Investigation of the Effects of Different Assessment Techniques on Student Study Patterns

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Introduction

This paper will detail the findings of a study to investigate the effects, if any, of different assessment techniques on the study patterns of distance education students undertaking two degree level modules of the Bachelor of Science in Information Technology (BSc IT) degree with Oscail (National Distance Education Centre) during the 2005/2006 academic year.

It will examine the results obtained from the study diaries, from both modules, to ascertain any similarities and differences created by using different assessment techniques in the level and method of study required.

Background

The BSc IT consists of sixteen modules – eight at diploma level and eight at degree level. There are four main areas of study for the IT degree – Management Science (MS), Computing (C), Communications Technology (CT) and Human Sciences (HS). Students are required to successfully complete all of the eight diploma level modules to achieve a Diploma in Information Technology and an additional six (four core modules and two from the remaining four modules) at degree level to attain a Degree in Information Technology.

The study focuses on two modules at degree level, the first module was Human Science A (The Cultures of Technology) – HSA – and the second module was Management Science B *(*Management of Information Systems) – MS00B. Both of these modules are core degree level modules that must be successfully completed by students studying the BSc IT.

The aim of the HSA module is "*to raise awareness of the variety of experiences people have with Information and Communication Technologies (ICT) and to place the understanding of ICTs in the social and cultural contexts in which they are experienced and used*"(1). The aim of the MS00B module is "*to equip the student with an understanding of issues in the strategic management of Information Systems and in the management of the IT function in organisations*"(2).

This study involved students, enrolled in two modules, who were asked to submit a study diary recording, over the course of the full academic year (Entwistle &

Entwistle 1970 cited in Zuriff 2003), daily study hours and corresponding activities. Some of these students may have been studying both modules.

All of the students, in the study, were mature students (Oscail programmes are aimed at students aged 23 years or over) studying part time on the BSc IT through distance education.

The BSc IT is delivered mainly online through a Virtual Learning Environment called Moodle (Modular Object-Oriented Dynamic Learning Environment). The students receive online tutorial support; submit assignments online and access course materials and additional resources through the online environment. In the majority of cases the students can also receive the module text by post but they must submit the assignments online[1].

Methodology

Although both of the modules chosen were discursive in nature, there was a substantial difference in the assessment techniques applied to the modules. Since 2002, there was a conversion from purely traditional distance education delivery to online delivery of the BSc IT, with increased use of online tutorial support. The Course Team (Programme Board), who are accountable for the academic direction of the programme, investigated the options and pedagogic impact of introducing new teaching and learning techniques, including different assessment techniques. One of the main outcomes was the introduction of different assessment techniques to the Human Science A (HSA) module. If you wish to read about these techniques please refer to the Task Oriented Online Learning (TOOL) - Social Interaction in an Online Environment (Fox and Walsh, 2007).

The MS00B module was based on the traditional distance education approach where students received specially designed course text and attended face-to-face tutorials throughout the duration of the academic year. The marks awarded to this module were equally divided between continuous assessment and a final end-of-year examination. The continuous assessment consisted of three written assignments accounting for 50% of the available marks (Assignment 1 awarded 10%, Assignment 2 & 3 awarded 20% each) and the remaining 50% of the marks were available for the examination.

The assessment techniques applied to HSA were quite different to the traditional distance education model of assessment in that it demanded a more continuous and public contribution from the students. The students were required participate at a constant level, spread across the academic year rather then a cluster of concentrated effort at certain times during the year. The name given to this approach was Task-Oriented Online Learning (TOOL).

The biggest difference between the traditional distance education approach and the TOOL method was the elimination of the final end-of-year examination in the TOOL method.

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[1] Four of the diploma level modules do not facilitate online submission of assignments.

The main elements of the TOOL method were online debates, peer tutoring and an online collaborative project. This is a brief description of the HSA assessment techniques used.

Online Debates/Resources
The students were given a number of topics and allotted a certain amount of time to research their chosen topic. Guidelines were provided outlining appropriate content and conduct for online participation. Where possible, controversial – or, at least, debatable – topics were used. Then they were given three weeks, in which 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).

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.

