How to Foster Collaboration in an eLearning Environment – Lessons from Oscail

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Introduction

This paper details how social interaction was integrated into a degree programme run by Oscail - the National Distance Education Centre (DCU). While a key objective was to introduce an element of mandatory group work into a module of the distance education programme, the course designers also held the opinion that (given the discursive nature of the content of the chosen module) student learning would benefit greatly from engaging in online discussions on the content of the module.

A major challenge was the process of the integration of group work while (as far as possible) maintaining the time and place independence of distance education. After a substantial review of the 2004 presentation, the function of group work was changed radically in the 2005 academic year. In particular, the assessment of students' online social interaction was radically changed. This paper will focus on the outcomes of the 2005 implementation and discuss the (less radical) changes that have been introduced for the 2006 presentation.

The impetus for change

Following recommendations from government bodies and relevant employers an element of collaborative work was deemed essential as a part of the Bachelor of Science in Information Technology degree offered by Oscail – National Distance Education Centre – Dublin City University.

This programme has, since 2002, began the conversion from traditional distance education to online presentation, and element of which included the provision of online tutorial support and assignment submission. As a result of converting the IT programme to an online programme, the Course Team (Programme Board) explored a number of options aimed at improving the pedagogy of the programme. This involved investigating a variety of online pedagogical techniques and concomitant alternative forms of assessment. (The Course Team for the IT programme has responsibility for the academic direction of the programme and has members drawn from a number of universities and Institutes of Technology around Ireland as well as members from industry and the public service.) The process of integrating social interaction into the degree programme started in 2004.

Module Selection

The module chosen had previously been offered through the traditional distance education method which included a combination of specifically written module text and face-to-face tutorial support provided at a range of study centres around Ireland. The module was assessed through a mixture of continuous assessment and an examination.

Certain areas of study are more conducive to collaborative work and given the discursive nature of the content of the Human Science A (HSA) module, improving the online activity of students was seen as critical to improving student learning. This module is a compulsory degree level module, which all students must successfully complete. The HSA module examines the Cultures of Technology. (Other new online pedagogical techniques were implemented in other modules of the IT degree programme. However, the techniques used in the HSA module and the associated new forms of assessment are the focus of this paper.)

IT students history

The majority of students on the BSc in IT programme are 'second chance' students. They range in age from 19 to 62 years, with a median in the early thirties. They are mostly in full-time employment and undertaking the IT programme on a part-time basis. On average, students take two modules per year (i.e. roughly equivalent to half a year of full-time study). Most of the students reside throughout Ireland with a small proportion residing abroad.

Pedagogical Techniques

Following the requirement for an element of group work to be introduced to the Bachelor of Science in Information Technology degree research was conducting into the best practice for collaborative work. The pedagogic techniques which were most relevant and that were considered when designing the TOOL method (please see below section on TOOL method) are detailed below.

The move to alternative forms of assessment on the HSA module was aimed primarily at improving student online engagement. In other words, in line with a number of social constructivist learning theories, it was considered that the key to improving student learning was to encourage students to engage in in-depth discussion of the content of the HSA module. (A number of attempts had been made to encourage student online engagement in various modules while keeping the traditional form of assessment. However, with some notable exceptions, these attempts were not successful in maintaining sustained online engagement.) The techniques introduced in the HSA module made online engagement an integral part of the summative assessment of the module.

Dillenbourg outlines in his research that learning occurs through collaborate work involving large and/or small groups of learners. Careful consideration was given to the number of students preferred when designing the group assignments and students were divided, where possible, into groups of specific quantities as deemed appropriate for optimum learning.

One of our main concerns was the limitation on the time we could expect our tutors to be online. Previously, Oscail tutors were employed on a part-time basis and remunerated for face-to-face tutorial hours and correcting of assignments. With the transition to online tutorial support this structure was altered. From research into the work of Salmon and Goodyear, the decision was made to alter the role from tutor to e-moderator. This provided us with a solution to our time constraints issue. Through the use of peer tutoring and collaborative projects the responsibility of learning was transferred to the students. This resulted in the tutors' role focusing primarily on the provision of guidance and support, which did not lead to an increase in tutor hours.

