

E-LEARNING IN A SMALL ISLAND STATE: THE CASE OF MAURITIUS

Professor Indurlall Fagoonee

Abstract - Model for an e_Learning Strategy in the Island State of Mauritius, Indian Ocean Mauritius is a small island State in the Indian Ocean far off from mainland Africa and Asia, with a population of 1.2 million, and a prospering economy based essentially on an export-oriented small manufacturing sector, agriculture and tourism. The University of Mauritius is the only degree-awarding higher education institution which can absorb only 40% of the secondary school leavers. Limited building infrastructure does not permit additional intake. Consequently the University had to devise a long-term Strategy to cope with the situation by appropriate planning in the following phasedwise approach: -

Introduction of distance education based purely on printed materials in Course units (modules) that are taken by a large number of students, whilst maintaining the mixed mode delivery - slowly increasing the number of DE modules, - designing staff-training strategies in pedagogy and technology transfer, and - developing international North-South partnerships (bilateral and multilateral). After a decade or so of experience in the conventional DE, the University is now focusing on e-Learning in order -to democratize and provide greater access to higher education, -to capture a wider spectrum of the population as life-long learners by providing flexible and on-line education and training, and - to diversify its course disciplines in order to better meet national societal and industrial needs. Throughout, staff development had to be sustained in course design and development, new learning methodologies and technologies, management of distance and virtual learning programmes, and transfer of key skills. There is scope for strategic alliances with internationally renown institutions and for regional expansion of e-Learning initiatives. Globalisation is no longer a catchword; it is in operation, thus making borderless education available anytime anywhere at one's choice a reality.

Introduction

Since independence in 1968, Mauritius has developed from a low income, agriculturally based economy to a middle income diversified economy, with a growing industrial, financial and tourism sectors. For most of the period, annual growth has been of the order of 5% to 6%. This remarkable achievement has been reflected in increased life expectancy, lowered infant mortality and a much improved infrastructure.

Relevant statistics in 1999 reveal the following key salient features of the Island.

GDP – per capita \$ 10,400
GDP – real growth rate 4%
Literacy – 82.9% (defined as age 15 and over who can read and note)
Population – 1,179,368
Population growth rate – 0.89%
Population Density – 590/m ²
Net migration rate – 0.93 migrants/1000 population
Age Structure:
0-14 years – 26%
15-64 years – 68%
65 and above – 6%

Fig. 1: (Source: CIA – World Feedback 2000 Mauritius)

Educational Sector

The distinctive feature of Mauritius as a country in the African continent is that education at all levels, from pre-Primary, Primary, Secondary and Tertiary is free. Initiated in 1976, this measure democratized education in Mauritius and enrolments surged up. Enrolments at only primary and secondary levels stood at 223,000..

With globalisation and the dismantling of the protective net within which Mauritius used to operate and the gradual loss of our competitiveness due to rising labour costs, it has become necessary to readjust our industrial growth and focus. More and more emphasis is now being placed on the “knowledge-based society”, with Information Technology as the main driver (World Review 1995).

With this new paradigm shift, the importance of human resources to an Island economy with no natural resources becomes evident. Thus the stock of human resources needs to be engineered and re-engineered. A situation has arisen, where:

- there is a strong demand for re- skilling and life-long learning, rather than once for all acquisition of only an entry qualification in the world of work,
- industries require a highly skilled workforce of information and knowledge workers.

- there is also a demand for higher order skills in the fields of Engineering, Information Technology, Science and Management.

Coupled with these considerations, it has been observed that our participation rate at the Tertiary (Higher Education) level is at a low level, as compared with what is available in Europe and Asia. In 1999, it is at 6% as compared to 25% in high performing countries, - our low participation rate being mainly due to limited capacity of our Tertiary Sector (Government of Mauritius, 2000).

Further, the world-wide trend for a mass system of higher education has already reached our shores, and the educational expectations of the community have risen up. University education is more and more seen as a legitimate right rather than a privilege.

On account of limited infrastructural facilities, the Tertiary Sector, dominated by the University of Mauritius, cannot satisfy the growing demand for Higher Education. Students who can afford it seek alternatives overseas. In 1999 some 2010 privately financed students were studying at overseas Institutions. Others who cannot afford to study full-time at overseas Universities prefer to study through correspondence courses. In 1999, a total of 4650 students were following courses on Distance Education mode.

