

Technology and Support Implications for Small States in Delivering Online Courses*

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Abstract

Arising out of a conference on Technology in Education held at the St. Augustine campus of the University of the West Indies last year, the Campus Information Technology Services Department (CITS) has been working with the Instructional Development Unit and, to a lesser extent, the Distance Education Centre to explore options for distance education. The area of emphasis has been the delivery of courses online. The approach that the campus adopted was to train interested members of faculty, library and IT personnel in the use of a particular package, and a one year pilot project was initiated. This paper reviews that project to explore some of the technology and support problems that were experienced during that time and suggests/recommends an approach for moving forward. Areas of specific interest include the following:

- The role of the Technology Department
- The role of the faculty
- Cost associated with the purchase and maintenance of hardware
- Selection and purchase of software
- Training
- Types of implementation and post implementation support and the associated costs
- Managing the expectations of faculty and students
- Issues of access and security

Transitioning from face-to-face learning to online learning has several technological and support issues that should be carefully examined and understood if the process is to be successful.

Introduction

This paper explores the technology and support implication for small states in delivering online courses. In particular, it examines the experience

of the St. Augustine campus of the University of the West Indies (UWI), as it sought to enlighten and encourage a small group of multi-disciplined faculty members to explore the use of a particular

tool to deliver asynchronous teaching. This paper will show that transitioning from face-to-face learning to online learning has several technological and support issues that should be carefully examined and understood, if the process is to be successful.

The Campus Information Technology Services Department (CITS) of the UWI first became involved in this exercise in the second quarter of 1999. CITS was invited by the Instructional Development Unit (IDU) on the campus to partner with that department in delivering a programme on Web-based training. The objective of the programme was to introduce a specific tool used for the delivery of asynchronous learning to a small cross section of the faculty and library personnel. This initiative arose out of a conference on Technology in Education held at the St. Augustine campus of the UWI, earlier that year. The tool selected was TopClass,¹ which is a content and learning management system. It is a sophisticated Web enabled course management system comprising a database that stores all information on users, content and classes, and allows access via the Internet to authenticated users.

The key parties involved in this exercise were:

- The IDU - the chief organizer of the programme
- CITS - provider of the technology and technical support
- Participants - represented by faculty and staff

It is important to note that at this stage the campus had not taken a decision to officially begin using Web-based learning as an alternative to the traditional approach for the delivery of courses. Therefore there was no specific budget allocation for this exercise. This is a typical issue of funding

and financial support for these types of projects in small states.

The Approach

The Role and Involvement of the IDU

The Head of the IDU on the campus recognized the need for introducing such a programme at St. Augustine. After hosting the conference earlier that year, she believed that there was a critical need to follow up with practical hands-on experience in the use of such a product. It was important not only to sensitize faculty and staff about the product, but to provide them with an opportunity to use the product so that they may begin to see benefits in their own situations. Moreover, a number of institutions are exploring online delivery of their programmes as a viable option because there are a number of issues associated with traditional teaching and learning. These include overcrowded classrooms, scheduling difficulties, course work collaboration, physical distance between persons wishing to study and the courses, and delivery of adult education.

Identifying these issues is only the first step. The approach by the IDU was therefore to introduce the campus community to a pedagogy that was based upon collaborative learning approaches that recognize the power of Internet technology as a viable alternative. To this end, faculty and library staff were initially polled to ascertain their interest in pursuing such a programme. The response was very favourable; as a matter of fact, it appeared that if such a programme were delivered on the campus it would be oversubscribed and therefore would have to be carefully managed.

Next the IDU, as the primary driver of the process, sought and acquired the required funding to conduct the programme. Funds were required for the following:

1. Fees for the trainer
2. Airfare and accommodation for the trainer
3. Acquiring the software
4. Administrative training charges

The Role and Involvement of the CITS

CITS, as the name suggests, “has been given the mandate to manage the Campus’s IT. This involves supporting the missions of the Campus and the University through planning, implementing, operating and maintaining systems to enhance the Campus’s effectiveness.”² As a result, the department was approached to partner with the IDU to provide technical assistance and support for the hardware and software needed to facilitate the programme. As one would imagine, technical issues associated with the delivery of distance education are of paramount importance in restructuring traditional teaching and learning. While technology on its own cannot drive the change process needed in our education system today, a good understanding of both the opportunities and the problems/challenges created by attempting to integrate the technology with the pedagogy is needed to effect the desired outcomes. “Currently one of the serious problems and the primary impediment to the integration of technology into higher education instruction is the lack of an efficient faculty support system for instructional technology” (Maddux, 1999, 43).

