

Audio Teleconferencing In The Commonwealth Caribbean: Possibilities And Challenges In The Context Of The University Of The West Indies Distance Education Centre (Uwidec)

Michael L. Thomas

The University of the West Indies Distance Education Centre, Barbados

ABSTRACT

Teleconferencing in the Caribbean revolves around the University of the West Indies (UWI). Being a regional University, it caters to the higher educational needs of 16 countries in the Caribbean. It has been offering courses through the teleconference system since 1982. However, the network has been undergoing various changes and remains robust. This paper attempts to provide a compendious account of the genesis, status and prospects of this teleconferencing network and advances it as a medium for widening UWI's reach throughout the region.

INTRODUCTION

Audio teleconferencing may be described as two-way voice communication between three or more people in separate locations using standard telephone type technology (Keough, 1987). In university courses taught by distance education, teleconferencing offers a real – time linkage of the teacher and the learner who may be scattered singly or in small groups across a wide geographic area, as is the case of the Anglophone Caribbean. The potential of the teleconference as a highly interactive educational medium lies in its capacity for allowing communication to take place between learners and their peers and as well as with their instructor. In the case of the teleconferencing system utilized in this study, instructors usually transmit from a studio and use open microphones, while learners go to designated centers and depress a bar on their microphones to transmit their voices to other sites on the teleconference circuit.

Audio teleconferencing in the Commonwealth Caribbean today revolves around the University of the West Indies (UWI). As one of two regional universities in the world – the other being the University of the South Pacific (USP) - UWI caters to

the tertiary educational needs of 16 countries in the Commonwealth Caribbean: Anguilla, Antigua & Barbuda, (the) Bahamas, Barbados, Belize, (the) British Virgin Islands, (the) Cayman Islands, Dominica, Grenada, Jamaica, Montserrat, (the) Republic of Trinidad and Tobago, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines and (the) Turks and Caicos Islands.

UWI started offering courses through the system of its audio teleconference network as early 1982. Over two decades of its existence, keeping abreast of technological advancements and the requirements of the university, the network has undergone various changes. Despite the challenges created by technological dynamism, the network remains robust. The paper attempts a compendious account of the genesis, status, challenges and prospects of the audio teleconference network.

GENESIS

Caribbean people have been taking correspondence courses for decades, however the regional use of distance education has its genesis with the University of the West Indies. The distance education /learning activities at UWI have their origin in the *challenge scheme* introduced in 1977. As one of the most interesting and significant development of the period, it enabled students in non-campus countries to register and sit Part I of the degree courses without attending or being provided with any significant support from the University of the West Indies. Under the aegis of USAID, the Caribbean Regional communication study (CARCOST) undertook a survey in 1981 to assess the feasibility of using two-way audio teleconferencing to widen UWI's reach to non-campus countries in the Commonwealth Caribbean. Following the positive outcome of this feasibility study, USAID committed a three-year grant in 1982 to equip and manage five (5) teleconference rooms in at (5) sites in the Caribbean (Barbados, Dominica, Jamaica, St. Lucia and Trinidad & Tobago) with a view to supporting courses in social sciences, teacher training, health and agriculture. This operation evolved to be called the University of the West Indies Distance Teaching Experiment (UWIDITE). In addition to the USAID grant, funds were also received from the European Development Fund, John Hopkins Programme for International Education in Reproductive Health and the Governments of Dominica and St. Lucia.

This was the first time that UWI used the information and communication technology medium to widen its reach within the Anglophone Caribbean. In that new dispensation, the typical course package comprised (i) audio teleconference in

place of or/and as a supplement to classroom lectures, (ii) local face-to-face tutorials, (iii) wrap around printed course materials and, (iv) occasional visits of faculty members, based at the University's three campuses – one in Barbados (Cave Hill Campus), Jamaica (Mona Campus) and Trinidad & Tobago (St. Augustine Campus) – to the non-campus countries. Encouraged by the positive reception UWIDITE received, the University assumed the responsibility for continuing the activities, when the project came to its end in 1985, retaining the same acronym, but replacing the word 'experiment' with 'enterprise'. Subsequently, the print package was enhanced with the support of the Dutch Government during 1985-1986. By 1993, nine (9) more audio teleconferencing sites were added to the network effectively bringing the total number to fourteen, eleven of which were in the non-campus countries.