As at 1999 out of a total 15,317 students studying in Tertiary Education Institutions only 4,260 were registered with the University of Mauritius.

University of Mauritius

Conscious of its low participation rate and its limited capacity (44%), University of Mauritius experimented with Distance Learning in 1993, with the assistance of a Canadian International Development Agency (CIDA) funded project. It adopted the 'mixed mode' model, comprising DE materials (print, audio and video), supported by weekly/fortnightly tutorials. This strategy has enabled an increase in intake and in enrolment. In 1996/97, the intake was 1029 students; the figure shot up to 1769 in 2000/2001. Similarly the total enrolment was 2725 in 96/97; it rose to 5373 in 2000/2001. Out of the 1999/2000 student population student/module offered on mixed mode delivery stood at 5200.

The Paradigm Shift

The challenges that faced European/Asian Countries in Higher Education have reached our shores. These include decreased final resources in terms of grants, increased diversity of students' learning needs and preferred learning styles, increased demand for more accessible Programmes with more relevant contents, and increasing competition from providers of correspondence schools. Further,

increasing demand for competencies such as critical thinking, knowledge creation, teamwork, and collaborative learning, together with the ability of technologies to enable much more learner initiative and control have produced a paradigm shift. Moreover, the growth of knowledge, with its attendant consequences of obsolescence of much of what was previously learned, is placing an ever-increasing pressure on conventional modes of education. People are now seeking opportunities for life-long learning, and with diverse personal circumstances, they require flexible access to learning opportunities and venues such as the home, the work place, the community learning centre, as well as the traditional campus-based institution.

THE ENHANCED MAURITIAN CONTEXT: FORCES DRIVING CHANGES.

Government support and backing for ICT

Many measures have been taken by Government to "revolutionize" ICT use in Mauritius. For example, long-term loan with a soft rate of interest is available to purchase computers; strategic alliances with IT institutions in Bangalore and others in order to create a Cyber Island and cybercities show the government's current priority for ICT penetration in all homes in the country.

Mauritius is already operating in a borderless educational society. At the University, networking facilities have hooked up each and every one.

More and more emphasis is being placed on Quality Assurance in Mauritius, especially at the University of Mauritius. It is believed that the Quality of learning experience can be enhanced by Information and Communication Technologies.

All these changes are converging to create a time of unprecedented opportunity for new ways of delivery and supporting educational opportunities. E-Learning is a major beneficiary of these changes.

E-Learning at the University of Mauritius

E-Learning is a means of becoming literate involving new mechanisms for communication: computer networks, multimedia, content portals, electronic libraries, distance learning, and web-enabled classrooms. It is characterized by speed, technological transformation and mediated human interaction (The teaching space e-learning and Distance Education, 2000). It is the asynchronous or synchronous (real-term) delivery of training and education over the Internet appliance. Process wise, it is learner-centred, personalized, continuous, responsive, social and performance-driven (e-Learning special Industry Report, June 2000).

E-Learning is, in fact, complementary. Actually, E-Learning has, been viewed in some quarters as the means that replace the “Brick University” with the “Click University”.

University is fully aware that knowledge is the competitive weapon of the 21st Century. Education is, in fact, a barometer of competitiveness at the global and corporate levels, and can be considered as a prime catalyst for how well individual do in their lives and in their careers.

In fact, we are in a seller’s market in Mauritius - the multi skilled, flexible employee has bargaining chips this in certain employment areas. More often than not nowadays, organizations are forced to hire people who may need training from the get-go, and because of the ever-changing economic environment, need to be constantly re-skilled. Further, today’s pressure-filled life style, where workers have to balance a career with family life, does not lead itself to formal education solutions. Returning to the lecture rooms on a full or even part-time basis is not often the option, and this is to the detriment of both the persons and the cooperation. Alternative methods of education, with different focus are not only desirable, but are being increasingly necessary.

To cope with this new requirement, University of Mauritius, as the apex organization in the Tertiary Sector, has re-designed its Programmes and focus to meet the educational requirements of the knowledge economy.