Elements from Goodyear's electronic seminar were adapted when developing the TOOL method (see peer tutoring and personal and peer evaluation in the 2nd and 3rd assignment period below). In Goodyear's electronic seminar students were provided with a list of readings and asked to post a synopsis on one of those readings to the online environment. Each synopsis ended with points for discussion. Then students were required to read a selection of the synopses and discuss the topic. Finally, the students had to summarise the main points of their chosen topic; express their experience of online group engagement and grade the contributions from fellow students, rationalize this grade and explain the criteria used in making this decision.

In addition to Goodyear's electronic seminar, we introduced some elements from Paulsen's "many to many" strategies (1995, pgs 20-35). The main elements we used were debates, discussion groups, forums and projects.

Structure of the HSA module

The 2005 the HSA module was distinctive within the IT programme in that it was assessed completely by continuous assessment. The students were required to submit three assignments – in total 50% of the module grade – and participate in and contribute to a set amount of online collaborate work including debates, reports and projects which also equalled 50% of the final module grade. The collaborate element of this module will be detailed and examined below.

Task-Oriented Online Learning (TOOL)

The method developed to cultivate and encourage online student engagement was called the *Task Oriented Online Learning (TOOL)* method. This method is currently under review and is augmented and enhanced on an annual basis with the view to refining and improving the student experience of online engagement.

In 2005 there were 63 students registered for HSA. In addition, the implementation of the TOOL method required two tutors, a senior administrator and one project officer. For the successful execution of the TOOL method the 63 students were divided into two main groups and for certain elements of the TOOL method they were divided further into smaller groups as detailed below. It was decided that 63 students was too large a number for the smooth execution of the TOOL method. There was a need to maximise the coherence of the debates for the students and to enable the students to engage in a meaningful and comprehensive manner with a consideration on the workload required of the students. To maintain the comprehensible structure within forums/debates/group work and to limit the quantity of material to be reviewed by

students the student body was divided into two groups – with groups of 31/32 students.

To inform students of the workload and the schedule for the three assignment periods, students were given a detailed Online Instructional Schedule. This schedule is constantly being edited and streamlined. In 2005, this document included auxiliary information and therefore exceeded 80 pages in length. However, the detailed work schedule, which informs students what was required from them on a week-by-week basis, was still over 20 pages. This level of detail and elucidation is required because students are geographically dispersed and therefore there is no guarantee that all students can unite for briefing purposes. Students are required to adhere strictly to the dates given in the schedule.

The 2005 academic year for students taking the HSA module was broken into three periods. This schedule furnished the students with the key dates for the forthcoming academic year, including assignment submission dates, submission of collaborative and/or online work and dates in which online activity was to take place. Each period concluded with the submission of an assignment plus the submission of the online work as detailed below. During each of these periods a different online pedagogical method was used as follows:

1st period – Online Debates/Resources

The students were directed to introduce themselves, through the VLE, to their fellow students and tutor. Guidelines were provided outlining appropriate content for these introductions.

The students were presented with four separate topics relevant to the content of the first section of the HSA module text. Where possible, controversial – or, at least, debatable – topics were used. For each topic, the students were directed to the relevant sections of the module text; the relevant sections of their mandatory textbooks and non-mandatory textbooks (if appropriate) and a number of relevant journal articles. (The full-text of all articles are available online, usually from the online journal databases provided by the DCU Library. Access to the online journal articles is particularly important for distance education students, as they do not have the same ease of access to academic libraries as full-time students.) Students were given two weeks in which to research at least two of the four topics. It was not a requirement to study all four topics. For the following three weeks, they were required to conduct an online debate of these topics with their fellow students and tutors. They were instructed to make a minimum number of online contributions per week (with most students making significantly more than the minimum required). The students were given detailed and extensive guidelines outlining the appropriate use of and foundations for the construction of good online contributions.

10%, of the overall module result, was assigned to the online contributions section of the debates. 25% of this was awarded to the successful submission of the minimum number of contributions required and the remaining 75% was awarded based on the quality of these contributions. Another 10% was attainable from the additional assignment required for the first assignment period.

