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Online Learning in Speech and Language Therapy: Student Performance and Attitudes

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ABSTRACT **Context:** *Behavioural studies form an essential component of the Speech and Language Therapy (SLT) undergraduate degree.*
Aims: *This study aimed to produce online teaching material in behavioural studies suitable for undergraduate SLT students, explore students' views on the online material, record their performance when taught through this innovative method and compare their performance to a group taught through the traditional lecture based method. Finally, it aimed to explore the relationship between engagement with the module and performance.*
Methods: *SLT students completed an online health psychology/sociology module and their performance was compared to students who completed a traditional lecture based course. Student evaluations of the online course were also recorded as was their engagement with the online module.*
Findings: *Results suggested that there was no significant difference between students taught through an online medium compared to those taught through ''traditional lectures''. An evaluation survey suggested that students appeared to enjoy the material although there was some reluctance to develop an independent learning style.*
Conclusion: *Online learning has a great deal to offer SLT education. However, material has to be developed that can both engage and motivate learners, thereby enhancing student independent learning.*

KEYWORDS *E-learning, online learning, digital education, interactivity, speech and language education, independent learning.*

Introduction

The importance of the behavioural and social sciences in speech and language therapy has been recognized (e.g., Earle, 2001), and its inclusion within the curriculum stressed by professional bodies internationally. Although this

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importance has only recently been formally recognized, Snyder (2001) suggests "...the inclusion of the social sciences in the training process is increasingly important". The behavioural and social sciences are all-encompassing terms and include both health psychology and health sociology.

Within Higher Education (HE) there is a move towards flexible, online learning for it has a number of benefits. For example, by increasing the degree of flexible learning, access to these courses is extended to those geographically isolated, those whose disability prevents them from accessing HE and those whose particular social and personal circumstances are not conducive to in campus learning (Wade, 1994).

It has been reported that traditional lectures are not a good way to learn (Biggs, 1999). Today's students have grown up in a technological age of television, computers and videogames (Looms, 2002; Frey & Birnbaum, 2002). Some researchers argue that neither students (Husbands, 1996) nor teachers (Willcoxson, 1998) regard lectures as effective and students now expect technology to be used effectively as part of their learning experience (Frey & Birnbaum, 2002). The challenge for teachers is how to hold the attention of students from this high-tech generation. Some have suggested that web-based learning appeals to students both on and off campus (e.g., Waschull, 2001).

The benefits of online learning within the speech and language therapy curriculum have yet to be explored. Indeed, this could be said of many of the allied health care professionals, although there have been reports in nutrition and dietetics (e.g., Litchfield *et al*., 2000), nursing (e.g., Lewis *et al*., 2001; Buckley, 2003), medicine (e.g., Steele *et al*., 2002), introductory biology (e.g., Sanders & Morrison-Shetlar, 2001) and anatomy/physiology related to the subjects allied to medicine (e.g., Lewis, 2003) amongst others.

The results of these studies are equivocal. For example, Steele *et al*. (2002) and Buckley (2003) report both positive and negative responses from students towards the introduction of online resources. Similarly, some have suggested that those in online courses may score better (e.g., Dewhurst *et al*., 2000), the same (e.g., Stocks & Freddolino, 1998), or worse (e.g., Waschull, 2001) than those taught through a classroom-based method.

In light of these inconsistent reports and the fact that no study has explored speech and language therapy students, views and performance with online learning we report on a study that aimed to:

1. Develop an online behavioural studies module for Speech and Language Therapy students;
2. Compare the performance of students using the module and previous cohorts taught through a traditional lecture based method;
3. Explore the relationship between engagement with the module and performance;
4. Report on the views of the students on the online module.

Method

A pseudo-experimental design was completed, such that a cohort taught through a traditional medium was compared to those completing the course online. The dependent variables were performance on the end of module assessment, and engagement with the online material. In terms of the evaluation, a survey of all students completing the online course was completed at the end of the module.

Materials

The online material included a range of behavioural sciences resources coordinated through the Blackboard Virtual Learning Environment (VLE). Students were presented with the online behavioural sciences module material (on topics such as definition and measurement of health, social class and health, gender, stigma, stress, pain and pain management) throughout the academic year along. For each of these topics a series of material was developed:

- Specially designed web-pages (see http://www.uwic.ac.uk/shss/dom/newweb/DU/example.htm);
- Handouts of key points;
- PowerPoint slides;
- Exercises and games;
- Self-assessment quizzes;
- Opportunities to e-mail the tutor.