In small states, it is even more of a challenge due to the inadequacy of support both locally and globally. This is so primarily because our support personnel are not product specialists as their counterparts are in developed or larger countries. At the St. Augustine campus, support personnel are divided into two categories: application support and technical support.

Over the last five years or so, application support has become very decentralized, with operational

departments opting to provide hardware, software and infrastructure support to end users of the application systems used to support the department’s core functions. For example, the Bursary staff supports the financial application; the Registry and Bursary staff support the personnel and payroll modules, respectively, of the human resource application; and the library supports its library applications. General desktop software, which includes such productivity tools as word processor, spreadsheet and presentation software, is supported by CITS in a centralized format.

With respect to hardware support, here too there is a mix of support strategies. The campus technology infrastructure is supported by CITS, while the faculties and departments generally support their own local area networks (LANs), and end user hardware. Support for the application hardware (servers) is generally provided by the faculties and department; however, this situation is being revisited, with some departments opting to have CITS provide their server support.

For this programme when the question arose: “How or by whom should application support be provided?”, it was agreed that both application and hardware support should be provided by CITS. With this decision taken, CITS was responsible for the following:

1. Setting up the lab to facilitate the training
2. Installing the application software on the server
3. Configuring the workstations to use the application
4. Testing the system in the environment
5. Providing system administration functions

With this project being exploratory in nature, no new or additional support personnel was

identified by CITS to perform these new functions. As a result, the functions were tacked on to the already onerous work schedule of one staff member.

The Role and Involvement of the Participants

Only full-time members of faculty and library staff were eligible to participate in the programme. They were selected based on the following criteria:

- Interest expressed
- A commitment to attending the entire programme if selected
- (Since space was limited) early registration

Participants were expected to have a working knowledge of the operating system (which was Windows NT on this campus) and a productivity tool such as MS Word or MS PowerPoint. "It is difficult to conceive of pedagogically sound ways to apply technology when you are not familiar with it" (Strommen and Lincoln, n.d.). Apart from those two basic requirements, participants were not required to have any other technical skills. They were also asked to prepare some type of course information, including a draft outline and some content, which would be used throughout the training.

From Planning to Implementation

Selection and Purchase of Software

This project was viewed initially as an introduction to Web-based training and the software product to be used for the training was not a critical issue. Eventually, the trainer selected to provide the training determined the software product. He had been a presenter and participant at the Educational Technology Conference and had worked with members of the IDU on the campus

and was in fact a trainer with WBT Systems, the developers of the TopClass product.

The campus decided to purchase the minimum number of licences (twenty-five) needed to satisfy the training requirements. This number was based on:

- The size of the lab
- The number of persons participating
- Scarcity of funds
- The training objective, viz. to provide participants with some functionality in using a Web-based training product

Hardware Selection and Purchase

Training would be conducted in the "new" CITS Training Laboratory and consequently there would be no immediate hardware cost implications. What was not considered, however, was the hardware implications for the post implementation support. This is discussed in another section of this paper.

Training

Installing the software and configuring the lab for the training was a fairly straightforward process. This was handled in advance of the training using pre-training implementation instructions sent by the trainer. Although it was envisaged that the trainer would provide the system administration functions for the training, the need, however, for these skills to be transferred to a local support person was quickly recognized. This was, yet again, an area in which the support issues began to challenge CITS.

Two individuals were identified from CITS to be trained on the system. However, neither could be dedicated to support persons, nor troubleshoot

and resolve issues as they arose either during or after the training. One individual was assigned to work with the IDU and the participants, manage and coordinate the technical aspects of the training, get an understanding of the product, and determine how this or similar products could be used on the campus. The other individual was assigned the work of configuring the lab and installing the application and other software needed for the training.

Administering the system involves the following:

- Creating TopClass users, including instructors, students, and other administrators
- Assigning privileges to the instructors
- Organizing students and instructors into classes
- Making course material available to students
- Maintaining the TopClass system

The first challenge came with respect to compatibility between the lab's hardware environment and the version of the software installed. As with most technical issues, a fair amount of time has to be spent testing and troubleshooting the system to ensure configuration and functionality. Although the lab's hardware configuration matched the requirements specified by the software vendors, there were a number of interruptions during the training to try to resolve configuration problems. These interruptions caused general disruptiveness, loss of concentration by participants, and resulted in the inability of some participants to complete their assignments.

Since Web-based training was neither a core function nor a mission critical application for the campus, no additional resources were sought or deployed to work on these problems. As a result,

the training experience presented some frustration to the participants. However, most participants (about 80 percent) stayed with the training to completion, for two reasons: (1) Prior (pre-registration) commitment, and (2) the information being presented was new, challenging and relevant.