The focus of the Paradigm Shift is a follows:

<u>Past Requirements</u>	<u>Future Requirements</u>
Skills	Knowledge
Product-oriented	Process oriented
Graduate	Life-long earning
Passive participation	Active participation
Just in case	Just in time
Static content	Customized dynamic content
Mandated	Self-directed
Instructor-led course	Library of learning matters

The Curriculum Development Committee, together with the Quality Assurance Committee have re-visited all Programs at the University to ensure that they (the programme) answer to the imperatives of the new educational requirements.

At infrastructural level, it has taken a bold initiative by creating the Virtual Centre for Innovative Learning Technology (VCILT) that would be supported by the Centre for Information Technology and System (CITS) and Centre for Distance Learning (CDL) for greater synergy. The Centre for Distance Learning provides the pedagogical back-up, while the Centre for Information Technology and Systems ensures that the Technology is in place for the proper functioning of the VCILT.

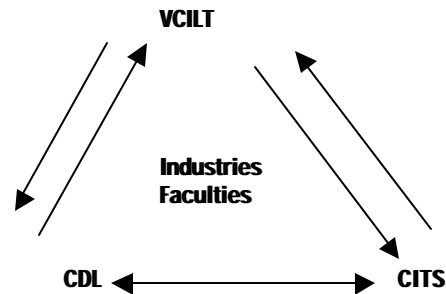


Figure 2

Pedagogical research at the CDL, backed up by CITS, provide Innovative pedagogical methodologies for the benefit of the VCILT.

IMPLEMENTATION STRATEGIES

Operational Framework Preparing the Campus Environment

A sensitization and awareness activity was launched with all stakeholders, namely, lecturers, students and top management. The project e-Learning was discussed fully; views and apprehensions were noted, and the role of each partner in the project was specified.

The general feeling is that the free flow of information, horizontally and vertically, has removed doubts, and skepticisms, and has established a relationship of mutual trust and confidence.

Feasibility Study

A feasibility study was carried out with the assistance of a foreign consultant. The potential of the project, in the short term medium term and long term, and its driver role in the University’s Strategic Plan was assessed. In fact, the project was integrated in the overall Strategic Plan of the University 2000-2004, to enlist the commitment of one and all.

A STRATEGIC ACTION PLAN

A Strategic Action Plan was prepared with the assistance of all stakeholders, to deal with the various components of the project, namely:

- (i) Human Resources
- (ii) Infrastructure
- (iii) Training
- (iv) Governance

Changing Strategies

Basically, there are two models of e-Learning dimension. The first one emphasises technology as an overwhelming driving force, with the emergence of a few global e-Learning providers dominating the educational market through vast distribution networks and strategic partnerships. It resembles the shot-gun approach. The other model involves a more explicit, policy-based approach concerned with issues such as curriculum relevance to labour market needs, cultural sensitivity and appropriate academic coverage and depth. In other words, this approach is customized and tailor-made to the needs of clients.

Admittedly, these two approaches are not mutually exclusive, and they can co-exist side by side, although at the initial stages in the first instance. University of Mauritius has realized that if both models are to co-exist in a positive way, then a structured change strategy has to be set in place.

At the University of Mauritius, an incremental approach to e-Learning has been adopted to prevent the risks of creating “truncated learning”, “learned helplessness” and even “tunnel vision” syndrome in the academics and users. In addition to sensitizing the whole campus on the e-Learning potentials through regular issue of bulletin and newsletter, top management has conducted, with the assistance of key resource persons, a series of workshops and training sessions for the benefit of interested academics, who would eventually be the trainers. Through training the trainers strategy, it is hoped to effect capacity-building in e-Learning gradually.

Similarly, to ensure a smooth gradual shift, University of Mauritius opted for a piecemeal approach strategy in putting modules on-line. Academics are encouraged to convert topics in their modules, rather than the whole module, on-line format. This strategy has enabled integration of topics, on an interdisciplinary basis, and provides for greater understanding and comprehension among academic staff.

Great care is taken to ensure that information and communication technology development planning at the University is linked with educational planning, so that application is both appropriate and sustainable in terms of access to the infrastructure. In this respect, e-Learning is restricted to existing modules, and existing Programmes.

