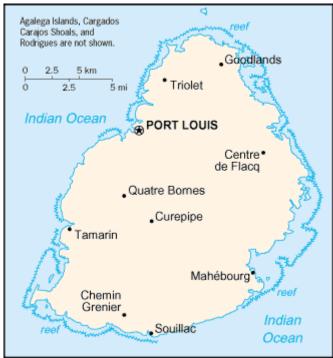# ICT in Education in Mauritius

by Shafika Isaacs
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Source: *World Fact Book*[1]

Please note:

This short *Country Report*, a result of a larger *info*Dev-supported *Survey of ICT in Education in Africa*, provides a general overview of current activities and issues related to ICT use in education in the country. The data presented here should be regarded as illustrative rather than exhaustive. ICT use in education is at a particularly dynamic stage in Africa; new developments and announcements happening on a daily basis somewhere on the continent. Therefore, these reports should be seen as "snapshots" that were current at the time they were taken; it is expected that certain facts and figures presented may become dated very quickly.

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Overview

Following the model of the Singaporean experience, the Mauritian government has been visionary in its promotion of its country as a "cyber island," a hub for the southern African region with a diversified economy. Mauritius has attempted to promote ICTs in schools since the late 1990s which is reflected in its national ICT policy, a segment of which is dedicated to education.

Country Profile

Mauritius is an island nation with a population of about 1.2 million. Since independence in 1968, the country has grown from a low-income agriculturally based economy to a middle-income diversified economy with growing industrial, financial, and tourist sectors. Since independence, annual growth has been around 5% to 6%, life expectancy has risen, infant mortality has been lowered, and the infrastructure has improved. The GDP was estimated at $16.28 billion for 2005, the second highest per capita in Africa.[2] In 2004 the UNDP classified Mauritius as a high-income country when it ranked 62nd out of 177 countries on the Human Development Index.

Table 1 provides some selected socio-economic indicators for Mauritius.[3]

Table 1: Socio-economic Indicators: Mauritius

Indicator	
Population	1.2 million (2005)
Languages	Official language: English. Other languages: Creole, French, and Bhojpuri.
2005 Economic activity (% of GDP)	Agriculture: 6.1% Industry: 28.1% Services: 65.8%
Human Development Index	62 (out of 177 countries)
Per capita Gross National Income (US dollars)	$5,200 (2005)

The Education System

Mauritius's education system is based largely on the British school system. Education has been free through to the secondary level since 1976 and through to the post-secondary level since 1998. Expenditure in the private Catholic church-controlled confessional

schools has also been subsidised. However, pre-primary schools are still mainly privately owned.

Tertiary education is delivered by a wide range of institutions with diverse characteristics. Some provide all levels of tertiary education in a range of disciplines while others focus their activities on only one or two areas at certain levels. A number of the institutions are overseas with their provisions made available through distance education. Public tertiary education institutions include the University of Mauritius (UoM), the Mauritius Institute of Education (MIE), the Mahatma Gandhi Institute (MGI), and the Mauritius College of the Air (MCA). Overseeing the four tertiary education institutions is the Tertiary Education Commission which is responsible for allocating public funds and fostering, planning, and co-ordinating the development of post-secondary education and training. These tertiary education institutions are geared towards programmes in very limited or specific disciplines.

Two polytechnics, managed by the Technical School Management Trust Fund, also operate within the public sector. They are the Swami Dayanand Institute of Management and the Institut Superieur de Technologie. The Industrial and Vocational Training Board and the Mauritius Institute of Health equally dispense tertiary-level programmes in selected areas.

In addition to these publicly funded institutions, an estimated 35 private institutions and 50 overseas institutions are presently delivering tertiary-level programmes, mostly in niche areas like information technology, law, management, accountancy, and finance. A majority of these private institutions operate on a part-time basis in the evenings, weekends, and on some weekdays with relatively small student cohorts.

The country has 1,070 pre primary schools, 289 primary schools, and 176 secondary schools.

