations and arriving at an answer which best reflects the knowledge that the student has acquired at an earlier stage. In the context of law, this requires the student to apply the law, whether that be in the form of cases, statutes or other established legal norms, to factual situations and arriving at a conclusion which best reflects the aims and objectives of the legal rules which the student has learnt. In other words, it can be said that multiple choice questions in this context should be designed to test the student's problems solving skills. As can be seen from the next multiple choice question, the student is required to apply a stated legal principle to a number of scenarios and identify which answer would most likely be supported on the facts. The particular question below requires the student to understand that a trust will not *prima facie* arise where a person creating a trust uses what are known as precatory words, that is, words which do not impose a legal obligation on an intended trustee. What is interesting in the question below is that it is a question which combines both comprehension with application.

Which of the following statements will not create a trust

(a)   £3000 to my trustees to distribute equally amongst my daughters;

(b)   My paintings to my wife in the full confidence that she will give them to my daughters on her death;

(c)   £9000 to be distributed amongst my relatives at the discretion of my trustees;

(d)   My paintings to my wife in the full confidence that she will give them to my daughters on her death, and if she fails to do so, I hereby declare that such paintings will be given to my daughters.

Hint: A trust will *prima facie* not be created where a settlor or a testator uses precatory words (words not evidencing an intention to impose a legal obligation on the intended trustee). However, it is only a *prima facie* rule and the court must construe the settlor's or testator's intention by looking at all of the facts.

(d) Testing Analysis

Undoubtedly, when it comes to testing analysis, the design of multiple choice questions does become more difficult. As explained above, analysis requires the student to breakdown information into its constituent elements with a view to comparing and contrasting those elements as well as their relationship between each other. Multiple choice questions testing analytical skills require students to be faced with short scenarios or, as illustrated in the next question, a statement which then requires the student to analyse relevant legal issues. In the question set below, the student is faced with a statement from a decided case and then is asked to decide which of the possible outcomes best explain the statement regarding the rule in question. The student is not just asked to recall memory, rather the student is required to demonstrate a number of cognitive skills, firstly comprehension in the sense of identifying the relevant legal principle, but more importantly analysis in the sense of breaking down the statement and identifying constituent elements of the statement.

The rule in *Re Hastings-Bass* emanates from the decision of the Court of Appeal in *Re Hastings- Bass* where, In the course of his judgement, Buckley L.J. explained that:

'where a trustee is given a discretion as to some matter under which he acts in good faith, the court should not interfere with his action, notwithstanding that it does not have the full effect which he intended, unless

 (1) what he has achieved is unauthorised by the power conferred upon him, or

 (2) it is clear that he would not have acted as he did

(a) had he not taken into account considerations which he should not have taken into account, or

(b) had he not failed to take into account considerations which he ought to have taken into account.

Based on the above statement the so called rule in 'Re Hastings-Bass' allows a court to undo a decision made by a trustee if:

(a)   the beneficiaries can show that they have been disadvantaged by the decision;

(b)   the trustee acted in good faith when making a decision;

(c)   the trustees can show the court that they would not have acted in the way they acted had they fully taken into consideration all factors and the consequence of those factors;

(d)   the trustee made their decision on grounds which took into consideration irrelevant facts.

Hint: The decision in *Re Hastings Bass* [1975] Ch. 25 allows the court to intervene in circumstances where the trustee can show that he failed to consider relevant factors, and that, had he considered those factors, he would not have acted in the way he did.

(e) Testing Synthesis and Evaluation

Undoubtedly, the greatest difficulty when devising multiple choice questions comes when such questions seek to test the students' ability to synthesise and evaluate knowledge. It will be recalled that synthesis requires the creation and development of existing knowledge and skills to produce a new set of information. Evaluation requires making qualitative and quantitative investigations thereby forming a value judgment. Given the fact that both synthesis and evaluation requires the leaner to generally handle large amounts of information, multiple choice questions become an inappropriate vehicle through which they can be tested.