In addition to this online learning material three lectures were delivered. One of the lectures was placed at the start of the Semester to introduce the module, one in the middle to re-visit the students' learning and iron out any difficulties, and one at the end to review progress and provide a revision session. The module took place during the first semester of the second year of the student's four-year degree course.

Student outcome was defined according to:

- *Performance*: Students were assessed via a written assignment (a case study) as per the validated course descriptor. All assessments were subject to both internal and external moderation, and examiners had no formal contact with the design or delivery of the module.
- *Engagement*: The amount of contact the student had with the online module.
- *Evaluation*: The evaluation form completed at the end of the module.

At the final session, students were asked to complete an evaluation form derived from that of Jolliffe *et al.* (2001). It consisted of a series of statements asking the respondent's views on their learning experience and the materials with which they had engaged. There were sections on technical features

(e.g., speed of response, accessing material), Blackboard features (e.g., announcements, information), academic support (e.g., e-mail response, marking of material), module design (e.g., organization, usefulness), comparison of Blackboard to face-to-face teaching (e.g., convenience, learning) and overall comments (e.g., amount of material, views on learning by computer).

Sample

This report details the experiences of a complete cohort of students completing the online module. There were a total of 41 students progressing through the module during this time. The module was compulsory for all students on the SLT undergraduate degree programme and was completed during the first year of their studies. Comparison was made with the previous cohort of students who had completed the module through the traditional lecture method. There were no discernible differences in sex, age or course entry requirements between the cohorts. In contrast to the online lecture group, the traditional lecture group ($n = 46$) had a series of ten two-hour lectures throughout one term.

Ethical consideration

The study design was considered and approved by the University ethics panel. As the research was associated with a new teaching development, the major ethical consideration was the amount of time associated with completing the additional questionnaires.

Results

Students completed the module during one semester and were assessed via the usual procedure. At the module end, students also completed an evaluation questionnaire. On the basis of this information and data collated through the Blackboard VLE, analyses explored: student performance, student achievement and engagement and student evaluation of the online module. Response rate for both groups was 100%. Where individual questions/statements were omitted, the missing data were excluded from the analysis.

1. Student Performance

There was no difference ($t = 0.49$, df $= 83$; $p =$ non-significant) in performance between the teaching methods adopted: those taught through the traditional method had a mean score of 57.8% (SD $= 8.54$) compared to a mean for the online cohort of 58.9% (SD $= 9.6$).

2. Relationship between Student Performance and Engagement with the Module

Blackboard allows for the recording and tracking of student use of material. Using this data, a correlation was computed between the amount

of times students used the online learning material and their final mark. A relationship between performance on the assessment and usage for the students was revealed (Spearman's rho $r_s = 0.37$, $p = 0.01$), such that those that accessed the material more frequently performed better on the assessment.

3. Student Evaluation

A comprehensive evaluation of the online module was undertaken at its completion, and both qualitative and quantitative data collected. All 41 feedback forms (100% response rate) were received and each responded to a series of questions on: technical features, Blackboard features, academic support, module design and content and comparison of Blackboard to traditional teaching. In terms of technical features, the majority (97%) found the speed of response acceptable (or had no view), and 97% found it easy to access the material from the University, although a smaller proportion, 62%, found it easy to access from home or work. The response to each of the statements on the questionnaire related to the technical features of Blackboard is presented Table 1. The categories have been reduced into ''Agree'' (which includes both Strongly Agree and Agree), the mid-point, or ''Disagree'' (which includes both Strongly Disagree and Disagree) – a convention adopted throughout this report.

In terms of the module design and content evaluation, the students viewed the material positively – with no student reporting it to be badly organized or lacking in interactivity. It was noticeable that this group rated the content as interesting and engaging (79%), well organized (82%), and found the material interactive in nature (70%).

When students' overall views were recorded, it was notable that they found Blackboard an interesting way to learn (64%) and an effective supplement and replacement for missed lectures (85%). However, 12% did not enjoy learning at their own rate.