Table 2 provides a quantitative perspective of some selected system indicators.[4]

Table 2: Selected Education Data

Indicator	
Male adult literacy rate 2000-2004	88%
Female adult literacy rate 2000-2004	81%
Male primary enrolment (% of gross)*	102 (2002-2005)
Female primary enrolment (% of gross)*	102 (2002-2005)
Male secondary enrolment (% of gross)*	89 (2002-2005)
Female secondary enrolment (% of gross)*	88 (2002-2005)

*Percent of gross is the number enrolled as a percentage of the number in the eligible age group.

Infrastructure

According to the World Economic Forum *Global Information Technology Report*, Mauritius ranks 45th out of 115 economies in terms its network readiness index, which measures the degree of preparation of a nation to participate in and benefit from ICT developments.[5]

Table 3 provides a snapshot of the state of national ICT infrastructure in Mauritius.[6]

Table 3: ICT in Mauritius

Indicator	
Fixed-line subscribers (2004)	287 per 1,000 persons
Mobile subscribers (2004)	505 per 1,000 persons
Dial-up subscribers	30,000
Internet users (2004)	146 per 1,000 persons
Television broadcast stations	2
Radio stations	AM 5; FM 9; shortwave 2

Mauritius is considered to be in the league of top performers in the global economy. The country has accelerated the liberalisation of its telecommunications sector by an early termination of the exclusivity of the incumbent operator as of 1 January 2003. Mauritius was among the 69 signatories to the General Agreement on Trade in Services (GATS) in 1997. In 2001 it introduced the ICT Act which provided the legal framework for liberalisation, and a subsequent amendment in 2002 brought forward the liberalisation in early 2003.

Because of the small geographic size of the country, coverage of telecommunications facilities is easy with all localities having access to telephone services. Almost the entire population is in the range of a cellular phone signal.[7] The high level of universal access is attributed to subsidisation of home telephone costs as well as increase in household incomes which make telephony more affordable.

There are also plans by a local company, ADB Networks, to make Mauritius the first national coast-to-coast hot spot, offering wireless Internet access across the island. Currently only 60% of the island is covered and only 70% of the population has access.[8]

ICT Policies

The Government of Mauritius has actively promoted ICT since 1989. Since then it also proposed a national ICT policy modelled on the Singaporean experience. The Mauritius

strategy involved creating instruments to support the liberalisation of its telecommunications sector, creating an ICT literate workforce, improving the capacity of public institutions to harness ICTs, and positioning Mauritius to be a key player in ICTs by creating enabling environment and robust infrastructure.

In 1989 the government set up four institutions: the National Computer Board, the Central Informatics Bureau, the State Informatics Limited, and the State Informatics Training Centre Limited. The Ministry of Information Technology and Telecommunications deals with the formulation and implementation of government policies in the ICT sector.

The National Information and Communication Technology Strategic Plan (NICTSP)[9] was first adopted in 1998 and was accompanied by the launch of a number of projects in policy formulation, ICT awareness, human resources development, government computerisation, and standard setting. The Mauritius Parliament also passed an Electronic Transaction Act in July 2000 to provide an appropriate legal environment for electronic transactions covering electronic contracts, establishment of certification authorities and standards to combat forgery and fraud in electronic business.

The policy's vision is to make Mauritius a "cyber island" in which ICT would become the fifth pillar of the economy after sugar, textile, tourism and financial services as well as a regional ICT hub.

A revised strategy was approved by the government in February 2006 following a review of the first five years of the NICTSP between 1998 to 2005. This revised strategy revolves around focusing on niche markets in the ICT industry, developing strategic partnerships with ICT leaders, investing in a world-class physical and telecommunications infrastructure, emphasising ICT culture development, providing for an adequate supply of human resources, and establishing a favourable business environment. It has three key focus areas:

- The establishment of an ICT industry comprising the cyber city and business parks supported by telecommunications infrastructure for wealth and job creation
- Attracting and maintaining a high calibre of ICT experts in Mauritius to increase local availability of trained manpower in ICT
- Creating a favourable business environment with a sound legal framework and attractive financial incentives for foreign investors

Current ICT Initiatives and Projects

National Computer Board
The National Computer Board (NCB) was set up in 1988 as the managing agency for the country's national ICT strategy. It is a parastatal body administered by a board of directors and operates under the aegis of the Ministry of Information Technology and Telecommunications. Its vision is to be the key enabler in transforming Mauritius into a

"cyber island" and a regional ICT hub, and its mission is to "e-power people, businesses and the public sector by developing and promoting ICT and ICT-related services."