Further Thoughts on Design of Multiple Choice Questions

Quite a few examples of multiple choice questions have been given above to demonstrate the different type of cognitive skills that can be tested with such questions. The authors of this paper do not advocate that multiple choice questions should be used as the only form of assessment in a particular subject, however, that such questions can be effective when they are presented as a small part of wider assessment strategies which include essay type questions along with formal examinations. As explained above, the key to effective multiple choice testing is the effective design of such question, which admittedly can be time consuming. As for further thoughts on design, it has already been mentioned that such questions should not be overly easy in the sense of a true or false type of question. Neither on the other hand should such questions be so framed to test obscure knowledge. Good features in the design of multiple choice questions should involve the use of multiple distracters which require the students to think hard about the possible outcomes in a particular question. Tutors should also consider implementing hints which are given where a student has identified a wrong answer in the case of formative assessment. As seen with all of the examples given, the hint boxes allow the student to think before the next attempt is made. Finally, with all types of multiple choice testing, whether for formative or summative assessment, it is important to give feedback to students to show why a particular answer is right or why a particular answer is wrong.

Electronic Voting Systems

The second part of this paper explores the teams experience in using EVS technology also frequently termed: audience response system, personal response system, or clickers. Frequently as tutors we are looking at new ways to engage our students and this can be particularly challenging in a large group setting and it was for this reason that we decided to experiment with the use of EVS in a lecture style environment. Use of EVS involves providing handsets to the students who are asked to respond to a question displayed on a screen by selecting the appropriate number on the handset. The response information is collected via a dongle and the aggregated results are displayed on the screen for the class to see. The results are displayed by means of a chart, for example a bar chart, and this visual picture enables the students to immediately see the spread of responses. The responses as displayed to the students are anonymous. Although EVS have been used fairly extensively across a range of disciplines it is only relatively recently that studies have emerged concerning the use of this technology in legal education[4].

The first question a new user needs to consider is what they want to achieve through the use of this technology. For example, it might be used in a bespoke session at the end of a topic or term to evaluate the level of knowledge and understanding acquired by the students, it might be used within a lecture to encourage the students to actively participate in the session or it might be used to test

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[4] C. Easton, 'An Examination of Clicker Technology Use in Legal Education' 2009 (3) *Journal of Information, Law and Technology* <http://www2.warwick.ac.uk/fac/soc/law/elj/jilt/2009-3/Easton> accessed 5 February 2011.

the students knowledge and understanding of directed study material. However it is used the questions are predominantly in an MCQ format which raises the issue of the type of questions asked and the level of learning[5] and as discussed above care needs to be taken in drafting the questions. At the start of the project the aim was to use EVS both in a session at the end of a topic to determine the student's knowledge and understanding and also within the lecture to gauge understanding or responses to issues discussed. Even very positive reports of the use of this technology highlight a number of practical difficulties[6] which exist irrespective of discipline. These include the time spent setting up the equipment and distributing handsets as well as technical difficulties. Kay and LeSage, in an extensive review of the literature on the use of EVS, report 'a more critical technological issue occurred when remote devices did not function properly or the signal was not received by the instructors computer'[7]. This project was no exception and particularly at the start difficulties were experienced in getting the appropriate software loaded onto the IT systems in the lecture theatres and working correctly to register the handsets resulting in a delay in starting this part of the project.

