

Facilitating Learning In A Web-Based Environment: A University Of The West Indies Experience

Michael L. Thomas, Louis A. Whittington, PhD

The University of the West Indies, Barbados

ABSTRACT

An assessment survey of 76 tertiary level institutions across the Caribbean region identified a need for training at the Masters' Level in Education using a non-traditional mode of delivery. This paper identifies challenges and elements that add value to improving the quality of delivery of this web-based programme.

INTRODUCTION

In the Caribbean, Project Satellite began in 1978 at the University of the West Indies (UWI). This project constituted the first experiment with distance teaching or distance education using telecommunications. The five-year project dealt with teaching the first year courses of the B.Sc. (Bachelor of Science) programmes in social sciences, in-service teacher training, health and agriculture courses, and administration. The University of the West Indies Distance Teaching Experiment (UWIDITE) was instituted in March 1983 and funded for three years by the United States Agency of International Development (USAID).

Three decades later, the UWI has embarked on the delivery of courses and programmes using web-based courseware. This paper will focus on the experience of the delivery of the Masters in Education at the UWI Mona Campus using the Virtual U courseware.

THE PROGRAMME

Training in Higher Education for most of the staff in the region's tertiary level institutions (TLIs) is a major problem to the management and further development of the tertiary education sector. In 1999, the Tertiary Level Institutions Unit (TLIU) of the University of the West Indies (UWI) conducted a needs assessment survey of 76 (69%) tertiary level institutions (TLIs) of thirteen (13) countries of the region. It revealed that

approximately 67% of the respondents required higher qualifications in all of thirteen disciplines (Natural Sciences, Social Sciences, Health Sciences, Humanities, Commercial and Business Studies, Engineering, Education, Hospitality and Tourism, Psychology and Guidance Counselling, Communication and Information, etc.) identified in the study. Of those with educational qualifications (52%), 41% indicated the need to pursue training in higher education programmes, especially educational programmes focusing on the administration, finance, student services, and curriculum and instruction for staff of tertiary level institutions.

The survey also showed that a large percentage of those interviewed in the region are interested in pursuing their studies using a non-traditional mode of delivery and remaining on the job. In addition, the demand has been spurred-on by the increasing number of teachers with first degrees who are desirous of furthering their training and development. When the collective demand of the non-campus countries and the three campus countries, (which outstrips the demand of the non-campus countries), is considered, it is evident that increased access to this level of education is needed.

To meet the increasing demand for higher degrees in education, the TLI Unit in collaboration with the Department of Education at the Mona Campus developed a proposal to deliver an Online Masters in Educational Administration, which was approved by the Board for Graduate Studies and Research. The delivery of the Online Masters in Educational Administration, with emphasis on primary and secondary schools, appropriately responds to the personal, national and regional development needs for the trained personnel in the tertiary institutions and the senior administrators of Ministries of Education.

OBJECTIVES

The purpose of the Online Masters in Education is to provide a variety of modes of delivery that would allow the teachers and administrators of the tertiary level institutions (TLIs) in the region and senior administrators in the Ministries of Education to enhance their professional development and to increase access to quality education programmes. The specific objectives of the programme are as follows:

- Expand access to the Masters programmes offered by the UWI Schools of Education.

- Increase the course offerings in the Masters programmes thus making them more comprehensive and relevant to the needs of students and development imperatives of the region.
- Continue to provide high quality programmes that are affordable and are tailored to the Caribbean needs, informed by Caribbean knowledge and delivered by Caribbean experts in the field.
- Develop professional skills in the convenience of the home without spending extended study periods away from the home and work place.

STRUCTURE

The Online Masters in Education programme is a two-year programme with two options. The first option is the M.Ed. by project, which consists of a minimum of eight (8) three-credit courses and a project, and at least one of the courses must be a research methods course. The second option is the M.Ed. by thesis is similar to the M.Ed. by project, but consists of a minimum of six (6) three-credit courses and a thesis.

The specializations, which are offered, include Educational Administration and Teacher Education. Other specializations, Language Education, Mathematics Education, Science Education and Primary Education will be offered at a later date.

TEACHING STRATEGY

The Online Masters programme is being delivered using dual or mixed modalities. Two courses are offered face-to-face in summer over a six-week period. The other four (4) or six (6) courses are delivered online using the Virtual U web-based courseware. However, given the focus of this paper, discussion will emphasize the online, web-based delivery component.

The instructors use the Virtual U's conferencing facility to lead synchronous discussions, to facilitate asynchronous interaction, and to post materials and general instructions. This is consistent with the view expressed by Crichton and LaBonte (2003) that online learning generally takes two distinct approaches -asynchronous and synchronous, with the former approach allowing the learner and instructor to communicate about the learning experience at different times and the latter been more reflective of traditional

face-to-face learning approaches, with the instructor and learner online at the same time. The instructors in the online Masters programme also use the e-mailing facility of the courseware to interact with individuals who have specific needs and require additional guidance and support.

