

ICT in Education in Senegal

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June 2007



Source: *World Fact Book*¹

Please note:

This short *Country Report*, a result of a larger *infoDev*-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

Senegal's hands-on commitment to incorporating ICT in education is still in the beginning stages of progress and evaluation. Although Senegal's public officials and government bodies recognise ICT as a powerful engine for progress in economic expansion and modernisation and have a national ICT policy in place, it has not yet been integrated into the education sector in any kind of formal policy. However, the Ministry of Education and several organisations have taken initiatives to launch and continue activities that will facilitate the modernisation of schools and other educational institutions. Initiatives have also been made in the informal sector, such as the UNESCO Community Multimedia Center Scale-Up Project, to make ICT accessible to community members. Although obstacles remain, such as the need for more telecommunications infrastructure and computer materials, the outlook for integrating ICT into Senegal's education system is very optimistic.

Country Profile

Senegal is located on the westernmost point of the African continent, along the Atlantic Ocean. With a surface area of 196,722 square kilometres, it is bordered by Mauritania to the north, Mali to the east, Guinea and Guinea-Bissau to the south, and 500 kilometres of Atlantic Ocean coastline to the west. The Gambia forms a partial enclave within Senegal, extending more than 300 kilometres inland (and separating the region of Casamance from the rest of the country). Dakar, its capital, is on a peninsula located in the far west, which extends over 550 square kilometres.

Table 1 provides some selected socio-economic indicators for the country.²

Table 1: Socio-economic Indicators: Senegal

Indicator	
Population	10,564,303 (2004)
Education rate (elementary education)	82.5%
Literacy rate	39.3%
Number of students in elementary school	1,444,163 (2005)
Number of students in middle school	311,863 (2005)
Number of students in high school	89,187 (2005)
Life expectancy at birth	51 years
Gross national product per capita	470
Rate of urbanisation	41%

The Education System

Senegal's education policy is based on Law 91-22, enacted February 16, 2001. It distinguishes between formal and non-formal sectors in the Senegalese educational system.

Formal education

Formal education comprises several levels and types of schooling: pre-school, elementary school, middle school, high school, technical and vocational training, and higher education (universities and colleges). There are public and private providers within each of these levels of education. However, the number and diversity of the private providers has increased since 1990 – particularly in higher education.

Likewise, special education (integrative and other kinds) is becoming more and more important in the system. Even though its presence is stronger in elementary schools, trends in the development of this sector are towards better coverage of previously neglected school-age populations.

Informal education

The informal education sector includes literacy development, basic community schools, and less conventional schools (often grassroots). The latter two types of education are under experimentation.

Tables 2 and 3 provide data on attendance at both middle and high schools.³

Table 2: Rate of School Attendance in Middle Schools, 2005

	School-age Population	Population in School	Percentage
Boys	472,597	176,920	37.40%
Girls	505,887	134,943	26.70%
Total	978,484	311,863	31.90%

Table 3: Rate of School Attendance in High Schools, 2005

	School-age Population	Population in School	Percentage
Boys	376,264	53,736	14.30 %
Girls	440,438	35,451	8.00 %
Total	816,702	89,187	10.90 %

ICT Policies

National

Policymakers recognise the value of ICT for Senegal's economic and social development, and the government recognises ICT as a powerful engine for progress in economic expansion and modernisation.

Since 2000, the following legal and institutional measures have been taken:

- Definition of a national strategy for developing ICT^{4,5}
- Adoption of a new telecommunications code
- Creation of an agency in charge of overseeing telecommunications
- Creation of the State Computer Science Bureau
- Creation of a ministry responsible for the promotion of ICT

- Complete liberalisation in the telecommunications sector

Additionally, the Programme National de Bonne Gouvernance (National Program for Good Governance) identified ICT as a valuable instrument for improving productivity in public service, enhanced performance, and modern communication.