When comparisons between the use of online teaching and face-to-face teaching were done, there was more of a mixed picture (see Figure 1). On the one hand, the majority (80%) considered Blackboard to be more convenient than attending regular lectures and tutorials (70%) but given the choice between studying through Blackboard and through the traditional method, students would select the traditional method (52%). Similarly, they appeared to enjoy the traditional method (52%) more than the Blackboard method (32%).

Finally students were asked about their views on the development of independent learning through the online material. It was evident (see Figure 2) that students felt less motivated to learn through online learning, but felt that the module had made them more independent learners.

Table 1. Views on Blackboard features

Statement	Disagree/ Strongly disagree % (*n*)	Neither agree nor disagree % (*n*)	Agree/Strongly agree % (*n*)
The speed of response of Blackboard is acceptable	3 (1)	59 (24)	38 (16)
I find accessing materials in Blackboard easy	9 (3)	3 (3)	88 (35)
It was easy to access Blackboard from University	3 (1)	0 (0)	97 (40)
It was easy to access Blackboard from home/work	19 (8)	19 (8)	62 (25)
There was enough information	12 (5)	9 (3)	79 (33)
The unit was both interesting and engaging	3 (1)	18 (7)	79 (33)
The content is well organized	3 (1)	15 (5)	82 (35)
The site was interactive	15 (5)	15 (5)	70 (31)
I enjoyed learning at my own rate	12 (5)	3 (1)	85 (35)
Blackboard is an interesting way to learn	12 (5)	24 (10)	64 (26)
The Blackboard is an effective supplement to the traditional lectures and tutorials	12 (5)	3 (1)	85 (35)
Blackboard is an effective replacement for missed lectures and tutorials	9 (3)	12 (5)	79 (34)

Discussion

The results of this investigation reveal some findings that may be of interest in SLT education. First, student performance with online learning was comparable to the previous cohort who did not access this material and had a traditional lecture-based course. This finding is in line with other studies that generally suggest either improvement or limited difference between online and traditional courses (Dewhurst *et al*., 2000). However, the analyses completed in both this study, and in previous studies have been at a superficial level. It may be that different elements of performance are affected by mode of learning. For example, it has been found that there is no difference in factual knowledge between those taught through the traditional method and those taught through a Problem-Based Learning (PBL) method. However, the PBL students performed significantly better in terms of deeper understanding (Finch,

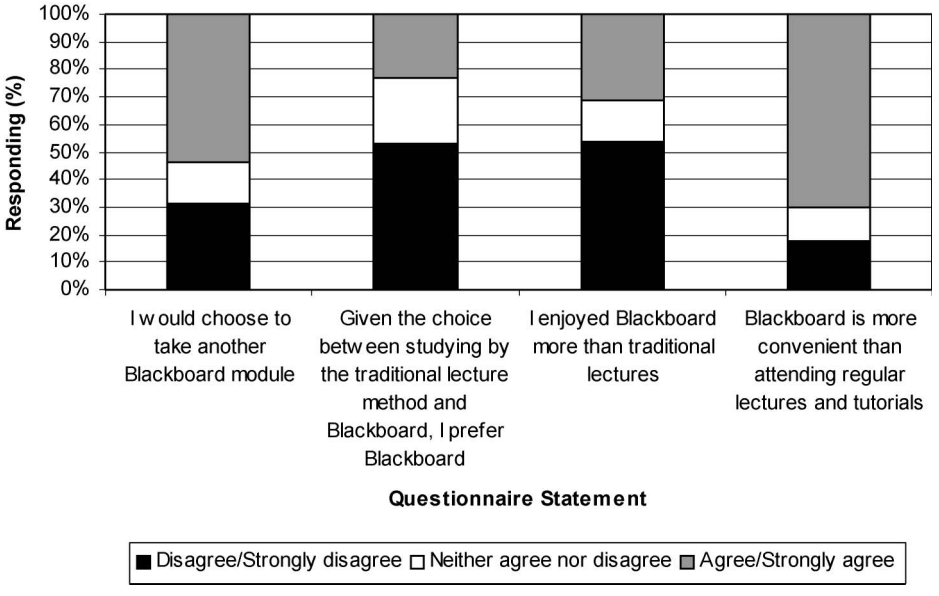

Figure 1. Student views on comparison between face-to-face and online learning.