As a teaching strategy, the instructor may divide a class into groups and assign individual group members to perform specific functions. For example, in a group some members act at times as moderator, rapporteur and contributor. However, before the groups are allowed to interact, the instructors demonstrate how the process is to be conducted. The instructors over a series of sessions act as moderator using questions and probes for student responses that focus discussion on the critical concepts of the material under review. Next, the instructor acts as rapporteur summarizing the discussion for the particular topic and posting it for the entire class. Finally, the instructor acts as a contributor making comments on the topic and responding to comments posted by others.

Additionally, the instructor attempts to create a caring and friendly atmosphere in fostering cooperative learning. Students are encouraged to email or telephone the instructor at anytime to have a problem resolved. Further, they are encouraged to interact with one another on discussion issues and problems with a view to resolving them. This kind of interaction was used to promote social interaction, develop class and group cohesion. This social or collegial interaction also helped the class to work as a unit and was the critical element for the success of the conferencing component of the online teaching.

The instructor used the Virtual U to manage the delivery of the course being taught. The students were informed, in advance of the topics to be covered in the conferences, the dates for discussion of the selected topics, the procedural guidelines and the roles of the members in each group for the topic under discussion. The management of the course delivery in this way, as well as providing leadership and direction by the instructor, ensured success of the conferencing specifically, and teaching and learning, in general.

FEEDBACK

An evaluation of the 2001 cohorts provides some interesting findings regarding internet and technical issues, interaction with the web-based courseware, Virtual U, and the perception of students about web-based learning or “web-based pedagogy”.

THE COHORT

Twenty persons returned questionnaires, a return rate of 69%. The ratio of women to men was just over 2:1. Forty percent of the respondents were under 35 years of age, with another 40% in the 35-44-age range, and 10% each in the 45-54-age grouping and 55 and over grouping. Approximately 91% of the persons responding were employed full-time as teachers (82%) or administrators/principals (18%). The majority (75%) of students had completed their coursework and was at some stage of their individual study (thesis or project).

INTERNET AND TECHNICAL ISSUES

Approximately 91% of the cohort indicated that they accessed the programme from their home. However, the persons taking the programme, a third (33.3%) of them did not know whether the connection was via modem (14.4K or 56K), Broadband, Cable Modem/DSL or ISDN. Of the remaining cohorts, 44.4% reported that they were using Cable Modem/DSL. In response to a question on the type of browser used most often, the majority (70%) of students taking the programme used the Internet Explorer to access the Internet, while 10% did not know which browser was being used.

With respect to the question of Internet connectivity and the speed of the computer at home, approximately 89% of the students expressed some degree of satisfaction with the connectivity at home (66.7% very satisfied and 22.2% satisfied). Similarly, about 88% of the students said they were satisfied with the loading speed of the computer they owned (12.5% very satisfied and 75.5% satisfied). One hundred percent of the students were satisfied with the equipment (e.g., printers and scanners) attached to the computer at home (14.3% very satisfied and 85.7% satisfied). Regarding awareness of a help desk service for their programme, equal numbers said they were (30%) and were not (30%) aware, while 40% were not sure of its existence.

In rating Instructor, Technical and Administrative support, 55.6%, 66.7% and 60% of the students respectively said the support was good. Twenty percent of the students were of the view that the administrative support was excellent quality. The level of dissatisfaction with Instructor, Technical and Administrative support were 22.2%, 33.3% and 10% respectively. Seventy percent of the students reported some degree of satisfaction with the chat session (Very Satisfied 40% and Satisfied 30%), while 60% of the students reported that they were very satisfied with the discussion groups and 40%

were unsatisfied. With respect to E-mail, approximately two-thirds (66.7%) of the students said they were satisfied or very satisfied.

OPINION ABOUT WEB-BASED LEARNING

Serving as an introduction, the students were asked about their previous experience with the web in terms of study. Approximately 82% of the students reported that participation in this programme was their first experience with web-based instruction. Arif (2001) expressed the view that there are many students who enter university with no exposure to the Internet and little, if any, to the computer technology and reach levels of readiness for the use of technology after they have gone through programmes of structured orientation and guidance enhanced by a dedicated period of self learning and training.

When asked why they chose to study via the Internet, students mentioned flexibility, affordability and the convenience of doing the programme from their homes as major reasons for their choice of this mode of study. Some person suggested that the web-based programme catered to their self-directedness as a learner.