Electricity is obviously a facilitating factor for using the Internet. Senegal has recorded a great deal of progress in this regard. Currently 38.5% of schools are connected to the electric network, but there is a disparity between rural and urban areas, with only 7.9% connected in the district of Kedougou to 100% in Dakar City.⁶

Senegal possesses modern telecommunication infrastructures. A completely digitised telephone network as well as an Internet protocol network covering a large area of the country is in place. There are 25 fixed telephone lines for every 1,000 residents, and in recent years, there has been a steep surge in mobile telephony, with a total of about 3.5 million users as of February 2007.⁷ The number of Internet users is estimated at about 100,000 with a huge increase having occurred in the last two years.

Table 4 provides some recent data on the state of telecommunication in Senegal.^{8,9,10}

Table 4: Telecommunications in Senegal

Indicator	
Internet speed	1.24 Gbps
Number of cellular phone users	3.5 million
Number of operators	2 (Orange et Tigo)
Number of land-line telephone users	274,054 (2006)
Televisions per 1,000 people	79
Radios per 1,000 people	126
Land-line telephones per 1,000 people	25
Cellular phones per 1,000 people	31
Personal computers per 1,000 people	18.6
Internet users (in thousands)	100
Community multimedia centres	24

The sector already plays a significant role in the economic and social development of the country, comprising 7% of the Gross Domestic Product (GDP) and 5.4% in total capital. The will to make communication services one of the vehicles for the country's economic and social development has been a goal since the mid-1990s.

The president of the Republic of Senegal, the "first in line" in the fight to reduce the digital gap between the North and the South, enacted an in-depth ICT policy within the Senegalese civil service. The State Computer Science Bureau's Government Intranet Project provides a 1 Gbps network, linking the different departments through optical fibres. Outside services will be connected to this intranet through wireless connection. The telephone lines between departments will be free. The government is also working at the community level, with the support of UNESCO, towards building community multimedia centres (CMCs), to provide radio broadcast and ICT services.

Education sector

With its Ten Year Education and Training Program (PDEF), the Ministry of Education envisions promoting information and communications technology for administrative development and the improvement of education.

The Ministry of Education has designed a computerisation plan (referred to as the PDI-Education Plan) for the educational sector which defines, for each of its activities, an action plan as well as an expected budget to modernise the administration system.

The four main objectives of the plan are:

- Improvement in communication: The demand for better management of the Senegalese education system requires, first and foremost, improvements in internal communications to carry out its missions and responsibilities.
- Improved management of databases: The availability of descriptive data through a projected integrated information system will make it possible to satisfy indicator formats in PDEF reference documents.
- Development of decision-making tools: Web-based tools for making decisions according to each mission, both internal and external (via the Web), will be available to institutions.
- Project sustainability: This will require technical proficiency throughout the entire organisation and will be achieved by recruiting consultants and training civil servants.

Infrastructure

Computers in schools

The computer-to-student ratio is variable. For example, it ranges from 1 to 20 at Mariama Bâ high school of Gorée to 1 to 2,000 at Parcelles Assainies high school. NGOs have been working actively with their francophone partners to supply computers to schools.

Institutional Internet connection¹¹

- 100% of universities are connected
- Two-thirds of high schools are connected
- 10% of junior high schools are connected and more are being connected all the time
- 233 schools benefit from the Ministry of Education's arrangement with SONATEL that offers preferential fees to schools;
- At the Université Cheikh Anta Diop de Dakar (UCAD) 100% of teachers and 70% of research teachers have access to Internet
- The Dakar campus of the Arrange University Francophonie (AUF), provides Internet access to up to 500 students a day

Connectivity within the Ministry of Education

A computing unit, called CIME (Cellule Informatique du Ministère de l'Éducation) was instituted by ministerial decree. It serves all levels of the administrative hierarchy as well as at the Regional Inspectorates and the other ministries concerning education.

The Minister of Education also created a National Commission for the Integration of Information and Communication Technologies (COMNITICE) in the school curriculum.

This commission is responsible, in conjunction with the Ministry's Computer Technology Unit, for promoting the use of technology as a tool for teaching and learning in schools.

Though significant progress has been made for improving the management in terms of administrative organisation and human resources, there is currently no official policy in place for integrating ICT into the Senegalese school curricula and the country is still in the promotion phase.