In 1992, a study commissioned by the Commonwealth of Learning (COL), Canada, provided a justification and guidelines for UWI to incorporate distance education operations as an integral component within its thrust for expansion and enhanced services. A report by Renwick, Shale, & Rao (1992)¹ explicitly provided the policy justification and guidelines for making distance education an integral part of the University's higher education thrust. Following the decision of the University to embark on the dual mode operation in 1992, a decision that had other moorings as well-- in its Development Plan 1990-2000 (the university had set itself the task of delivering full programmes at different levels through both the distance as well as the face-to-face mode, partly because the non-campus countries had been demanding greater responsiveness to their needs from the University), the University of the West Indies Distance Education Centre (UWIDEC) was established in 1996 subsuming the UWIDITE activities. In 2000, the analog audio-teleconference network was replaced by a digital one. Its physical plant has been improved in terms of space, the addition of computer labs, additional specialist curriculum staffing and Internet facilities all through the system.

¹ Renwick, W., Shale, D., & Rao, R. V. R. C. (1992). Distance education at the University of the West Indies: Report of an appraisal carried out on behalf of the Commonwealth of Learning. Vancouver: COL.

STATUS

UWIDEC Technical Environment

UWIDEC operates a wide area network (WAN) to support distance teaching in 16 countries of the Anglophone Caribbean. The typology of the Network is a distributed star, with hubs at Port-of-Spain in Trinidad, Mona in Jamaica, Cave Hill in Barbados and Basseterre in St. Kitts. Nine locations in Jamaica are connected to the Mona site, while one is connected to Cave Hill in Barbados and one to Basseterre. The remaining sites, together with those already mentioned connect to the Port-of-Spain main hub. Each connection is a single 64kps leased circuit, except in the case of Mona (Jamaica) to Port-of-Spain (Trinidad), which consist of three 64kps circuits making that connection. All the circuits in the network are terrestrial except for one of the Jamaica to Trinidad circuits, which is via satellite. Seven locations are not connected to the UWIDEC network and they participate in audio conferences by dialup to the Mona (Jamaica) or Port-of-Spain (Trinidad) sites.

Technologies in use

Today, UWIDEC runs a regional audio-graphic digitized network involving 30 university centres, 48 teleconference rooms and 30 computer labs in sixteen countries. Each air-conditioned room is around 800 sq. ft. in area, is outfitted with a conferencing unit connected to 12 push-to-talk and one lock-on microphone for two-way interaction. A pair of wall-mounted high performance audio (loud) speakers is connected to the conferencing unit. Each teleconference room also has a computer connected to the network and outfitted to a graphics tablet, a 29 - inch colour monitor and a 15 - inch monitor, a low quality video conferencing kit and a TV video card. The software applications installed in the computer includes Microsoft NetMeeting and Microsoft Office Professional. In one of the teleconference rooms at each of the three campuses of the University, an electronic whiteboard is connected to the computer. In addition, each of the 30 university centers has a computer lab, a 10-workstation setting with interactivity across the entire network.

While push-to-talk microphones are used for voice, the electronic white board feature of the Microsoft NetMeeting software is being used to send text, freehand writing and drawings or prepared presentations. In the case of freehand writing and drawing, this is transmitted on a graphics tablet with an electronic pen connected to the computer and is displayed on a 29 inch monitor at each room in the conference. All the teleconference rooms have equal audio teleconferencing

functionality, which allows full interaction among all the teleconference sites across the network.

