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**SCHOOL OF COMPUTING, INFORMATION SYSTEMS, AND
MATHEMATICS**

**ENHANCING THE TEACHER'S KNOWLEDGE
TOO: AN EXPERIMENT IN PROCESS-DRIVEN
STUDENT ASSESSMENT**

by

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Enhancing the Teacher's Knowledge Too: An Experiment in Process-Driven Student Assessment

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Introduction

In this paper the relationship between the student's study skills and that student's assessment in higher education is highlighted. It is suggested, by means of a small experiment, how this interrelationship might be effected so that the teacher's own knowledge of the subject being taught is improved.

Study Skills and Assessment

Improving the student's learning ability, being naturally desirable in education, has itself become the subject of extensive study. From this research, comprehensive yet practical guidelines for tutors on improving the student's study skills in further and higher education have been produced, instanced by Habeshaw et al. (1989). As suggested from such texts, the assessment of the student forms an integral part of the study skills process.

Assessment Issues

Despite there being similarly-based practical tutor guides on student assessment, such as Habeshaw et al. (1993), there remains much debate about this aspect of education, characterised by the report "Assessment Issues in Higher Education" (1993). Gibbs (1991), for instance, spells out the decline in the quality of assessment, attributing the reason to inadequate time resources. Boud (1991) reveals that any assessment cannot be effective unless it can satisfy three characteristics. Firstly it should provide continual self-assessment allowing students to reflect on the quality of their learning activity. Secondly, assessment should be like real research or real work. On this aspect Boud's view is reinforced by Gibbs (1992), who criticises the traditional student essay as being too detached from report writing in the real world. Boud's third characteristic is that assessments should facilitate the student's deep learning, rather than simple reproduction of the tutor's lectures.

Real World Limitations on the Assessment Ideal

However, given the current economic and political climate, it is unlikely that the tutor will have sufficient monetary or time resources to satisfy the laudable assessment issues raised above. Moreover in many fields, such as computing, where the base of knowledge is changing with increasing rapidity, the tutor is under further pressure just to keep his or her subject up to date. Added to this task, there is academic pressure for lecturers in higher education to conduct leading-edge research. Thus not only is the tutor expected to provide sufficiently purposeful student assessment schemes and know the current state of his or her subject, the tutor has to be at the forefront of current knowledge. Thus, a question arises: Can limited resources be nonetheless maximised by conducting assignments that will assess students' capabilities, whilst improving their *and* the tutor's subject knowledge?

The Synergistic Assessment Model, 'SAM'

An assessment model that could satisfy both lecturer and students' subject knowledge has many advantages, beyond conserving the valuable resources mentioned above. In addition to this synergy, the student would be set a task involving real world experiences and deep learning, as the lecturer now becomes a *client*. As a client, the lecturer has a vested real world interest that inherently steers the student away from Gibb's traditional essays and towards Boud's meaningful alternatives. Of course the new approach is likely to make marking, in terms of comparing with some suggested answer, more difficult as such an answer is clearly not predetermined! Similarly, pre-declared subject learning outcomes would have to be devised that need to reflect this added dynamic dimension. Again this may be more difficult to achieve. Of course the experiences from individual 'final year' projects that students usually undertake in higher education, given these projects do tend to examine areas new to the tutor, may be of help in overcoming these limitations. Indeed the 'synergistic assessment model', or 'SAM' for short, proposed in this discussion might be viewed as an elaboration of those specialist projects into the mainstream of assessment activity.

Revisiting Study Skills

On accepting SAM as the preferred method of assessment, the importance of the student's study skills becomes heightened, perhaps beyond that indicated at the beginning of this paper, as the student *really* has to find out about new knowledge. We would, therefore, also need to focus upon study skills techniques if SAM is to be effective.

A Simple Experiment

Once the potential benefits from SAM have been identified, we have to consider how it might work in practice, and what more can be discovered from a practical attempt at implementing SAM. Thus an experiment was devised and conducted with thirteen second year part time students on South Bank University's HND (Higher National Diploma) in Business Information Technology (BIT), run within the School of Computing, Information Systems and Mathematics. The particular course unit was 'Financial Control and Decision Making' (FC & DM) on which I am the tutor, hence I was directly involved with not only in the experiment's design but its actual conduct. Consequentially this paper discusses my impressions and reflections from trying SAM directly.