There is a significant penetration of computer equipment into the Senegalese school system, and the ministry has also taken several other initiatives to facilitate the development of ICT infrastructure:

- The Ministry of Education has partnered with the private sector to provide computer hardware and networks as well as the digitalisation of content and training. The main private partners are SONATEL (the national telecommunications company and subsidiary of France Telecom), Cisco, and Microsoft. The agreement with SONATEL provides schools with a 75% rebate on Internet service. An addendum to this agreement signed in 2004 grants a 50% reduction on subscription fees, and monthly payments for ADSL lines. The monthly payment for a 256 K ADSL now stands at FCFA13,500. SONATEL also supports education through its foundation.
- UCAD has hosted the regional CISCO Academy in Senegal since 2003. The academy was established through a joint partnership between Cisco Systems, USAID, UNDP, and the State Directorate for Computer Technology. Eleven other academies operate in middle schools, high schools, and vocational schools throughout Senegal. For a fee, they offer students and community members a combination of distance and conventional training. The distance education platform is supported by CISCO's Web site (CISCO Networking Academy Program). In all of these centres, CISCO offers practical training to equip students with the skills needed to design, implement, and operate small- or medium-scale networks. The prerequisite for a CISCO academy is the availability of computer equipment. This equipment is generally provided within the framework of a project pursuing pedagogical goals, but used additionally for the training activities of the Cisco Academy. The resource people with the most experience are often used as trainers. The outcomes of this training are very positive since graduates find employment as network technicians.
- Partners in Learning is a protocol between Microsoft and the Ministry of Education that was signed in October 2004. The partnership would make available computer software at a reduced price, develop a Web portal for teachers, and organise a series of training workshops. USAID also partnered with Microsoft to optimise the cost of its support for the Senegalese education system: equipping schools, setting up ICT structures, and partnering between ministry and NGOs and other development agencies. Despite the important issues facing education (access, gender equity, quality), and the economic odds, the government is resolutely committed to the use of ICT in education.
- NGOs such as World Links and GEEP (Group for Studying and Teaching Population) have long been active in providing equipment to schools. For example, the initiative La Case des Tout-Petits, has made it possible for 50 pre-schools to be equipped with computers.

Current ICT Initiatives and Projects

The current socio-political atmosphere is very favourable to the dissemination of ICTs in education. The following are some of the innovative initiatives underway.

African Virtual University

The African Virtual University is an intergovernmental organisation disseminating training courses in collaboration with other African higher education institutions. It provides distance learning courses to support local institutions, thus improving course offerings in response to an ever-increasing demand.

Sinkou

The Sinkou cyber campus, costing a total of FCFA1.2 million, consists of an impressive computer lab equipped with 500 state-of-the-art computers. A high-speed Internet connection through a VSAT antenna opens students up to a world that allows them to enhance their studies and further their research. In its second phase, the project includes Gaston Berger University in Saint-Louis, the

community colleges in Thiès, Ziguinchor, and Bambey, as well as different professional training institutes, high schools, and middle schools. The project funding is FCFA5 billion.

SchoolNet Africa

Since June 2006, SchoolNet Africa, a pan-African organisation specialising in promoting ICT and education, moved its headquarters to the School of Education (Faculté des Sciences et Technologies de l'Education et de la formation) of the University Cheikh Anta Diop of Dakar. As a partner of SchoolNet Africa, GEEP and the School of Education hosted a training workshop to establish technical service centres in francophone African countries to support the sourcing, refurbishment, distribution, and maintenance of second-hand PCs to schools.

Civil Society Projects

Senegal has had learners and teachers participate in civil society type projects such as the Global Teenager Project and the Mtandao Afrika programme. Mtandao Afrika (MAf) Internet Challenge is a Web site contest for African youth aged nine to 12. The contest focuses on the creation of African Web sites with African content and promotes the use of African local languages.

For more information: www.mtandao-afrika.org; mtandao@schoolnetafrica.org

Global Teenager Project

The Global Teenager Project (GTP) aims to enlighten teenage learners about ICTs and to develop their conceptual understanding of the way they can be used to pursue their learning goals – particularly by using the technology to enable worldwide interactions with peers. For example, it enables participants to become part of learning circles in different languages, runs world conferences on global citizenship, and supplies corporate literature.