2nd period – Peer tutoring

During this period the students were divided into groups of three members. Each group was given a topic/question relevant to the second section of the module text. Similar to the first period, each topic/question incorporated relevant resources (in particular relevant articles which were available online). Each group was given two weeks in which to research their topic. After the two weeks, each group had to post a synopsis of their topic (200 – 300 words). For the following three weeks, the students were required to post a minimum number of queries (relating to the topics of the other groups) and to answer any questions asked by other students (or tutors) on their topic. At the end of the three weeks, each group was required to post an amended and refined synopsis, which integrated the results of questions asked over the three weeks of the 'peer tutoring'.

20%, of the overall module result, was allocated to the online contributions for the peer tutoring. Similar to the first assignment period, 25% of this was awarded to the successful submission of the minimum number of contributions required and the remaining 75% was awarded based on the quality of the contributions, the synopsis and the promptness and quality of replies to queries. Another 20% was attainable from the additional assignment required for the first assignment period.

3rd period – Collaborative Group Project

The students were divided into groups of five or six members. Each group was presented with the same topic. All groups produce a report on a single topic relevant to the third section of the module text. In 2005, the topic given was: *Does the use of mobile phones impoverish social relationships? Justify your answer with empirical evidence.* The report always incorporates an in-depth analysis of the empirical evidence available on a topic. (Students do not carry out empirical research rather they gather and analyse information available on the report topic.) Students were given guidelines in how to organise their activities but it was up to each group to decide the methods that best suit the group members. Each group had to post, online, regular reports of their progress (not drafts of the final report but rather progress reports), culminating with the submission of a final report.

There were four sections to third assignment period online work – Group report; online meeting reports; personal evaluation of the collaborative learning process and peer evaluation and assessment.

A potential 20%, of the overall module results, was attainable from the online work for the collaborative group project. Of the available 20%, 50% was assigned to the Group report; 25% to the online meeting reports (10% for submitting the reports and 15% for the quality of the reports); 15% for the personal evaluation of the collaborative learning process and 10 % to the peer evaluation and assessment (5% for the written account and 5% for the numerical evaluation).

Tutor monitoring

Before the students received their results a monitor selected a number of the students' online submissions for review. Once the tutor monitor was in agreement regarding the marks awarded by the tutor, these results were made available to the students. The

monitor could modify marks if required. This ensured equitable marking (and feedback) between tutors and also mirrored the monitoring of examination marking that would be carried out in the traditional examination process.

Strengths of the TOOL method

Each of the three pedagogic techniques outlined above has particular strengths. Asynchronous communication (available through the online forums) enables the students to reflect on their thoughts before committing them to text. The first period (online debates) provided the students with the opportunity to examine a topic; reflect on this topic and the opinions of other students; further research the topic and refine their own responses before expressing their view to the open learning environment. This results in an increase in reflective thinking.

The advantage of using the peer tutoring technique is that it gave the students the experience of having to clearly explain a topic. This required the students to research in-depth their chosen topic and to refine their thoughts in a manner that enabled them to conveyed the information to a diverse cohort of students. This can be a very difficult task to achieve and demands that the students thoroughly study a particular topic.

The collaborative group projects exposed the students to the experience of the forming and maintaining online groups. It demanded that the students worked as part of a team in conjunction with fellow students and to stick to strict deadlines. Not only was the content of the module text studied but additional and key skills were learned which were transferable and imperative in a modern work environment.

In addition, the online community, which developed over time, helped in the reduction the feelings of isolation often experienced by distance education students.

Limitations of the TOOL method

The main limitation of the TOOL method was the decrease in the flexibility of the study of the HSA module as compared with the other modules offered through distance education. In theory, distance education/online courses permit students a high degree of time and place independence. The use of the TOOL method retained the place independence but limited to some extent the time independence. This was a result of the need for students to participate in online activities during certain timescales. (However, it should be noted that (a) the use of asynchronous – rather than synchronous – communication as the main means of communication increased this time independence considerably even within the designated weeks and (b) compared to face-to-face courses the level of time and place independence afforded by the use of the techniques outlined above is still substantial).

Survey Results

Following the conclusion of the 2005 academic year, a survey was conducted of the HSA students. Of the 63 students who undertook the HSA module in 2005, 29 students responded to the survey (a response rate of 46%).

Most of the comments focused on the elimination of the time independence normally associated with distance education. The students felt they were required to put in more effort and time then they had initially expected. However, the majority of students felt they had learned the content of the HSA module to a far greater extend then the content of other modules.