The UWIDEC network is a private network using 64kps circuits leased from two telephone companies operating in the Caribbean region. The network is capable of providing a range of services including electronic whiteboarding, powerpoint presentations, applications sharing, file transfer, electronic distribution of course materials, and synchronous and asynchronous teaching/learning arrangements. The Nortel Marathon routers used in the network can carry voice telephony and data traffic on the same telecommunications circuit. The routers emulate a private telephone network, which is used by the audio conference bridge to setup the teleconferences. In the absence of leased lines, at a few UWIDEC Sites, dial-up lines are being used.

The teleconferences are setup and managed centrally by the main audio conferencing bridge located at Port-of-Spain in Trinidad. Before the start of a teleconference, an operator performs an audio check with each participating room, before handing the controls over to the presenter. The operator also records the teleconference in MP3 file format for replay in the case of technical problems at a location. It is possible for a number of teleconferences to occur concurrently, but this is limited to the availability of rooms and scheduling clashes. While a local site technician provides technical support during the course of the audio teleconferencing sessions, snags if unmanageable locally are referred to senior technical staff located at the Mona (Jamaica) and Port-of-Spain (Trinidad) sites.

UWIDEC AUDIO TELECONFERENCE NETWORK: LIMITATIONS AND SOLUTIONS

The audio component of the current network is of commercial quality. However, for further improvement in the use of the network, some issues including the following are being assiduously addressed:

Recurrent Cost:

The recurrent telecommunication cost of operating teleconferences in the Caribbean is very high and limits the ability to use the full potential of the technologies that were procured. For example, the cost of every network hour is estimated to cost US \$250. This is apart from the cost incurred on other items such

as utilities and the actual cost of the time a presenter gives to the network for which he/she is paid a fee. An average estimate will show UWIDEC incurring a month rental bill of the network of about US \$50,000 or US \$600,000 annually. In addition, we have to also factor into the equation the cost of maintenance, upgrades and training. Replacement of the existing bridges is necessary as these bridges are no longer supported by the respective manufacturers. It is also worthy to note that the cost of replacing the existing audio bridge is estimated to cost US\$ 250,000. As a legitimate item for public funding, spending on this has to be rational and transparent vis-à-vis its efficacy and utility as well as returns from its operations and sub-operations. In my view the rental cost cited are simply unacceptable.

Equity in Services:

All the circuits in the network are terrestrial except for one of the Mona to Port-of-Spain circuits, which is via satellite. Seven locations are not connected to the UWIDEC network and they participate in audio conferences by dial-up to the Mona and Port-of-Spain sites. In the present arrangement the cost incurred by those locations are prohibitive. This situation as presently exist militates against one of the basic tenets of Distance Education, namely equity in the provision of services. This is a matter worthy of urgent redress.

In addition, the network is functional for at least 12 hour per day (from 9:00 a.m. to 9 p.m.). However, the network can be used for distance learners optimally only for 4 hours (between 5:00pm and 9:00pm), as generally these students are working adults. When we take into consideration the three time zones that we are spread over, it becomes difficult to effectively engage students from Barbados to Belize synchronously, simply because of the time difference – when it is 5:00pm in Barbados, it is 3:00pm in Belize. Therefore it is clear that equitable service to the whole region and synchronous delivery cannot go together without causing difficulties for some of our learners especially those residing in rural districts who do not own motor vehicles or have access to reliable public transportation. It is imperative that a reconsideration of the components of the curricula form part of a strategy to overcome this difficulty.

Programme Scheduling:

Scheduling of network time continues to be a formidable task, given that there have been increases in the number of courses, requests indicating preferred dates and time for presentations, requests for last minute changes. Lecturers who teach

both face-to-face and distance classes are more inclined to facilitate the timetabling given for face-to-face and loath to maintain the scheduling given for distance teaching over the audio teleconference network. Generally audio teleconference sessions are carried out between 0900 and 2100 hours, and on Saturdays between 1000 and 2100 hours, and occasionally on public holidays. There are occasions when the services of on-site technicians are required for about 12 hours continuously. This puts on-site technicians under great pressure. Furthermore, the busy network schedule leaves no reasonable time, except Saturday nights and Sundays, to carry out maintenance activities.