Approximately 82% of the cohorts said that the ability to communicate with their peers was important (54.5% very important and 27.3% important). With respect to the medium used to communicate, the chat and E-mail were the features of choice. A third (33.3%) of the students reported they did not use the phone at all compared with 12.5% and 9.1% reporting they did not use the chat and E-mail respectively. Among the students reporting the use of chat and E-mail, slightly more students (87.5%) used the chat feature than the E-mail (72.7%). Similarly, more students (62.5%) reported using the chat feature once or twice per week compared with 45.5% using the E-mail with the same frequency. However, about 9% of the student reported using the E-mail daily, and there were no students reporting daily use of the chat feature.

When asked about ease of following the discussion and conference session of the web-based instruction, 80% said the sessions were very easy (40%) or easy (40%) to follow. The remaining 20% reported the sessions were not very easy to follow. Regarding the rate of participation in discussion or conference sessions, 30% of the student reported participating in all, 40% in most of the sessions and 30% in some of the sessions. They all rated the educational value of the discussion or conference sessions as very valuable (50%) or valuable (50%).

They rated the other learning materials as excellent (44.5%), good (33.3%) or satisfactory (22.2%). The majority (77.8%) of students were of the opinion that the pace at which the learning materials were handled was about just right, while the remaining 22.2% said it was too fast.

When asked if the programme met their expectations, 60% said yes, and 20% each said no or not sure. This is consistent with the findings of the majority of studies of web-based courses in the literature (Collins, 2000; Fredericksen et al., 2000; Jiang & Ting, 1998; Motiwalla & Tello, 2000; Oliver & Omari, 2001), where students reported high levels of satisfaction with their web-based course. In response to the question of preference in the choice of programmes, fixed start and finish or flexibility and own pace, two thirds (66.7%) said they preferred the flexibility and working at their own pace. In the studies of 31 web-based courses, Motiwalla and Tello (2000) found that the students appreciated the flexibility of accessing the course anytime and anywhere. Likewise Wegner et al. (1999) reported that 21% of students in their study on a problem-based web-course stated that the convenience of not having to travel and having flexible study hours was an advantage.

In response to the weaknesses of the web-based learning experience, the students gave many reasons. Following is a summary of some of the responses given: technological breakdowns, power outages, insufficient choices of online courses, lack of or timely feedback, emphasis on final examination and large amounts of reading materials per course. Regarding the strengths of the web-based experience, the responses were as follows: the social interaction, ability to access resources online, convenience and flexibility in relation to place and time, questions to guide the reading of materials, and the support given by the staff at the Mona Campus.

LESSONS LEARNED

The review and evaluation of the two-year old web-based Masters in Education programme provided an opportunity to learn some valuable lessons. The review identified a need *to provide an opportunity for students' training in the use of the e-learning or web-based courseware*. Students expressed a desire to have some experience with the courseware before actually using it to receive instructions. The original design of the programme was to provide this training during the summer prior to the launch of the programme. However, this did not materialize. The evaluation seems to point to a need for a non-credit introductory course specifically designed to prepare in-coming students for the on-line experience if the programme effectiveness is to be achieved. This is even more important when many of the students are indicating that this is their first

experience with this kind of technology. Schramm et al. (2000) emphasize that students must receive adequate computer-related training before beginning an online course.

Another important lesson learnt was *the need for immediate feedback*. All the students who responded to the evaluation cited feedback as an essential for their persistence in the programme and, consequently, to their successful performance in the programme. They cited the tardiness in replying to email enquiries, contributions to the discussion groups and assignments as being frustrating to their progress in the programme. However, the students did mention that not all the instructors were guilty of not providing timely feedback. It is worthy to note that students do require feedback to enable them to monitor their progress, to discover errors or misconceptions, and to discover what they should do differently (or continue to do) to gain proficiency. Not all feedback is equally useful, however, and not all learners require the same kind of feedback (Fleming, 1987).

The review sensitised us to the need *to assign personal advisors to students in the programme*. These advisors could address some of the personal needs and issues that students would experience as first time users of this mode of delivery. Further, the advisors could assist in motivating the students and encouraging them so that they would not drop out of the programme. It is also possible that the advisor could assist the students with the Internet methods of communication (email, conferencing, etc.), which may be intimidating or awkward to use for some of the students. It is important that the problem of technophobia on the part of learners be addressed with caution.