The NCB oversees a range of projects in education, business and the public sector. These include the following.

Universal ICT EducationProgramme (UIEP)
This programme, approved in March 2006, aims at imparting computer proficiency skills to all students, workers, unemployed people, and the population at large. Through the UIEP, the government is aiming to train 400,000 trainees over four years to obtain the internationally recognised Internet and Computing Core Certification (IC3). This programme would create a significant pool of ICT professionals which, in turn, would attract employers interested in using Mauritius as an ICT bridge between India and Africa and between India and French-speaking countries.

The main objectives of UIEP are to:

- Make an e-society where ICT pervades all spheres of social development and well-being of all Mauritians
- Meet the demand of ICT manpower for the industry
- Align Mauritius to international benchmarking in ICT literacy
- Encourage people to go for higher-level industry-based certifications

The programme delivers an IC3 basic computing skills course in 59 training centres that are situated in schools across Mauritius. The Internet and Computing Core Certification was developed by Certiport Incorporation (US) and is the first globally accepted, standards-based, validated certification programme for basic computing skills. Becoming IC3 certified demonstrates that one possesses the knowledge required for basic use of computer hardware, software, and the Internet, which are nowadays prerequisites for virtually every placement opportunity.

Mauritians who successfully obtain the IC3 certification under UIEP will be able to follow professional ICT courses at a 95% discounted rate. The UIEP aims at imparting computer proficiency skills to over 400 000 persons over the next four years.

For more information: http://www.gov.mu/portal/sites/uieptest

The Cyber Caravan
Launched in November 2000, the Cyber Caravan project aims at making ICT facilities available in the most isolated areas in Mauritius through NCB's Cyber Caravans. The NCB presently operates two Cyber Caravans, which are equipped with nine and 10 PCs respectively and Internet connection. As of 2 March 2007, about 55,700 people had followed ICT literacy and ICT awareness courses.

The main objectives of the Cyber Caravan Project are to:

- Raise the level of knowledge about ICT and the level of competence in using personal computers and common computer applications
- Promote and encourage ICT literacy
- Ensure all computer users understand the advantages of using a personal computer.
- Enhance the employability of all people, to enable them to be part of the global information society

The ICT literacy programmes provided by the Cyber Caravans are customised to meet the needs of all people with few or no ICT skills. These courses are delivered by MQA-registered IT support officers. There are five types of training:

- ICT literacy
- IT Introductory course
- ICT awareness
- ICT awareness programme for children
- Evening ICT awareness

IT Empowerment Programme for the Unemployed
With the widespread us of information technology in businesses, employees at all levels are expected to have a basic knowledge in ICT tools. In this context, the National Computer Board runs a free training programme for unemployed people to empower them with ICT skills with a view to increase their employability.

A training programme of 60 hours' duration, spread over 10 full days is being carried out in the NCB Cyber Caravans. A certificate of attendance is issued to all participants who successfully complete the course.

Community Empowerment Programme
The Community Empowerment Programme (CEP) was introduced with the objective of facilitating the process for the community to make use of ICT to fully participate in the socio-economic development of the country. The CEP is in line with the government programme to encourage the development of local content and creativity.

The programme will provide a common platform for sharing local knowledge and a marketplace for project proposals, discussion forums, and thematic Web directories. It will also enable communities to formulate and implement their own development projects by collaborating with donors and other stakeholders.

ICT Literacy Training for Women
ICT literacy courses are provided to women of different regions across Mauritius after which a certificate of attendance is issued.

ICT Services on Your TV Set
The Mauritius government announced in late 2006 an ICT empowerment programme called ICT Services on Your TV Set which is designed to further empower people to the

use of ICT to improve their knowledge and living standards. The planned launch date is some time in 2007.