Peer tutoring
The students were divided into groups of two/three members and each group was assigned a topic/question. They were allocated two weeks in which to research their topic. Then each group posted 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.

Collaborative Group Project
This involved groups of five or six members. Each group was presented with the same topic. 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).

Potentially students could have kept a daily study diary over a one-week period (Cerrito & Levi 1999 cited in Zuriff 2003) or an hourly record for a period of one week (Kember 1995 cited in Zuriff 2003) but instead they were required to keep a daily diary (Entwistle & Entwistle 1970 cited in Zuriff 2003) for the full academic year. The disadvantage to documenting a diary for a week would mainly be that this could be highly misrepresentative of the actual study hours per academic year. Results could vary greatly depending on the study period chosen and so would the activities that the students were focusing on. For example, week 1 may see students reading introductory materials rather then core module text. Whereas, the week before an assignment due date may result in student study hours being inflated as students tend to spend more time studying towards course deadlines.

It was decided that the students would be able to record their study patterns/activities on a daily basis, including the specific activity and the amount of time assigned to that activity. The students recorded these diaries over the course of a full academic year but submitted the diaries at regular intervals throughout the year to correspond with assignment submission.

Procedure

At the beginning of the academic year, students were told to access an *Online Instructional Schedule* which was available on the Oscail website and within Moodle. These schedules detailed the assessment techniques for each of the modules. There was one online instructional schedule for each module providing the students with guidelines for weekly achievements; mandatory textbooks; recommended textbooks; assignments; assignment due dates; tutorial dates; and examination dates. The MS00B *Online Instructional Schedule* detailed the traditional distance education approach. The HSA *Online Instructional Schedule* detailed the TOOL method. In addition to the basic materials in the online instructional schedule, the TOOL method included a much more detailed schedule with a structured timetable for online peer tutoring, collaborative group work and online debates.

Within the HSA and MS00B modules in Moodle and the Oscail website there was a blank *Student Study Diary* for each of the three assignment periods, in varying formats (Excel, Word and RTF). The students were asked to download any version of these and to fill them in, on a daily basis, as they progressed through the year. To complete the diary they needed to record: their name; student ID number; the number of hours spent on a particular task and the nature of the task performed (a list of potential tasks was provided). Students were asked to submit the diary for the relevant assignment period along with their assignment submission form and their assignment i.e. submit the diary for the first assignment period along with the first assignment, etc.

A percentage of the module marks were awarded for the submission of the student study diary. In 2005/2006, 50% of the overall marks (for both HSA and MS00B) were available for the three assignments. The division of the allotted marks was as follows: Assignment 1 - 10%, Assignment 2 - 20% and Assignment 3 – 20%. The diary, for each of these periods was 5% of the allotted marks per period i.e. the diary for the

first assignment period was 5% of the available 10%, etc. The completion and submission of the student study diary was equivalent to 2.5% of the total available module mark.

Results

It was evident from the MS00B module that most of the students scheduled their study to coincide with the assignment and examination dates. However, the TOOL method revealed a different pattern, as it required the students to participate and interact within Moodle, less intensely but over longer periods of time over the course of the academic year. One HSA student said, "*It 'forced' me to do (sic) spread my work throughout the year*".

From this study the results showed that there was a significant difference in the time allocated to study between the two modules. Students spent much more time studying the HSA module then the MS00B module. Interestingly, the students spent, on average, the same amount of time studying for the first assignment. It was during the second and third assignment periods that the difference was more obvious. On average, students spent 32% less time studying for the second assignment in MS00B then HSA and 43% less time studying for the third assignment. The HSA students spent 15% more time studying per year then the MS00B students who spent on average only 186 hours studying.

For the HSA students, it is worth noting that the amount of study time increased as the students progressed through the academic year. The students spent 34% less time on assignment 1 and 32% less on assignment 2 then assignment 3. There wasn't a big difference in the amount of time allocated to each assignment period by the MS00B students (100% - 92% - 100%).

Interestingly, there was little difference between the amount of time allocated to assignment preparation between HSA and MS00B. As was expected, students spent the majority of their study time on assignment preparation (ranging from 32% to 59%).