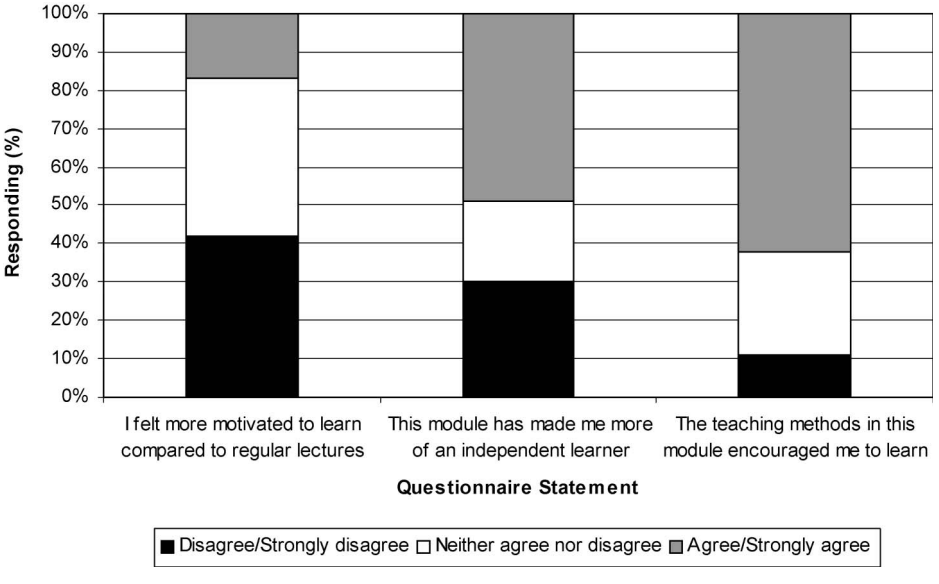

Figure 2. Student views on development of independent learning.

1999). The same may be true of online learning and may account for some of the disparate findings previously reported.

Second, there was a strong correlation between use of the material and student performance. A positive finding that suggests engaging more with the

material improves performance. However, it could be that the more highly motivated students used the VLE more than the less motivated students. Hence, it may be possible that academically better students make use of all resources (including VLE, library facilities, tutorial support and so on) to a higher degree than less-able students.

Finally, students reported that they had a positive experience in terms of the technical capabilities, the features inherent in Blackboard, the academic support provided by the tutor and the module design and content. Additionally, students felt that Blackboard was more convenient than attending regular lectures, enjoyed learning at their own rate, found e-learning an interesting way to study and using a VLE made them more independent in their learning.

Despite this, few reported that they would choose this method over traditional lectures and most felt they learned more in a traditional lecture setting. Hence, there appears to be a contradiction: students valued e-learning, yet still retain an urge for traditional lectures. Why should there be this paradox? Some explanations can be uncovered from the qualitative comments also recorded. A recurring theme was that the students felt that Blackboard required commitment and active learning that lectures did not. For example, students found it ''hard to motivate themselves'' or ''difficult to prioritise'' and that it was ''tempting to leave until the last minute'' (a perspective supported by the questionnaire results).

Therefore, the challenge is to provide students with an environment that enhances motivation, engages them but which also directs and rewards. The use of online learning is certainly increasing, but there is a need for a greater examination of the material and how this is presented to best engage with the learner (e.g., Stanton *et al.*, 2001). Students are becoming more conversant with the experience of online learning and with this experience come expectations. Tutors and online developers are going to have to increase their skills in the development of interactive material in order to encourage students to use it, interact with it, and engage with it.

A final comment has to be made on the tutor's experience. Despite the enthusiasm and encouragement for the use of online learning, often mediated through a virtual learning environment, the potentially overwhelming preparation time should not be underestimated (McLoughlin & McCartney, 2000). The development time associated with this material ran into several hundred hours and was certainly in excess of the time required for the development of a traditional lecture based course.

Conclusion

Online learning can offer a great deal to SLT education for both students and tutors. However, there needs to be an appreciation of the amount of time taken to prepare the learning material in order to ensure that it is better tailored to

student characteristics. It is recommended that educators appreciate the benefits that online learning can bring to SLT education and introduce such practices in a developmental and well-researched fashion.

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