The training was successful in achieving its objective: the interest of the participants was ignited. The new challenge was how to sustain this interest. The participants agreed that they must continue to use and become familiar with the product if any true benefits were to be realized. It was therefore agreed that the training lab would remain available to the participants at specified times to encourage this activity.

What Went Wrong

Ongoing Access and Posttraining Support

Although the training lab remained operational, it soon became quite clear to the participants that there were problems of access to use the system and the provision of support for problems encountered with the software. Access to the system was permitted only from the lab venue and was very restrictive and inconvenient. Participants would have preferred to access the system from their personal computers in their offices or homes. The configuration and installation of the application for individual participants was soon abandoned. Although performing these functions was assigned to a single technical support person, priority had to be given to "real" CITS work, and left no time for these activities that were considered extraneous.

Moreover, having successfully installed the application on the participant's machine, another problem arose: that of access to the data on the server via the Internet. This was further

complicated by the fact that the server, in its initial configuration, was not set up to be accessed from outside the lab environment.

The server had to be redeployed so that the data could be used and the Internet could be accessed. This took time and resources and resulted in some delays. As could be expected with each problem or delay, participants became more frustrated and less interested in continuing with the project. Furthermore, redeploying the server identified the need for purchasing additional, though inexpensive, software, again highlighting the issue of funding to support the project.

By the time the server was reinstalled to an area in CITS where it could be accessed via the Internet, only two of the original forty participants remained committed to continue. Eventually, only one of these two participants decided to move forward with a pilot/test case, in spite of the support concerns. Support problems soon rose to a new dimension.

What Went Right

The Pilot

The successful delivery of two programmes, one in Semester I and the other in Semester II, by a member of faculty, caused a burst of renewed interest by other faculty members. At least six lecturers have since asked to be given access to the system. The system has also been upgraded: new and improved hardware is installed and configured, the software licence has been renewed and a newer version of the software is installed. No additional licences were acquired, however, because it was felt that the initial number was sufficient to meet the needs of faculty and staff over the next academic year.

Lessons Learnt

- Ensure that there is reliable and available hardware infrastructure

- Provide for formal support and assistance for faculty and students
- Communicate regularly planned or unplanned downtimes
- Plan system upgrades with faculty
- IT and faculty must collaborate
- Need for faculty to have a tested back-up (contingency) plan
- Need for identifying resources dedicated to TBL at both IT and faculty levels
- Need to increase support and funding for online/Web-based learning since the investment can yield long-term benefits

Planning a Pilot

General Support

- Define the scope and objectives of the pilot
- Size of the project – number of faculty, students, courses
- Agree on the duration of the project
- Identify, source and configure hardware application
- Develop a service agreement for type of support needed and provided

Faculty Support

- Develop a service agreement for course development support
- Define and schedule the system's availability (7 x 24, fixed, flexible)
- Develop a service agreement for online access
- Define the procedures for systems administration
- Define requirements/schedule for course materials update

Student Support

- Develop a service agreement for training and usage support
- Develop a service agreement for online access

The involvement of faculty and students working with the project coordinator as well as the IT personnel is very important in getting developing this plan. Information that could be gained from such an exercise could include, but is not limited to:

- Ease or difficulties encountered in learning the system
- Ease or difficulties encountered using the system
- Flexibility of the system
- Availability of features for learning and teaching
- Ease of integration with other software

The Future

Prior to introducing the pilot, basic support issues should be considered. The need for on-going maintenance of the system as well as ensuring its availability is critical to the success of the pilot. Another area to be considered is the assignment of access rights to faculty members. Thirdly, the responsible for updating of course content must be clearly articulated and understood by all parties. Finally, issues associate with the students' access, and use and availability of the system should be defined and agreed upon.

Moving Ahead

The last twelve months provided a framework for beginning to understand the technology and support implications for small states in delivering online courses. As a result, some of these are

already being addressed for the new academic year. New support personnel are currently being recruited and will be trained to facilitate ongoing support. Although it is recognized that support will eventually be required 24 by 7, the present demand is not sufficient to justify the introduction of extended hours initially. It is envisaged, however, that consideration must be given to the following within the next year: a help desk facility; e-mail help-line; establishment of an in-house user group or association with external user groups; and on-going training for faculty and student users.

Notes

*The views expressed in this paper are those of the authors and may not necessarily reflect the official views of the organization with which they are associated.

1. TopClass operates as a client/server application over corporate or campus intranets or the Internet. Courses are created in a Web deliverable format, such as HTML, Java or JavaScript.

2. Revised CITS Organisation, page 1.

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