Background to the Experiment

In September 1994, I started a lecturing career, having completed a PhD after several years in industry. The FC & DM unit already existed for some years, and would run for four hours a week from late September 1994 to January 1995. A colleague had passed me some lecture notes on 'the motivational effects of budgets', a part of the unit. Due to teaching pressures these particular notes, though comprehensive, were becoming increasingly out of date as the years progressed. From my pre-lecturing experiences, I knew that the nature of this subject did not lend itself to simple updating by reference to, say, a text book, thereby explaining why its updating had remained overlooked. The motivational effects of budgets were therefore an ideally representative candidate for a SAM experiment.

Experimental Format

On the FC & DM unit, the assessment consisted of three assignments and a two-hour examination. The exam and first assignment essentially followed the format of prior years, following the more traditional format of assessment. Assignments two and three, however, were replaced with the following SAM-style tasks:

You have just set up as an Accounting Information Systems Consultant. Recognising it as a gap in the market, you intend to improve your clients' knowledge about budgeting, especially its motivational aspects. You happen to mention this area to your friend, a practising accountant. The next day this friend, as a favour, hands you the notes she took when she was an accounting student some years ago. These notes, entitled "THE MOTIVATIONAL EFFECTS OF BUDGETS", are fully reproduced below. On reading the notes, you decide they need adapting to your needs.

Required (Assignment two):

You believe these notes are probably out of date. Therefore, by recourse to the library or other facilities, find out how relevant these notes are for today's businesses. Update the notes accordingly, and present your results in a concise report for your clients. Cite your sources.

Required (Assignment three):

Now that you have completed the above report outlining your general findings, produce a second concise report that indicates how these general findings might apply to your client's information systems strategy. Besides citing your sources you may, should you wish, cross-reference your second report to the first.

The assignments were interrelated and, as can be seen, were of the role play type (Habeshaw, 1993). Assignment two embodied the above discussed updating exercise, whilst the third took a more adventurous twist. Here the students were required to bring together two apparently unrelated areas, an inherently difficult task because even I, as the tutor, was not certain that studies existed in this area although it was worthy of research. The students were not aware they were involved in a SAM experiment, nor did I research the assignment areas beforehand, as the outcome of the experiment might have prejudiced. The assignments were given out together, with number two due in four weeks. Number three was due after a further six weeks, although this included the Christmas and New Year holiday periods.

Initial Experimental Issues

Not surprisingly, the students became anxious about the requirement as, given the above constraints, no clear direction about the assignment content could be given. Instead the students were instructed in general journal and book reading skills (Habeshaw, 1989), and they also attended a one hour study skills session by an expert from the University's Library Staff. Furthermore, the students were asked to reason from their own insight and views where they found the literature to be weak. Recognition was given to the fact that they had a limited time to complete the assignments, although this would not apply to bad presentation in their reports. A demonstration of their study skills, such as in citing references, was also stated as important. On later reflection, it became apparent that the students' concerns arose primarily from them not being able to elicit, even indirectly, the answer content from the tutor on these occasions. Thus deep learning techniques were being endowed upon the students even from the tutor's subconscious level!

Experimental Outcomes: Assignment Two

Assignment two was handed in, marked by myself, and returned to the students within a week. This ensured they had adequate time to reflect upon their first results, and adapt their approach for assignment three. The appendix to this paper shows the marking scheme used. This was adapted from a marking scheme from the booklet "Assessing More Students" (1992, page 36). Although designed for large numbers of students, it was chosen for the experiment's small group because the scheme offered a comprehensive range of general yet meaningful criteria for quality report writing. The

scheme therefore, besides rapid marking, provided a rich source of feedback to the students. The appropriate mark was circled on the sheet and the marks totalled accordingly. Looking back, it would have been better to have shown the students this marking scheme beforehand in line with the recommendations of Habeshaw (1993), thus ameliorating the student's anxieties discussed above. Nonetheless the students were satisfied with the scheme as presented. They all felt that it was an adequate basis from which to tackle assignment three. Overall, the standard of the work was high: Six of the thirteen scripts scored more than seventy percent; the remainder were among sixty-eight and fifty percent. One jubilant student typified the view of the group when he commented about how pleased he was to get so much out of the exercise whereas I, the tutor, had obtained a potentially up to date set of lecture material. Boud and Gibbs would have been satisfied.

Problems

The cautionary term 'potentially' above is significant, as it highlights certain problems with the SAM approach. In the first instance I noticed that some scripts appeared disjointed, indicating plagiarism through sections of other authors' works being simply stuck together. In addition, some of the group had not completely cited their sources. In view of these concerns I checked the sources on a sample of the students' scripts, to ensure I would not be subsequently teaching erroneous material. These sources were found to be accurate although I also confirmed my plagiarism suspicions. Consequentially, whilst praising the group on their efforts, I warned them that plagiarism would not be tolerated. I advised them to quote their source directly in such circumstances. Despite these difficulties it was evident that SAM was far more resource effective in updating the tutor's knowledge than could be expected with the traditional 'teacher finds out first and the student then regurgitates' approach to assessment.