For more information: www.globalteenager.org

Dakar's Digital Francophone Campus

This partnership between the State, Sonatel, and Salta Service International establishes a network of inter-university and inter-school telecommunication hosted by the UCAD library, RESAFAD-ICTE and the University Information Network Project.

FASTEF

FASTEF (Faculté des Sciences et Technologies de l'Education et de la Formation School of Education) leads a couple of initiatives. The Computer-Education Laboratory offers basic training in computers to the students and teachers involved in the UNESCO programme in educational sciences (CUSE) delivered by distance learning, and the Center for the Application, Study, and Resources in Distance Learning (CAERENAD) is a programme financed by the ACIDI.

GEEP

GEEP (Group for Population Studies and Education) is a project testing the installation of “youth cyber spaces” in middle and high schools, run in collaboration with IDRC in Canada in the context of the Acacia Senegal Plan. It was launched in 2000.

EBAD

EBAD (School of Librarians, Archivists, and Record-Keepers) runs a project called FORCIIR, a virtual West African class. It was launched from Dakar in October 2001 and it is made possible through distance education. It offers a degree in information sciences and an advanced degree in information and communication sciences.

Canadian International Development Agency

CIDA is the lead funding agency for several projects that focus on the promotion of ICT use among youth and women, the promotion of distance education, and the provision of support to the development of instructional resources.

USAID

USAID funds a project for incorporating ICT education in the middle school curriculum in the regions of Fatick, Kolda, and Tambacounda.

Japan International Cooperation Agency

JICA provides training for principals and directors via distance education.

Arrange University Francophonie

AUF has created a French-speaking numerical campus in Dakar that provides a Digital Access Centre for students and offers training and Internet access to a worldwide network of 635 higher education institutions.

World Links

This programme assists in the renovation and computerisation of the UCAD library.

Nepad e-Schools Demonstration Project

The first phase of the Nepad e-Schools Initiative aims to have all schools in Africa equipped with ICTs and connected to the Internet, with teachers and school staff fully trained over the next decade. The Demo project is being implemented by a private sector consortia and the project is co-ordinated by Nepad's e-Africa Commission. Six schools in Senegal are participating.

UNESCO CMC Scale-Up Project

Twenty-four community multimedia centres (CMCs) have been set up, and hundreds of thousands of people living in remote rural areas can now access community radio, computers with Internet connection, and Digital devices. The CMCs constitute the most important network of community access to ICT.

Table 5 summarises other projects in Senegal.

Table 5: ICT in Education Projects in Senegal

Institutions	Programmes/projects
National institutions	
ME (Ministry of Education)	PDEF (March 2003 version), number II-6: global strategies for an action plan: Extending the use of ICT by: <ul style="list-style-type: none"> • Connecting schools to the Internet • Developing computer skills training • Using ICT to improve teaching and learning processes • Using ICT to oversee schools engaged in achieving quality • Designing and implementing a framework for information sharing
ME/DEE (Direction de l'Enseignement élémentaire)	ICT component of DEE action plans for 2005-2007 (phase 2 PDEF)
ME/DEMSG (Direction de	<ul style="list-style-type: none"> • ICT component of DEMSG action plans for 2005-2007