This project adds on to numerous ongoing national initiatives aimed at bridging the digital divide. It provides for the transmission of information on government services and other sectors of economic and social activities. The service can at the same time be used as a medium to educate a wide spectrum of the population with specific contents adapted to local needs and requirements.

Schools Projects
The Mauritius Ministry of Education has been involved in the introduction of ICTs in schools since 1991.

School IT Project
The national ICT policy states that IT will be taught in schools as a subject and integrated into teaching across the curriculum in primary and secondary schools. There remains a challenge to promote connectivity in schools and establish a network for information exchange and information in the education sector.[10]

The plan for the Schools IT Project was that all the 277 primary schools in Mauritius would have, at least, a computer laboratory with 21 computers, two printers (one ink-jet colour and one laser black and white), a scanner, a digital camera and a server with a LAN. They would all be connected to a network (SchoolNet) controlled by a powerful central server, based at the ministry, through which Internet connection would be possible and on which server on-line educational resources would be available.

In 2003, approximately 317 computer laboratories (instead of 222 as was initially intended) were needed for the 277 schools on the grounds that 40 overpopulated schools needed two laboratories instead of one. All 5,400 primary school teachers were also targeted to be trained in ICT to be able to use it as a pedagogical tool as of 2006. By the end of 2002, 330 newly recruited ICT teachers had been trained by the Mauritius Institute of Education and had been posted to primary schools.[11]

ICT Competition
With the objective of promoting ICT use as an education instrument, the NCB organises two ICT competitions for secondary- and tertiary-level students each year, namely the School IT Competition and the ICT Project Competition. This year the NCB has revised the scope of the School IT Competition to allow students to participate in an international Web site competition, ThinkQuest.

NEPAD eSchools Mauritius
The New Partnership for Africa's Development (NEPAD) eSchools Initiative is a multi-country, multi-stakeholder, continental initiative that aims to:

• Impart ICT skills to young Africans in primary and secondary schools

- Improve the provision of education in schools through ICT applications and the use of the Internet

The first phase of the initiative is a demonstration (Demo) project that is being implemented by the private-sector partners. The objectives of the Demo project are to:

- Determine typical e-school scenarios and requirements in various circumstances in Africa
- Highlight the challenges inherent in a large-scale implementation of e-schools programmes
- Monitor the effectiveness of multi-country, multi-stakeholder partnerships
- Determine "best practice" and exemplary working models for the large-scale implementation of the NEPAD eSchools Initiative, which aims to equip more than 550,000 African schools with ICTs and connect them to the Internet
- Demonstrate the costs, benefits, appropriateness, and challenges of a satellite-based network
- Demonstrate the costs, benefits, and challenges of ICT use in African schools

The Demo project has been implemented in six schools in each of 16 countries across Africa through partnerships that involve private sector consortia. Mauritius is one of the 16 countries where the Demo project was co-ordinated by a dedicated country liaison person. Cisco and Microsoft are two companies that formed consortia to support the Demo project in six Mauritius high schools where the typical model involved fitting each school with a PC lab comprising approximately 20 PCs, a server and a printer; a media lab, which sometimes included a PC-based kiosk containing health information: and a television with satellite television access to a bouquet of education channels including National Geographic, the History Channel, SABC Africa, and Mindset Learn. Teachers at the six schools received training and learners have subsequently used the PC labs in the classroom.

Tertiary Institutions

There are five institutions that offer courses leading to certificates, diplomas, and degrees in ICT: University of Mauritius, Mauritius Chamber of Commerce and Industry, Swami Dyanand Polytechnic, De Chazal Du Mee Business School, and University of Technology of Mauritius.

The Mauritius Institute of Education (MIE) is the only teacher-training institution in Mauritius. It was set up in 1973 and since then it has been responsible for training primary and secondary school teachers. The MIE has an online facility through which it engages with its students and lecturers (www.mieonline.org).