Assignment Three

Despite assignment three's added difficulty, which was reflected in the marking, the task was handled well by most of the students. This time the students were aware, from assignment two, that they would be assessed according to the same marking scheme (Appendix). Again six of the thirteen scripts scored more than seventy percent; two of these had obtained less than seventy the previous time. The remaining scripts, except two, achieved between sixty-eight and fifty-six percent; these two are discussed in a moment. It was clear that the students had, besides fulfilling their learning aims as before, benefited from their experiences with assignment two. Some had greatly added value from their previous effort, and had produced imaginative and well-presented reports. In addition to my having updated material, I was able to bring in *new* concepts about the interrelationship between information systems strategy (ISS) and budget motivation (BM) into my lectures. On the 'housekeeping' front the references were more accurately cited and plagiarism was thankfully not in evidence. One or two

students, however, wrote about BM and ISS but did not relate the two. Of the two 'below fifty percent' scripts, one obtained forty-three percent. For some reason, this student had submitted only part of her assignment so potentially could have achieved much more. The other, marked at thirty-nine percent, had essentially missed the whole purpose of the exercise and simply discussed how spreadsheets worked. It is assumed that this isolated case is within tolerable experimental limits, although still a personal disappointment in terms of my teaching ability.

Concluding Remarks

From the simple experiment above, there is little doubt that the student's study skills and the meaningfulness of their assessments have been improved by the SAM approach. On top of these benefits, the teacher's own knowledge has been augmented both in terms of updating that knowledge and finding new avenues where that knowledge might apply. Of course this paper does not claim to have conducted an extensive, or indeed rigorous, study of SAM. Neither is it claimed that SAM, at this early stage, is a comprehensive methodology. It may not even be truly novel. Nonetheless this discussion indicates that the SAM idea is worthy of further investigation, and it is a technique that I, for one, will pursue with alacrity.

References

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Assessment Issues in Higher Education (1993), Youth and Employment Policy, Department of Employment.

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Habeshaw, T; Habeshaw, S; Gibbs, G. (1989) *53 Ways of Helping Your Students to Study* (Second Edition), Technical and Educational Services Ltd.

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Appendix

Report Assignment Attachment Form (Tutor: Simon Polovina)

Students Name:	Key to mark ranges (%):
Assignment Mark:	70+: Outstanding
<i>Lines left blank by the tutor are not relevant to this assignment</i>	60-69: Some very good features
	50-59: Satisfactory overall
	40-49: Some serious inadequacies
	<40: Inadequate in most respects
Structure:	Marks
Report relevant to topic	[5] [4] [3] [2] [1] [0] Report has little relevance
Topic covered in depth	[5] [4] [3] [2] [1] [0] Superficial treatment of topic
Argument:	
Accurate presentation of evidence	[5] [4] [3] [2] [1] [0] Much evidence inaccurate or questionable
Logically developed argument	[5] [4] [3] [2] [1] [0] Report rambles and lacks continuity
Originality:	
Original and creative thought	[5] [4] [3] [2] [1] [0] Little evidence of originality
Style:	
Fluent pace of writing	[5] [4] [3] [2] [1] [0] Clumsily written
Succinct writing	[5] [4] [3] [2] [1] [0] Unnecessarily repetitive
Presentation:	
Legible and well set out	[5] [4] [3] [2] [1] [0] Untidy and difficult to read
Reasonable length	[5] [4] [3] [2] [1] [0] Under/over length
Sources:	
Adequate acknowledgement of sources	[5] [4] [3] [2] [1] [0] Some plagiarism
Correct citation of references	[5] [4] [3] [2] [1] [0] Incorrect referencing
Mechanics:	
Sentences grammatical	[5] [4] [3] [2] [1] [0] Several ungrammatical sentences
Correct spelling throughout	[5] [4] [3] [2] [1] [0] Much incorrect spelling
Effective use of figures and tables	[5] [4] [3] [2] [1] [0] Lack, or ineffective use, of figures and tables
Correct use of units and quantities	[5] [4] [3] [2] [1] [0] Some units incorrect
Marks (Awarded/Max.):	/ * 100% = %

(Based on a form prepared by Educational Services and Teaching Resources, Murdoch University, Australia)