The Sessions

In the event during the trial period three bespoke sessions were designed and undertaken. Two of these sessions were in Criminal Evidence, with 60 final year students, to gauge student knowledge and understanding at the end of topics, and one in Criminal Law, with 120 second year students, to assess their knowledge and understanding after the first term of classes. The team wanted to design a session that would not only provide the students with immediate feedback on their level of knowledge and understanding but also promote peer discussion and consolidate learning. As a consequence in the first session with the final year group each student was given a handset and asked to respond to the question without consulting fellow students and the results were then displayed to show the distribution of responses. The students were then asked to consult their neighbour regarding the response they had given and to discuss why they had given that answer. The question was then repolled with students free to opt for a different answer. The results of this were then displayed with the tutor indicating the correct answer and providing relevant explanation where necessary. This approach was taken as it was felt it would reduce the risk of students simply responding to questions without thinking through their responses and that discussion with their peers would promote and aid learning by enhancing engagement. As Draper states 'The picture, then, is much as Piaget had claimed: finding yourself with a view on something that clashes with the view of a peer tends to cause you to try to produce reasons to persuade them (and yourself) and to leave an internal marker that leads you to work towards finding a resolution'[8]. The second session with these students did not involve the repolling. In addition, the final year students requested that the questions be available to use again or for revision as a consequence of which the questions were placed in a quiz format on moodle. With the larger second year group they were given one handset between two and initially one of them, without consulting with the other, answered the question and the results were displayed. The pair then discussed the answer and the question was repolled following which the results were displayed and feedback was given by the tutor.

The Student Experience

[5] S.Draper, 'Catalytic Assessment: Understanding How MCQs and EVS Can Foster Deep Learning' (2009) 40 *British Journal of Education and Technology* 285.

[6] S.A.J. Stuart, M.I. Brown & S.W. Draper, 'Using an Electronic Voting System in Logic Lectures: One Practitioner's Application' (2004) 20 *Journal of Computer Assisted Learning* 95, 100.

[7] R. Kay & A. Sage. 'Examining the Benefits and Challenges of Using Audience Response Systems: A Review of the Literature' (2009) 53 *Computers and Technology* 819 at 823.

[8] S. Draper, 'Catalytic Assessment: Understanding How MCQs and EVS Can Foster Deep Learning' (2009) Vol. 40 *British Journal of Education and Technology* 285 at 289.

The students' views of the use of this technology and the sessions as a whole were evaluated via a questionnaire which resulted in a total of 130 responses. There were 30 responses from the final year students and 100 from the second years. The questionnaire primarily focussed on the following areas: the extent to which the sessions using EVS were enjoyable; the extent to which they felt EVS sessions had helped their learning during and after the session; whether the fact that the polling was anonymous had encouraged them to respond; and, whether repolling had encouraged useful discussion. The students were asked to rate these areas on a scale of 1 to 5, with 5 being the highest. In addition, the final year students were asked whether they had accessed the quiz version of the sessions on moodle and, if not, whether they thought they would do so before the end of the module. The questionnaire then gave the student the opportunity to add a comment.

Did the students find the sessions enjoyable?

The students were asked to rate how enjoyable they found the sessions where EVS was used. The responses clearly indicated that the students found the sessions very enjoyable with 72% (94) of the students giving it a rating of 4 or 5 and only 5% (6) giving it a rating of 1 or 2. This response reflected the clear 'buzz' from the students that staff had felt was present during the sessions and is reflected in some of the comments by students:

'Extremely enjoyable and fun – a nice method of learning' Participant 29

'I would love to use this equipment again it made the lecture more fun and tested my abilities' Participant 116

One point of interest is that the final year students rated the sessions more highly than the second year students with 87% of them giving it a rating of 4 or 5 compared to 68% of the second years.

Did the students feel the EVS session helped their learning?

The students were asked to rate the extent to which they felt the use of the EVS technology helped their learning during and after the session. The responses were again positive with 55% (71) students rating it 4 or 5. Here the contrast between the second and final year students was even more marked with 87% of final years rating it 4 or 5 as opposed to 45% of the second year students. The comments by the students also reflect their opinion that this was not simply enjoyable but was also a useful learning tool:

'Very useful as it helped with a few issues I was struggling with.' Participant 17

'It shows my level of understanding in the subject matter.' Participant 37

All students who rated the session as 5 for 'learning' also rated it as 5 for 'enjoyable' showing a very close correlation from the student's perspective between their enjoyment of their learning experience and the perceived benefits in terms of learning.