The University of Mauritius

The University of Mauritius dominates the tertiary education sector locally. In 2003 it established the Life-long Learning Cluster (LLC) which groups three dedicated multi-modal lifelong learning centres: the J. Baguant Centre for Distance Learning, the Virtual Centre for Innovative Learning Technology, and the Centre for Information Technology and Systems. The LLC was set up to:

- Enhance learning, develop flexible learning, and experiment with education delivery systems
- Strengthen the university's role as a provider of distance learning as part of the continuing development of innovative teaching and learning strategies
- Upgrade the centre for distance learning
- Provide more comprehensive opportunities for open and distance learning
- Expand and diversify the range of programmes offered by mixed mode in a phased manner
- Satisfy the existing and emerging needs of non-conventional learners

In this way, the LLC encourages the pooling of human and financial resources to facilitate the design of programmes of study and identify and supervise research projects in ICT and lifelong learning.

Virtual Centre for Innovative Learning Technology
The Virtual Centre for Innovative Learning Technology (VCILT) hosted the 2003 International Conference on Open and Online Learning (ICOOL 2003) in partnership with, among others, the Commonwealth of Learning, the University of La Reunion, Hewlett Foundation, and UNESCO, and during which the VCILT was able to strengthen links with other institutions and organisations both at national and international levels. Further, the Lifelong Learning Cluster (LLC) created in 2003/04 consolidated the existence of the Centre with the view to enabling it to attend to new challenges in the field of technology-enhanced education, e-learning paradigms, and innovative learning. The VCILT also participates on behalf of the University of Mauritius on a Commonwealth of Learning and Hewlett Foundation-supported initiative known as the Virtual University for Small States of the Commonwealth (VUSSC) which aims to build community through collaboration on open content.

VCILT has also developed an e-learning platform, iLearn, to deliver online modules, provide support to conventional classes, and host training programmes to enable lifelong learning. To support the management of learning activities, iLearn offers a panoply of pedagogical tools such as forum, self-assessment, assignments, and submission box facilities, bookmark-gathering, sharing of private space, and a test centre to assess students on modules. The platform allows individuals across borders to communicate and share knowledge and experience from anywhere at anytime through the Internet. The VCILT also developed a multimedia enhancement CD-Rom for teaching and learning history and geography at the primary level and assisted with the development of a bilingual Indian Ocean open learning portal that serves to promote open links internationally, especially among the Indian Ocean islands.

TVET

Mauritius has an Industrial and Vocational Training Board and Technical Board. The board provides incentives to firms to promote in-house training. Firms can claim back 75% of their training costs depending on their tax status. Training may be conducted in house or with a training institution recognised by the Mauritius Qualifications Authority. Grants are based on a cost-sharing principle.[12]

Implementing ICT in Education: What Helps and What Hinders?

Table 4 provides a summary of the current stage of ICT development in Mauritius in terms of enabling or constraining features in the education system.

Table 4: Factors Influencing ICT Adoption

Factors	Enabling Features	Constraining Features
Policy framework and implementation	Mauritius has been a front runner in an overall comprehensive national ICT policy and liberalised telecommunications framework. The national ICT policy also includes a component on education.	There is no comprehensive policy on ICT in education.
Advocacy leadership	The government has been at the forefront of driving ICT access and use at all levels of society and has implemented projects with ambitious targets.	
Gender equity	The government has introduced a dedicated project promoting the use of ICT by women.	There is no explicit reference to gender equality and women's empowerment in the national ICT policy.
Infrastructure and access	Mauritius has a relatively good ICT infrastructure and high levels of ICT access including Internet connectivity.	
Collaborating mechanisms	The government has instituted some collaborating mechanisms to co-ordinate, monitor, and manage ICT initiatives in the country.	
Fiscal resources	Dedicated budgets have been allocated for various ICT projects that promote the vision of government.	

| Attitudes | The leadership of the government has been confident ambitious attitude in the promotion of ICTs as a cornerstone of the economy. The focus appears to be on technical training. | |

Notes

1 The World Factbook 2007. https://www.cia.gov/cia/publications/factbook/geos/wa.html

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3 The World Bank. www.worldbank.org

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