The MS00B students spent 50% more time studying the module text. This may be as a result of the nature of the assignment and it's supporting documentation. The MS00B students were directed to the module text, textbooks and recommended to conduct research for extra online readings. However, the HSA students were directed towards the module text, textbooks and also given a substantial amount of online journal articles. This is reflected in the diaries, with HSA students recording more time in searching for required online journal articles, reading online articles and searching for new articles.

One of the most noticeable differences between the two sets of students was in the frequency and use of the online forums. As detailed above, the HSA students were assigned 50% of their overall grade to activities based on reading and posting to the online forums. The MS00B students were directed to the online forums, but online activity was not required for assessment purposes (rather it was exclusively meant as a delivery of student support). The way in which the students used the forums was very different. During the first assignment period the MS00B students used the forums about 93% less then the HSA students. However, the usage of the online

forums dropped considerably for the HSA students by the third assignment period with a drop of 13%. The cause of this decline may be attributed to the nature of the third assignment for the HSA students. This assignment was an online report that required the students to post regular online meeting report but did not require the students to conduct their study/preparation for the report, within the online environment.

Both sets of students were issued with a week-by-week schedule (the differences between the TOOL method and the SOI method were outlined above) as detailed above. There was no difference in the amount of time students spent referring to the guides.

From the end of year surveys that we conducted for each module, the students voiced the opinion that they spent much more time on the study and preparation of topics for the online discussion forums (than they would have for a face to face tutorial) because their postings were more "public" and permanent. There was a substantial amount of peer pressure and this influenced the quality of the online postings and increased the level of study undertaken by students.

> "*I also found that discussions were 'hogged' by some people and I felt a bit intimidated and afraid to contribute. You need a lot of confidence to make contributions in an asynchronous environment shared by strangers*".

> "*I had a strong sense of loyalty to the group and didn't want to let them down*".

Considerations
One consideration that needs to be highlighted is the question relating to the validity of the feedback provided by the students. It was evident from the diaries that a number of students merely filled in non-realistic amounts of time in an effort to fulfil the requirement to submit a completed diary.

Another issue that needs to be addressed regards regulating when the diaries are completed. Some students may have backdated their entries to the diary at the end of the assignment period rather then filling the diary in on a continuous basis over the full assignment period.

Conclusions
It is clear that the HSA students are spending substantially more time (approximately 15% more) on study then the MS00B students. The nature of the assessment techniques used in HSA has forced the students to contribute and a more regular basis and it demands a detailed understanding of the module content and related topics.

This is the opinion of one student who studied the HSA module (taken from the end-of-year student evaluation):

> "*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 level and pattern of study between the HSA and MS00B students was different and there was a correlation between the assessment technique and the area and pattern of study. Although, both sets of students spent most of their time preparing the assignments, the MS00B students spent the majority of the remaining time reading the module text and the textbooks. The HSA students tended to focus more on the journal articles and on the online forums – both making contributions and reading the contributions of other students.

Part of the future research into this topic, will include a more systematic approach to the analysis of the data collected from the student study diaries. The approach will be on a smaller scale, over a shorter period of time – one assignment period - but will involve a more detailed description of activities from the students. This information will then be compared to the findings of this investigation.

References
1 - http://www.oscail.ie/it.php last accessed 10th July 2007
2 – ibid

Bibliography

Chambers, Ellie (1992) Work-load and the quality of student learning *Studies in Higher Education* Volume 17, Issue 2.

Fox, S. and Walsh, E. Task Oriented Online Learning (TOOL) - Social Interaction in an Online Environment, O'Neill et al (2007) *Case Studies of Good Practice in the Assessment of Student Learning in Higher Education* AISHE/HEA, Dublin

Mason, Robin and Weller, Martin (2000) Factors Affecting Students' Satisfaction on a Web Course *Australian Journal of Educational Technology* Vol 16, No 2, pp 173-200.

Nonis, Sarath A. and Hudson, Gail (2006) Academic Performance of College Students: Influencing of Time Spent Studying and Working *Journal of Education for Business*.

Zuriff, G. E. (2003) A method for measuring student study time and preliminary results *College Student Journal*.