Anonymous responses:

The majority of students, 66% (86) rating it 4 or 5, said that knowing the responses were anonymous had encouraged them to respond. Part of the rationale for using the EVS technology was to facilitate participation and engagement in a large group session, an environment where a significant number of students are often reluctant to engage and give an answer for fear of giving the incorrect answer in front of their peers. Whilst there will always be a group of students who are prepared to answer in front of a large group using EVS technology to poll answers anonymously encourages even the more reluctant students to respond.

For example participant 110 commented *'It made me recognise the areas which I need to work on. It didn't make me feel stupid if I got the answer wrong'*.

The final year students seemed to find this a more important factor with 77% rating it 4 or 5 compared to 63% of second years.

Re-polling the Question

When asked to evaluate whether repolling the question promoted useful discussion 67% (87) of the students rated this 4 or 5. From the tutors perspective the repolling of the question after the students had the opportunity to discuss the question with a fellow student was seen as an important part of the learning process. Promoting constructive discussion of the issues required the students to think further about their answer, to articulate their argument and listen to the views of another student. Repolling the question followed by immediate feedback from the lecturer and discussion of the correct answer then enabled the students to reflect on their own knowledge and understanding. Again a more positive response was seen from the final year students with 83% rating it 4 or 5 compared to 62% of second years.

Although repolling is time consuming student comments reflect the value of this process;

'Great for group work and to prompt discussion. Prompted me to re-read my lecture notes.'
Participant 54

'Encourages you to discuss different points of law' Participant 99

The student comments also reflected the value of immediate feedback. The recognition of areas where they lacked knowledge and understanding prompted the students to undertake further study, *'It encouraged me to go back and read more.'* Participant 118, and identified for them areas they would need to work on prior to their examination, *'Highlighted areas that needed extra revision.'* Participant 55.

As indicated above in response to the request of the final year students the slides were adapted into an MCQ format for moodle with hints. At the time of the questionnaire 30% of the students concerned said that they had accessed the quiz on moodle.

EVS is clearly an effective way of getting students to actively participate in a lecture style setting. It can be used in a way that prompts discussion and students' benefit from immediate feedback which enables them to identify areas they need to spend more time on. The feedback from the final year students was more positive than that of the second years and one possible explanation for this is that the second years were in pairs and shared a handset so got less 'hands-on' experience.

However, whilst the majority of students who participated in the sessions clearly found them enjoyable and a worthwhile learning experience some did not. Earlier research[9] has indicated that in a class there will typically be a number of students who do not like the use of EVS and do not feel it benefits their learning experience and this project again reflected that earlier experience:

 'I don't think the use of technology is very beneficial.' Participant 13

In addition, the sessions can be very time consuming both in the setting up and distribution of the handsets and during the sessions where there was a discussion element and re-polling.

Turnitin and Peer Feedback

The final part of this paper looks at the use of Turnitin as a vehicle for peer feedback and to evaluate the potential for using Turnitin for peer feedback in a skills module. With the introduction of Moodle as the chosen VLE across the University the opportunity arose to expand the Turnitin capability through it's incorporated 'peer assessment' or PeerMark function.

There is clearly a need for Universities generally to improve their provision of feedback. The NSS surveys for the last five years have shown students to be least satisfied with assessment and feedback and whilst the level of satisfaction has increased steadily over this period nevertheless in 2010 the level of satisfaction from this survey was still only at 67%. [10] Williams and Kane in analysing the results of the NSS came to the conclusion that students were 'concerned principally with the amount of time taken by lecturers to return work and with the quality of the feedback provided'[11]. Any attempt, therefore to improve both these aspects would, it was hoped, have a positive effect on the satisfaction levels achieved. However, it is also recognised that,   in many modules (particularly in a semesterisation scheme), there is little opportunity to give effective feedback to students within a realistic timescale to enable them to build on the comments within the same subject This in turn can lead to student disenchantment with the assessment system, a failure by some students to collect their work (simply obtaining their mark online) and staff becoming disillusioned as a result student participation[12].