Student reaction

The main concern voiced by students was the increase in time and effort required to successfully participate in and complete this module in comparison to the other modules of the IT degree which were still assessed using traditional assessment methods.

Students felt that the TOOL method decreased the flexibility for studying this module when compared to traditional methods.

However, the students acknowledged that the quality of learning that took place, using the TOOL method, was superior to the learning as a result of traditional methods and also that the benefits of group work could be easily identified.

Some student comments were:

"*I feel that the online assessment during the year was probably a fairer way of assessing a persons knowledge on a subject than getting them to learn off course material and spend 3 hours writing everything they know."*

"I thought that the 'learning' experience was of a Higher Quality as the groupwork was in my opinion superior to the type of 'knowledge' required for an examination."

"The group work was rewarding … It was a good experience and challenge to build up trust and teamwork."

In response to whether the TOOL method should be incorporated into the other modules if the IT degree, 45% of the students who responded said that they should. This is an interesting notion as practically all students said that the TOOL method required more time and a sizeable proportion considered it a lot less flexible.

Some student comments were:

"It definitely helped me to understand the topics covered by the HSA module".

"Group work helped me to get more involved and to get work done on time. You can't let the rest of your group down".

"From my experience group work has three main benefits: 1. Enhances individual contributions within the team. 2.Student can access opinions of others. 3.Student gets a fully rounded understanding of subject matter".

External Examiner Reaction

After reviewing a sample of the material produced by the students for each of the three elements of online/group work, the External Examiner stated:

"I was impressed with the sample of online work I received, and the calibration procedures look rigorous. The [Instructional Schedule was] helpful in understanding the allocation of marks. The different assignments appear to encourage students to develop good study and other transferable skills in addition to motivating them to engage well with the subject material. It is clear that a lot of careful thought has gone into developing this and it is working well"

Module Co-ordinator Reaction

The level of effort required to launch the HSA module using the TOOL method and to monitor the activities throughout the academic year is demanding. Currently, this method is in its third year and it will be used again for the 2006-2007 academic year. Each instance of the TOOL method requires less input from the course co-ordinator and we have found that each additional year simply requires small changes.

Once the students are 'up and running', a certain amount of effort is required to tutor and monitor the students' contributions but this is not excessive in comparison to the requirements in other modules.

The TOOL method outlined above could be adapted for use in the classroom or, better still, for use with the 'extended' online classroom. For example, a debate could be started in class (possibly based on topics, readings, etc. distributed in advance) and then continued in an asynchronous online environment. This would ensure that (a) every student would get an opportunity to contribute and (b) the undoubted advantage of asynchronous online discussion groups – noted by a number of researchers - would be achieved i.e. online discussion groups encourage reflection as students can take time to research and consider their replies before responding online. The peer tutoring method could also be adapted for classroom delivery. Students could be given their topics and split into groups similar to the online version. Class time could be used for groups to give presentations on their topics and then, in the online environment, students could post questions for the presenters.

One major advantage of the classroom use of the TOOL method would be that a highly explicit instructional schedule, that is required by online distance education students would not be required and changes could be made that adapt to issues that emerge during the academic year.

General Observations

It was observed that assignments and reports submitted during the year were submitted closer to the due date then assignments submitted in the traditional delivery method.

However, some of the tutors felt that they were required to be online more frequently but for shorter periods of time rather than the 2 – 3 hours they habitually set aside for face-to-face tutorials.

Changes for 2006

The main change for the 2006 academic year was the introduction of a student study diary. This requires the students to state how much time they have spent studying and what activities (reading articles, reading module text, researching from the web, etc) they have undertaken. The main reason for this was to have some guideline as to how much time the students were spending studying for the HSA module. The students have been allocated a small percentage of the final module marks for the submission of this diary. The results of this will be collated at the end of the 2006 academic year.

Summary and conclusions

In conclusion, the TOOL method was deemed successful on the basis that it fostered a sense of community among geographically dispersed students studying through the medium of online communication. For now, it has been decided to solely apply this method to the HSA module but investigation is been undertaken into the introduction of this method to other modules of the Bachelor of Science in Information Technology.

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