Optimal Utility:

In examining the issue theoretically, we have available 3000 network hours per annum (12 hours x 5 days x 50 weeks). From this, strictly speaking only 1000 hours per annum (4 hours x 5 days x 50 weeks) are being utilized for delivery of distance education programmes. Our overall average utilization, however, is approximately 1500 hours per year, as most of the non-academic activities take place during the daytime. Therefore 1500 hours representing half of the capacity of the network remain underutilized. In an economic sense it means that US \$300,000 per year is wasted routinely because we have no business to conduct during that time. In addition our present curricular design, which allows 8 hours of network-time for teleconferences per course does not allow us to add any more courses per semester, as we have already reached our maximum capacity. To introduce more courses would mean a reduction in network time per course. This therefore bring to the fore the all important question 'what is the optimum network time per course that is pedagogically desirable?' We need to keep in mind when answering this question the need for repeats and demands for additional hours to address difficulties.

Staffing:

Higher levels of technical expertise than is available to us are required to maintain and keep running the hardware and software at all the teleconference sites as well as the computer labs in operation currently. Similarly, the same applies to the hub sites in Jamaica and Trinidad. In addition as mentioned earlier in the paper, there are occasions when the services of on-site technicians are required for about 12 hours continuously. Inadequate staffing of on-site technicians put the system under great pressure. Adequate staffing is required to address this deficit and increase the efficiency and effectiveness of the system. Other developments such as the implementation of the VSAT network, the UNESCO- Japan assisted system

upgrade, the Caribbean University Levels Programmes (CULP), UWIDEC-OAS project need appropriate staff for them to be implanted successfully. There needs to be adequate budgetary provision for the number and levels of staff required.

Staff Development:

As new communication technologies are inducted to augment the present network services, though not at a pace with which the existing technologies are becoming obsolete, technical staff should be trained on a continuous basis. With every phase of technology upgrade staff need corresponding retraining. The challenge is in procuring funding for training for technical staff to continuously upgrade their technical expertise and remain abreast with the current and emerging technologies so that they can purposefully plan, design and operate the network in the future. Funding for this type of training must be part of a routine budgetary provision. Furthermore, as trained technicians remain in shortage in the Commonwealth Caribbean, other agencies lure the UWIDEC technicians with a more attractive remuneration package, and this also necessitates an ongoing training schedule for induction as well as continuing professional development.

Murugan & Thomas, (2002) in examining the issue in retrospect concluded that the teleconference network, seen as a symbol of Caribbean integration, must be used to enhance the quality of distance teaching/learning, and accordingly, a certain number of teleconference sessions are seen as an essential part of the instructional system. What was not paid attention to, however, was the technical capacity of the network, the training required for using and deriving benefits from the network, availability of time-slots for various courses and of faculties, etc. Without ensuring all this as also the effectiveness of the medium to facilitate learning, making it part of the instructional system has created its own quota of problems, while UWI finds itself paying prohibitive amounts to the telecommunications monopoly in the region.

PROSPECTS

When UWIDEC was set up in 1996, it was given the clear mandate of increasing the university's enrolment, in particular from among potential applicants in the non-campus countries of the Anglophone Caribbean. The mandate as embodied in the *Strategic Plan 1997-2002* also states in part as one of its four core objectives, its

willingness to “contribute to the expansion of access of Caribbean people to tertiary-level education and training...”.

The growth of enrolment in distance education programmes exceeded the strategic plan target of 1,000 FTE students. Between 1997/1998 and 2001/2002 the number of students enrolled in UWIDEC programmes rose from 1,510 to 2,328, an increase of 54.2%. At the end of the plan period, distance education offerings remained heavily concentrated in the Social Sciences and Education, although there was a strong course development effort in progress to expand educational choices. Major investments were made in the advancement of the computer technology and telecommunications infrastructure. Among the major developments were installation of a new digital network, computer laboratories and a VSAT system.