We considered that one method of generating feedback as well as facilitating a speedier turnaround was to develop an electronic method of peer feedback by using the Turnitin programme. This would require the students to prepare an exercise themselves, comment on another student's piece and then receive comments back on their work on a designated day. For many years peer assessment/feedback has been considered to have many benefits in higher education [13] and has been seen to 'promote lifelong learning by students to evaluate their …peers' achievements, not just encouraging them always to rely on (tutor) evaluation from on high'.[14] Indeed as has been commented, 'student engagement in the interchange of feedback goes hand in glove with excellence

[9] As reviewed by V. Simpson & M. Oliver, 'Electronic Voting Systems for Lectures Then and Now: A Comparison of Research and Practice'(2007) 23 *Australian Journal of Educational Technology* 187.

[10] HEFCE (2010) http://www.hefce.ac.uk/news/hefce/2010/nssresult.htm (accessed 20th March 2011)

[11] J. Williams and D, Kane, (2008) 'Exploring the National Student Survey : Assessment and Feedback Issues' Centre for Research Quality HEA 64

[12] D. Hounsell, 'The Trouble with Feedback : New Challenges , (2008) Emerging Strategies http://www.tla.ed.ac.uk/interchange/spring2008/hounsell2.htm

[13] See for example , S. Brown, C. Rust and G. Gibbs, 'Involving Students in the Assessment Process' "Strategies for Diversifying Assessment in Higher Education" (1994) Oxford : Oxford Centre for Staff Development

[14] S. Brown, 'Assessment' (1996) http://www.londonmet.ac.uk/deliberations/assessment/brown.cfm

in learning'. [15] Leading commentators on peer review and peer instruction, such as Eric Mazur, have commented on the benefits that flow from peer related learning, particularly, peer instruction and its benefits over large classroom based learning. [16]

There are a number of ways whereby students can offer peer assessment but in this particular exercise the students were only required to make evaluative comments on each other's work together with suggestions for improvements, if this was thought to be appropriate. There was no opportunity for the students to grade the work they had been given to assess. It was decided from the outset to concentrate on students providing this formative 'feedback ' rather than formative 'assessment' to their peers. Academic opinion on the merits of each approach is mixed. It is argued that students prefer and enjoy giving a grade as well as giving comments and this encourages them to engage more in the exercise. [17]On the other hand, other writers believe that 'comments only' marking encourages students to reflect on their own performance more and take responsibility for their own progress[18]. Interestingly a number of students taking part e-mailed during the assessment process asking how they could award grades and after the return of the work other students wanted to know where they could find out their grade.

The Student Exercise

The Law School has a number of skills modules on its undergraduate programmes but it was decided to trial the peer assessment exercise in two particular skills modules, 'The Art of Negotiation' and 'Drafting : The Art of Effective Business Communication', for two main reasons. Firstly, these modules form part of the 'Add+vantage' scheme which requires every student at the University to choose an 'Add+vantage module' as part of their programme from a selection across the University. The participants on these modules therefore are often a cross section of the student population so, for example, on the Art of Negotiation module, whilst the majority of the students were on the LLB programme, the student cohort also included others studying sports management, psychology, criminology and languages. Secondly, no knowledge of the law is required in these skills modules so the assessing students were in no danger of incorrectly stating the law which may have then caused confusion to the original writer. The students instead were assessing the ideas of the other student in given scenarios and commenting on how coherently those ideas were put down in writing. However, as events turned out the exercise on the Drafting module was, in fact, aborted for the very reason that assessing students were commenting on their peer's work incorrectly and there was a danger that a student may take on board the incorrect comment in their formal coursework and as a result be penalised in their summative assessment.