The need *to improve and promote student interaction and collaboration* was clearly important in this type of learning context. This was critical in the text-based situation because of the lack of audio-visual cues and the need to compensate for them. Some instructors did provide opportunity for collaborative learning, thus allowing for social interaction. However, there is a need for more opportunity for collaborative learning (group work, group discussions, brainstorming, group assignment, group projects, etc.) in the delivery of the programme. Claims for more active learner involvement in the learning process and for greater interactivity cannot be ignored. Anderson (2002) suggests that sufficient levels of deep and meaningful learning can be developed, as long as one of the three forms of interaction (student-teacher; student- student; student-content) is at very high levels. The challenge therefore for teachers and course developers working in an online environment is to construct a learning environment that is simultaneously learning centered, content centered, community centered, and assessment centered. There is no formulaic specification that dictates the kind of interaction most conducive to learning in all domains with all learners. Rather, teachers must learn to develop their skills so as to be able to respond to curriculum and student

needs by developing a set of online learning activities that are adaptable to diverse student needs. UWI will do well to recognise that elements of a non-didactic approach to learning are already present in the mature student population and that this is a positive factor that the institution can build on. These techniques and approaches will allow the learners to interact and exchange thoughts through the e-learning system.

The final and also very important lesson is the need for reliable and adequate bandwidth equipment. Many students said they had experienced much difficulty in using the courseware. At times they were unable to access the system. At other times it took an inordinately long time for the system to load. And still at other times the speed of communications (email and discussions) is very slow. Many of these problems have been attributed to limited bandwidth. For example, the slowness of access and downloading of material could be improved with greater bandwidth. The reliability of the equipment could also contribute to the access. This particular technical problem of increased bandwidth is currently receiving attention at the various levels of the University including the IT Services Unit. These issues are usually especially acute for developing countries like the Anglophone Caribbean where resources are always less than what is required to get the job done.

CONCLUSION

This study was able to ascertain how graduate students perceived learning in a variety of online courses. It is assumed that such perceptions of learning were related to the quantity and quality of learning experienced by these students in the various courses in the online Masters programme.

These results provide some evidence of a need for quality assurance in online learning programmes. In a distance education context, quality assurance seeks to balance course design, pedagogy/andragogy, and technology with the needs of learners. It also demonstrated a need for a non-credit introductory course specifically designed to prepare in-coming students for the on-line experience; thus ensuring that the participants achieve maximum benefit from the virtual learning environment. Further, consideration must be given to reducing the student-teacher ratio to one that would facilitate greater efficient and effective delivery of the programme.

The ability to generalize findings across and beyond the present study is limited since one university and programme was sampled and the learner characteristics, course content, course design, and pedagogy used by the instructors in the present study may

not be representative of other instructors and settings. However, the lessons point to the need for careful analysis of all the facets of on-line delivery, before institutional commitment to continue delivery of the programme is made. On-going research and monitoring, as well as developmental planning which takes into consideration the growth potential of the programme and changing needs of the student population are necessary at this time.

REFERENCES

Anderson, T. (2002). Getting the mix right: An updated and theoretical rationale for interaction. ITFORUM, Paper #63. Retrieved June 6, 2003, from <http://it.coe.uga.edu/itforum/paper63/paper63.htm>

Arif, A. (2001). Learning from the Web: Are Students Ready or Not? *Educational Technology & Society*, 4 (4). 32-38.

Collins, M. (2000). Comparing Web, correspondence and lecture versions of a second-year non-major biology course. *British Journal of Educational Technology*, 31(1), 21-27.

Crichton, S., & LaBonte, R. (2003). Innovative Practices for Innovators: Walking the Talk Online Training for Online Teaching. *Educational Technology & Society*, 6(1). 70-73.

Fleming, M. (1987). Display and Communication. In R.M. Gagne (Ed.), *Instructional technology foundations* (pp.233-260). Hillsdale, NJ: Erlbaum.

Fredericksen, E., Pickett, A., Pelz, W., Shea, P., & Swan, K. (2000). Student satisfaction and perceived learning with online courses: Principles and examples from the SUNY Learning Network. *Journal of Asynchronous Learning Network*, 14(2), http://www.aln.org/alnweb/journal/Vol14_issue2/le/Fredericksen/LE-fredericksen.htm

Jiang, M., & Ting, E. (1998). Course design, instruction, and student's online behaviors: A study of instructional variables and student perceptions of online learning. Paper presented at the Annual Meeting of the American Educational Research Association, April 13 – 17, 1998, San Diego, CA.

Mortiwalla, L., & Tello, S. (2000). Distance learning on the Internet: An exploratory study. *The Internet and Higher Education*, 2(4), 253-264.

Oliver, R., & Omari, A. (2001). Student response to collaborating and learning in a Web-based environment. *Journal of Computer Assisted Learning*, 17(1), 34-47.

Schramm, R.M., Wagner, R.J., Werner, J.M. (2000). Student perceptions of the effectiveness of web-based courses. *Distance Education Report*, 4(18), 1-3.

Wegner, S.B., Holloway, K.C., & Gordon, E. M. (1999). The effects of Internet-based instruction on student learning. *Journal of Asynchronous Learning Networks*, 3(2), http://www.aln.org/alnweb/journal/vol3_issue2/wegner.htm