At the same time, University of Mauritius has taken care to see that all aspects of appropriateness have been fully considered. In other words, great pains have been taken to ensure that the technology adopted is appropriate to the skills and characteristics of the target learners, the nature of the programme content, the current competency of the instructional staff, and of course, available funding.

In order to show the benefits of e-Learning, sessions of on-line delivery of courses were held for the benefit of academics to emphasise how the application of information and communication technologies in education can enhance existing practice. It is believed that if lecturers perceive that a given application will help them to accomplish their goals more effectively and efficiently, they will be more likely to change their behaviour and will be motivated to acquire the necessary skills and knowledge.

The University is aware that change often occurs at the initiative of the individual lecturers rather than by only strategic decisions taken by top management. Accordingly, to encourage and support initiatives of Faculty members in e-Learning business, the University has set up a comprehensive package, including financial and non-financial for the academics.

Finally, a bottom-up approach has been adopted as a change strategy, and it has worked well. Academics and Administrators feel that they are part and parcel of this innovative project, and that they are wholly responsible and accountable for its success or failure.

OTHER STRATEGIC CONSIDERATIONS

Technology

The use of ICT across Mauritius in the educational field is increasing rapidly. At University level, a module known as ‘Introduction to Information Technology’ is compulsory. Further, at national level, the Government has taken aggressive measures to revolutionize Information and Communication Technological tools at all levels, even in pre-primary schools. These measures, in fact, make it more acceptable to the people, in particular the students “to do things virtually”.

Increasing the capacity of the bandwidth at affordable rates has further reinforced the Government policy to transform Mauritius into a Cyber Island.

Financial Impact

The implementation of an e-Learning strategy at the University is proving to have significant cost implications. Two factors that serve to increase costs are the development of instructional materials for media-based delivery and the costs of training and re-training of personnel.

In fact, these are both front-end capitalization costs as well as operating costs such as network access and equipment maintenance/purchase. These increases are predictable in any application of ITC where the development of e-Learning

is treated as an “add-on” to existing educational practice, and where the opportunity for economies of scale are not achieved within the Institutions.

University of Mauritius is fully conscious of this constraint. It is trying to establish strategic partnership with private firms/organizations to service their training needs. Such a strategy enables the University to keep abreast of the world of work, as well as spreading its costs.

In addition, University of Mauritius intend to service the Indian Ocean Region. We presently run courses for the member state in the Region, in collaboration with Université de l’Océan Indien (UOI). By offering e-Learning opportunities, University of Mauritius will be rendering a service to the Region, while at the same time decreasing its costs of operations.

Human Resource Impact

University of Mauritius is fully conscious of the fact that the major impact of the introduction of e-Learning is on the role of the lecturer. It is clear that the willingness of lecturer and Faculty to adopt the use of ITC and to change their pedagogical strategies is a major determinant of the speed of development of e-learning at the University.

Thus, University has given due attention to training needs and to fostering of an organizational climate that rewards innovation. As the same time, it has taken care to ensure that instructional design and technical support expertise is not only available to support lecturers, but also to lead the process of change.

Training workshops in Andragogy and Pedagogy, together with training facilities made available to us under different projects (FADIM, CAERENAD) are slowly effecting the change process.

SHORTCOMINGS/ CONSTRAINTS

The self-directed nature of e-Learning requires dedication and discipline on the part of the learners as well as learning managers and programme leaders. Users must be motivated to complete and participate in all aspects of the learning programme, and managers need to monitor students’ participation, evaluate learning, and perpetually entice the users to keep up with their studies.

To overcome this problem, University of Mauritius provides for the human support/element so that the students remain motivated and stick to their schedule.

In fact, in Mauritius, as technical adoption barriers drop, PC penetration at home/schools/workplace and University goes up, according to the Internet increases, and bandwidth ceases to be a significant issue, integrating media-rich content with other educational media alleviates the shortcomings of e-Learning adoption. E-Learning will be a significant contribution to re-building an educational model that merits today’s knowledge development requirements.

CONCLUSION

Complementing the “Brick University” with the “Click University” holds out a promising future for the University of Mauritius, the Island and the Region. University of Mauritius will enable the Mauritians to break their “insularity” and foster a “Regional Village” for the engineering of Education.