The exercise, therefore concentrated solely on the work submitted by 28 first year students on the Art of Negotiation module. The students were given a negotiating exercise similar to the piece (though with different facts) that they would eventually receive for their summative coursework. The students were asked to complete the exercise during class contact time (so it did not impinge on their other work) and to submit an electronic version through Turnitin. A second linked Turnitin site was then set up and, through the PeerMark setting, students were randomly allocated another student's piece to comment on. The students were given two weeks to enter their comments and at the end of

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[15] http://www.tla.ed.ac.uk/feedback/staff/resources/involvingstudents.html. For a detailed review of literature on peer assessment in all its various forms prior to 1998 see Topping , K. 'Peer Assessment Between Students in Colleges and Universities' (1998) *Review of Educational Research* 68 : 249-276

[16] E. Mazur, *Peer Instruction: A User's Manual* (997) Prentice Hall. See also, C. Monterola, R.M. Roxas & S. Carreon Monterola, 'Characterising the Effect of Seating Arrangement on Classroom Learning Using Neutral Networks' (2009) Complexity Vol. 14, Issue 4 at pp 26-33.

[17] See http:// www.ukcle.ac.uk /resources/personal-development –planning/teaching/

[18] S. Butler, 'Question: When is a Comment not Worth the Paper it's Written On ? Answer: When it is Accompanied by!' (2004) *Teaching History* 115, 37-41.

that time the system automatically allowed the originator to view their work with the comments endorsed on it from their peer. Whilst the procedure appeared on the face of it to be fairly complex, in reality it worked well and there were neither major problems in the students accessing the papers to work on nor in them receiving back their work. Indeed, several of the comments on the questionnaires completed by the students at the end of the exercise confirmed that the procedure itself was not a problem:

'It was easy to us'   Participant 1

'It was fun to use and different' Participant 3

However, credit for the smooth running of the exercise was largely down to the excellent instruction video prepared by one of the University's e-learning technologists which was put on the moodle site and which guided the students step by step on putting their feedback on to their peer's scripts. Without such an aid the exercise would have been more fraught for those taking part since the PeerMark programme itself gives very little guidance on how this is achieved and it is likely that if the students had encountered any difficulty in making their comments some may have discontinued with the exercise. The exercise was supposed to be anonymous; this was to make the exercise less threatening and to avoid pressure put on individuals by their peers[19]. A substantial number of the students, however, put their name on the top of the work submitted and whilst none of them commented on the need for anonymity, nevertheless greater consistency would have been achieved if all the students had remained anonymous.

The Student Experience

The students who did partake generally took the exercise seriously. The level of feedback given was in many cases as good as, if not in some cases better, than a lecturer would have been able to give if under limited time pressure to get work returned.

Below is an example of some of the comments written by a student on his or her peer's work:

'Interesting plan and anticipation of the other side, accurate in the demands they are likely to make and effective in the techniques to counter these, well done.'

'Perhaps her home insurance could have been mentioned but withheld from the other side?'

' A good review of the circumstances however she does not want to pay high legal fees which is what she will end up doing. The BATNA was a difficult area though so you have provided a good evaluation.'

'In conclusion, while this is quite well done, the last paragraph ruins the flow of the work'.

As can be seen from above, and what was evident from the other comments made, was that most of the students tried to balance their responses with positive and negative comments as well as make specific comments about how the work could be improved. This reflects the findings of Guardado and Shi in their similar exercise on peer feedback with English as a Second Language Students undertaken

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[19] M. Guardado and L. Shi, 'ESL Students' Experiences of Online Peer Feedback' *Computers and Composition* 24 (2007) 443-461 at p.445.

in 2007. The authors here considered that the giving of such a balanced response was in itself a 'meaningful communicative writing practice'. [20]

It has been argued by several other academics that 'by asking students to provide constructive feedback to each other, instructors are inviting them to participate in each other's learning and thus achieve greater understanding and appreciation for their peers' experiences and perspectives'.[21] This in turn allows the student to reflect on their own perceptions and if necessary they can take on board other people's methods or reasoning and thereby develop their own learning strategy. The comments from the students who participated in this exercise to a large extent reflect this positive result.