The present *Strategic Plan 2002-2007* posits the rapid enrolment growth as indicative of the buoyancy of demand for distance education in the region and vows to make the restructuring of distance education a major undertaking of the highest priority. Included in it major initiatives for restructuring distance education and deepening the impact of the university’s reach in the non-campus countries (i.e., the countries where UWI does not have a campus but operates through centres) are the plans to implement a shift to asynchronous delivery of distance education programmes, adopt web-based delivery as the preferred mode of delivery of these programmes, ensure that the distance education programmes are responsive, learner-centered and cost effective and to invest in the UWIDEC telecommunications network for enhanced coverage and zero-fault operation.

With enrolment figures for distance education programmes at 2,511 over the period 2002/2003, the *Strategic Plan II 2002-2007* proposes to expand distance education enrolment by at least 200% over the plan period, after radically reforming the system, including technology enhanced learning to facilitate wider regional access to higher education. Given all that has been articulated before it can be concluded that the need to increase the number of courses on offer would force us to either reduce network-time per course which would amount to making this component dysfunctional and work out a different curricular design. It is therefore imperative that we move from synchronous audio teleconferencing to asynchronous computer conferencing (e.g., using bulletin board operations), while retaining the present arrangement until the required transition is effected. There are numerous advantages associated with such a shift:

- I. The cost associated with paying for and maintaining the audio teleconferencing network is gradually eliminated.

- II. The Internet is there for whosoever wishes to use it, in addition to the fact that the cost of Internet access is more manageable.
- III. Differing time zones ceases to be a problem as learners can communicate in their own time from wherever they are.
- IV. We can offer as many courses as we can put up.
- V. The colossal effort put into scheduling, monitoring and readjusting network conferences is saved and thus human resources thus released can be used more profitably and purposefully.
- VI. The problem associated with the varying accents of the language of delivery ceases to be a handicap.
- VII. Learners are able to improve on their reading and writing skill, ones they need most for examinations and course work.
- VIII. It will eliminate the need to have to arrange tutors for every two or three learners in various locations.

This means that we may need one tutor for every group of about fifteen students. Thus the number of students required may depend on the number of students on a course, not on locations or the number of locations. Shortage of tutors will cease to be an issue.

In order to enhance our course delivery capabilities, the university has signed a cooperation development agreement with IACD/OAS (i) to use the educational portals of the OAS for imparting education at a distance; (ii) to explore the possibilities of using the SATMEX (Mexican satellites) with a view to incorporating web-based learning into the distance education provision of UWI. In addition, there is an ongoing OAS-UWIDEC project aimed at including CDs with audio, video and textual content and Internet complements into our course packages. UWIDEC is also poised to induct JITL (Just-in -Time Learning Technology) to enhance the quality and reach of distance programmes by providing an alternative to local tutorials and audio teleconferences. These initiatives, when implemented, will result in a reduction of the pressure on the audio teleconference network thereby allowing for spare capacity for courses and other activities and a cost saving to the university.

CONCLUSION

The challenges UWIDEC faced due in part to idealistic policies that limited its operational possibilities, and the lessons learned over the years prompted the positive observation that “The most far-reaching development in respect of distance education has been the decision to implement a new management system for the operation. The new system will establish an academic committee and a management structure independent of the existing Faculties to oversee the delivery of distance programmes. This development will free the operation from the constraints it experienced during our espousal of the faculty-driven model over the last two decades. We expect the change to enhance the quality of service offered to our students and to accelerate the rate of growth of our distance mode delivery” (Vice Chancellor’s Report 2000/2001). Without getting down to the details, the paper reiterates the view articulated by Murugan & Thomas (2002) that induction of technology can help improve the quality of student services. The paper also underlines the importance of robust policies to effectively guide the implementation of technology-enhanced learning at the University.

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