Institutions	Programmes/projects
l'Enseignement Moyen et Secondaire Général)	(phase 2 PDEF) <ul style="list-style-type: none"> • SONATEL agreements (special rates for Internet connection, recently ADSL)
ME/CIME Cellule Informatique du Ministère de l'Éducation	<ul style="list-style-type: none"> • Plan for ICT development (see document on SDI report, February 2004) • Contract with Microsoft
ME/DEMSG/RESAFAD-TICE	<ul style="list-style-type: none"> • DUCM • Development of collaborative work spaces • Development of digital content • Establishment of local multimedia centres; the centre in Thiès is currently running • FAD directors
ME/CIME/DEE/CNFIC	Plan to integrate computer technology into school curriculum (The project was conceived in January 2002, but it apparently lacks follow-through.)
ME/COMNITICE	Commission created on 13 May 2003; in charge of reflecting on ICT in teaching/learning in school.
UCAD (Université Cheikh Anta Diop)	<ul style="list-style-type: none"> • UVA (World Bank) • Dakar's digital francophone campus • Cyber Campus Project (a partnership between the State, Sonatel, and Salta Service International) to establish a network of inter-university and inter-school telecommunication (hosted by the UCAD library, BU) • DUCM (RESAFAD-ICTE) • University Information Network Project
Bilateral institutions and Multilateral co-operation	
ACDI	<ul style="list-style-type: none"> • CÆRENAD: Promotes distance education • REFORMA: Supports access to instructional resources • ACACIA: Promotes ICT use among youth and women
UNESCO-BREDA	<ul style="list-style-type: none"> • University of the Future • GT-EDAL ADEA • Distance training for substitute teachers (ENS)
AUF	<ul style="list-style-type: none"> • DESS UTICEF • Digitised campus
ESMT	ESMT (Multinational School of Telecommunications) offers distance training to reach its goal, which is to broaden its services and to benefit from those occasions that offer information and communication technology.
Other initiatives taking place within the context of promoting educational opportunities and protecting the right of private organisations, individuals, and communities to support the expansion of educational opportunities)	

Institutions	Programmes/projects
City of Fatick	Creation of a multimedia resource centre at Khar Ndoffène Diouf Middle School, through a partnership with Veolia, and HP. RESAFAD/Senegal trains trainers.
FAWE NGO	Aims to make of the main middle school in Diourbel a place of excellence, thanks to the Internet.
Various initiatives, GIS	<ul style="list-style-type: none"> • Dyna Entreprises, for example, gives computers to schools to help improve their management. • See also private operations such as GIS (Computerised School Generation), which, after meeting with one school, installed used computers and organised trainings.

Implementing ICT in Education: What Helps and What Hinders

Factors favouring the implementation of a national ICT policy for Senegal are related to the boom in mobile telephony and the multiplication of operators in the telecommunications sector.

In education, Senegal is ahead in the integration and use of ICT in schools. This is indicated by the development of teaching content, follow-up by educational administrators, and intensification in the use of ICT at different teaching levels. However, it is important to note that ICT is not yet widely used as a source of gaining new knowledge. The problem of access to ICT and high-quality content arises. The problems identified are:

- The computer-to-student ratio is still low.
- The lack of power supply and telephone coverage in the countryside is a limiting factor.
- The level of computer proficiency among users and specialists is an issue.
- The computer network is more complex.
- There is a lack of equity in students' access to ICT in schools; only students who can afford fees of up to FCFA5,000 can receive one to two hours of computer classes per week.

Notes

1. The World Factbook 2007. www.cia.gov/cia/publications/factbook/geos/sg.html
2. Observatoire des politiques des TIC en Afrique. http://afrique.droits.apc.org/index.shtml?apc=s21834e_1
3. Situation des indicateurs de 2000 à 2005 Ministère de l'Éducation PDEF DPRE. <http://www.education.gouv.sn/>
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6. TICE au Sénégal, quelques chiffres. Octobre 2005. Mosaïque du Monde. http://senegal.mosaiquedumonde.org/article.php3?id_article=45
7. Chiffres clés-Principaux Indicateurs. Avril 2007. Observatoire sur les Systèmes d'Information, les Réseaux et les Inforoutes au Sénégal (OSIRIS). www.osiris.sn/article26.html
8. ICT Policy in Senegal. Association for Progressive Communications (APC). http://afrique.droits.apc.org/index.shtml?apc=s21834e_1
9. Chiffres clés-Principaux Indicateurs. Avril 2007. Observatoire sur les Systèmes d'Information, les Réseaux et les Inforoutes au Sénégal (OSIRIS). www.osiris.sn/article26.html

10. UNESCO-Dakar. NTIC/CMC. http://www.dakar.unesco.org/ntci/ntic_cmc.html
11. TICE au Sénégal, quelques chiffres. Octobre 2005. Mosaïque du Monde.
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