Questioned anonymously about what they felt about the use of Turnitin for peer review purposes and what did they learn from peer review the following comments are indicative of what most of the students felt:

'Got another perspective on how to work on my coursework.' Participant 2

'Useful to see how others do their work.' Participant 4

'Good to see other people's views.' Participant 10

'Better insight on how to answer the coursework.' Participant 11

However, the academic weakness of the peer assessment exercise which led to the failure of the first trial peer assessment i.e. a student not providing accurate feedback, was also clearly appreciated by several of the students taking part in this second exercise. It is not an uncommon problem since it is recognised that by using this Turnitin method there is no control of the quality of the feedback. Many writers have recognised that giving meaningful feedback is not a naturally acquired skill .[22] Dancer and Kamvounias appreciated this short coming and suggested that specific instructions on how to assess should be given to students before the exercise to ensure that all of them in the end receive good quality and accurate feedback. [23] ASKe reiterates the point by proposing that students should have practice in feedback before the peer review sessions with sample assignments. [24]

[20] M Guardado and L. Shi, ESL Students' Experiences of Online Peer Feedback' *Computers and Composition* 24 (2007) 443 at p.452

[21] P. A. Ertmer, J.C Richardson, B.Belland, D. Camin, P. Connolly, G. Coulthard, et al. (2007). 'Using Peer Feedback to Enhance the Quality of Student Online Postings: An Exploratory Study'. *Journal of Computer-Mediated Communication*, 12(2) p.15. http://jcmc.indiana.edu/vol12/issue2/ertmer.html

[22] See R. Palloff and K. Pratt, 'Lessons from the Cyberspace Classroom :The Realities of Online Teaching' San Francisco: Jossey-Bass Inc, 2001.

[23]D. Dancer, and P. Kamvounias,. "Student Involvement in Assessment : A Project Designed to Assess Class Participation Fairly and Reliably" *Assessment & Evaluation in Higher Education* Vol 30, No 4, August 2005 pp 445-454 at p.453.

[24] ASKe (Assessment Standards Knowledge exchange) 'Making Peer Feedback Work in Three Easy steps' http://www.brookes.ac.uk/aske/documents/PeerFback.pdf

When students were asked about any concerns they may have about other students reviewing their work many of the replies reflected the same anxiety:

'They may not know what they are doing and so may not mark it correctly' Participant 9

'In my opinion I find it difficult to agree with student's comments on my work as they are no more advanced than I (sic). Participant 4

'Yes, how did they know they were correct in their statements of correction of my work"' Participant 3

However, in the end there was only one comment on the follow-up questionnaire that showed any clear disappointment with the feedback received.

When asked what the student had learnt from peer review, one student commented:

'That my colleague did not really invest time into putting useful comments' Participant 5

In contrast, though, the rating on the questionnaire for how useful the comments of the colleagues had been was not high. When asked to rate this out of five (with five being the highest score) the average mark was 2.5. Student expectation appears to have been greater than was actually achieved.

Whilst the general view of the students who took part in the peer assessment was overall positive and encouraging, nevertheless the exercise itself revealed once again a reoccurring problem with such online exercises, that of student participation. Dancer and Kavounais saw this as a more difficult problem to overcome than the quality control problem of the feedback itself.[25] Certainly the problem of non participation had a twofold effect in the current exercise. First not all the students took part in submitting a piece of work for assessment. Since there was no requirement in the module assessment regulations then there was little that could be done other than repeated requests at class and online for the students to participate. For those students who did not submit they did not receive a piece of work to assess but, of more concern was for students who did submit an assignment which was then peer - assessed but who failed to peer assess another's in return. Here the student receives the benefit of peer feedback but denies a fellow student the same opportunity. Would the tutor then have to mark the assessed piece that had not been assessed? In addition should the tutor then have to check through the programme to see who had reviewed and who had not and make the appropriate chasing, thereby undoing much of the time saved through the original exercise? Several of the students in their additional comments on the questionnaire reflected on this point and considered that peer assessment 'would be more effective if made compulsory'.

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[25]D. Dancer and P. Kavounais. Student Involvement in Assessment : A Project Designed to Assess Class Participation Fairly and Reliably" *Assessment & Evaluation in Higher Education* Vol 30, No 4, August 2005 pp 445-454 at p.453

The exercise itself, therefore, certainly had room for improvements. Some of the weaker points could be relatively easily addressed by better preparation for the students, explaining to them from the outset the pedagogic rationale more clearly, preparing the students more thoroughly in how to give meaningful feedback and ensuring that the running of the exercise was as smooth as possible. Some authors suggest that 'feedback on the feedback 'should also be given[26] and the Turnitin programme itself provides for this by incorporating an Instructor's comments facility. On the other hand each of these measures involves more staff involvement and makes the exercise more time consuming for both lecturer and student. So, whilst Ertmer et al argue that depending on the way the feedback process is structured, lecturers could be spared from evaluating a large number of student postings[27] and therefore gain in terms of time saved, in reality the exercise could involve considerably more time and effort . Furthermore, with a new cohort of students every term or semester there is little opportunity for the students to build upon the experience unless similar exercises were incorporated into more of their other modules.

Given time and effort on the part of the lecturer, therefore, these aspects could be generally be overcome but the problem of student engagement, still remains a more formidable barrier to the overall success of the exercise.

Conclusion

The response of the students to the new technology was generally very positive and it certainly engaged the students. As we look to further embed technology into our teaching and to use it to enhance the student experience we have recognised just how much this requires us to rethink our pedagogy. To make a change is time consuming and there are issues both with staff getting to grips with the technology as well as practical problems. Any effective change requires willingness and determination on the part of the staff concerned and engagement on the part of the students but our experience and the feedback from the students clearly indicates that it is worthwhile.

During the course of the project we have become more confident that with careful design MCQ's can assess more than just basic knowledge. The experience with the students has shown that MCQ's can achieve a number of important learning objectives. As explained in this paper, such questions can test high levels of knowledge rather than just basic memory recall. Additionally, they provide an excellent medium through which the students can monitor the level of their understanding thorough the duration of a particular subject. Finally, as the student experience clearly showed, they provide an invaluable revision tool before formal examinations.

Equally, in relation to EVS sessions that took place in class, all the students participated and we can see how, through the use of this system, we can develop truly interactive large group sessions. The student responses were very enthusiastic using words such as 'very useful', 'extremely enjoyable' and 'great for group work'. However, in contrast to MCQ's online the use of EVS does take up time in class and the tutor needs to take account of this when planning the delivery of the course. As indicated above the majority of students clearly enjoyed these sessions and found them a useful learning experience but a small number did not. Typically in many large group lectures a student can chose just to sit back and not actively think or engage with the lecture and these students may be unwilling

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[26]P.A.Ertmer, J.C Richardson, B.Belland, D. Camin, P. Connolly, G. Coulthard, et al. (2007). 'Using Peer Feedback to Enhance the Quality of Student Online Postings: An Exploratory Study'. *Journal of Computer-Mediated Communication*, 12(2), article 4.p
[27] *Ibid.* at p.3

to see their lecture change to a more interactive style[28]. In this study one participant commented 'It can become very tiring.'

In relation to peer learning, which being only formative at this stage, had relatively low student engagement. Those who actively partook in the exercise and received back comments from their peers appear to have gained most but the fact that several students did not receive feedback despite completing the work because of the antipathy of their peers meant for these students the exercise was to a certain extent less beneficial. Further work is needed in this area to see how peer review can become more integrated into the learning process.

Overall this project received a very positive response from the students and we would certainly recommend that others utilise these new methods into some of the more traditional classroom based teaching methods. It was certainly beneficial to gather data on the student experience. The data gathered was qualitative in nature and although useful, moving forward, we would like to look at the feasibility of measuring quantitatively the benefit to the students learning.

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[28] R. Kay & A. Sage. 'Examining the Benefits and Challenges of Using Audience Response Systems: A Review of the Literature' (2009) 53 *Computers and Technology* 819 at 823.