ICT for Education in Guinea

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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

Guinea has begun the implementation of ICT in the tertiary education sector in collaboration with donors. Donor efforts have also recorded significant impact on the primary and secondary education sectors. Specifically, USAID has assisted Guinea under the GLOBE programme and launched other initiatives jointly with some state organisations.

Poor electrification and telecommunication infrastructure, however, hinders the process. Connectivity is limited to certain urban areas and power supply is at best irregular even in the administrative region in the capital city, Conakry, where the ministries and principal organs of state are located. This phenomenon among others presents challenges to the deployment of ICTs across the country, particularly in the education sector.

Country Profile

The Republic of Guinea is located on the west coast of Africa between Sierra Leone and Guinea-Bissau. It is a well-watered country with great agricultural potential. Guinea was colonised by France and became independent in 1958. Owing to the isolationist policies pursued by its first government, the country's economy suffered.

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

Table 1: Socio-economic Indicators: Guinea

Indicator	
Population	9.95 million (2007)
Literacy	Male: 42.6% Female: 18.1% Total: 29.5% (2003)
Growth rate	2.62% (2007)
GDP (US dollars)	$3.8 billion (2006)
GDP per capita (US dollars)	$2,100 (2006)
Human Development Index	160 (out of 177 countries)[2]

The country has about one-third of the world's reserves of bauxite. Bauxite mining is the mainstay of the economy and contributes 70% to export earnings. About 80% of the country's workforce is in the agricultural sector, which contributes approximately 25.6% to the country's GDP. About 47% of the population lives below the poverty line.

Education System

As indicated below, there are four ministerial departments in charge of the various educational sectors:

- Pre-primary: Ministry for Social Affairs and the Promotion of Women and Children (MASPFE)
- Primary and secondary: Ministry for Civic and Pre-university Education (MEPU-EC)
- Vocational and professional: Ministry for Vocational and Professional Education (MET-FP)
- Tertiary: Ministry for Higher Education and Scientific Research (MESRS)

These four ministries, in collaboration with state organs and departments under the ministries and partners and donors, have reached various stages of implementation of ICTs in the different educational sectors. Government allocates 25.6% of budgetary resources to education.

Guinea has a system of six years of basic education and seven years of secondary education (four years for the first cycle and three for the second). Tertiary education varies from one to four years depending on the desired qualification. The compulsory age for schooling is seven years.

Table 2 reveals the enrolment figures for the different educational levels.[3]

Table 2: School Enrolment Statistics

Sector	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Pre-primary					67,881
Primary	790,497	853,623	997,645	1,081,192	1,163,126
Secondary	189,494	232,567	271,089	294,354	1,163,126
Vocational	11,049	13,166	13,085	13,360	14,947
Teacher training	1,269	2,132	2,530	2,155	3,582
Tertiary	11,682	13,500	14,819	16,361	22,223

The low enrolment in the vocational and professional sector is of concern to the government.

Infrastructure

Guinea's telecommunications infrastructure is the least developed in West Africa. The telephone density is only 0.3% for fixed lines and 1.7% for mobile/cellular phone penetration. However, between 2000 and 2005, the number of mobile phone users increased by 35%.

Table 3 provides a snapshot of the state of Guinea's telecommunications infrastructure and usage statistics.[4]

Table 3: ICT in Guinea

Indicator	
Telephones - main lines in use	26,200 (2005)

Telephones - mobile cellular	189,000 (2005)
Radio broadcast stations	5 FM; 3 shortwave (2006)
Radios	357,000 (1997)
Television broadcast stations	6 low capacity (2001)
Televisions	85,000 (1997)
Internet service providers	5 (2006)
Internet users	46,000 (2005)

The USAID Leland Initiative, an effort to extend Internet connectivity in African countries, served as the springboard for Guinea. Sotelgui, the country's main telecom operator was provided a high-speed Internet gateway under the project to which private Internet service providers (ISPs) could subscribe and sell Internet services to the public. USAID also assisted the two public universities, the universities of Conakry and Kankan and their remote campuses, to establish campus networks, Internet, and telephone connections – commercial services that could be extended to the larger public through wireless links and the Sotelgui infrastructure.

The drawback to these initiatives is the absence or irregularity of electric power supply in most parts of the country. Perennial power cuts are the norm and affect even the administrative district of Conakry.

About 30% of the Internet users are foreigners with the larger proportion of remaining users composed mainly of university students and faculty members.

ICT Policies

Guinea's NICI plan document was finalised in March 2002.[5] The plan provides for the creation of jobs through the use of ICTs and focuses on the following:

- Strengthening the ICT policy and regulatory process
- Educating and building capacity-building in ICT
- Developing infrastructure to provide the country and users with adequate bandwidth and applications
- Developing content and democratising access to all users, including civil society
- Promoting the participation of the private sector in ICT activities

The plan includes the following programmes that have a direct or indirect impact on education:

- Establishing a telephone and Internet network for higher education institutions
- Strengthening and expanding telecom, Internet, and TV infrastructure
- Expanding rural telephony and community telecentres
- Digitising the telecom network

The government's educational policy focuses on four basic objectives:

- 100% attendance for school pupils by 2015

- Promoting pre-school education
- Providing large access to professional and vocational training
- Promoting gender balance in education for the different regions of the country

The various educational levels have been impacted by the Education for All and gender equity projects with enrolment and completion rates having increased significantly.

Current ICT Initiatives and Projects

Basic and secondary education
The National Institute for Pedagogical Research and Action (Institute National de Recherche et d'Action en Pédagogie, INRAP) under MEPU-EC designed an interactive radio instruction programme for pupils in primary classes that effectively raised the levels of school attendance. The programme,[6] called Under the Kapok Tree, which develops both teachers and pupils, began in 2006, is aired 90 minutes per week for 22 weeks of the school year. It is estimated that 20,000 teachers and 900,000 pupils benefit from the programme. Lessons cover language, mathematics, science, community health, and early child development methods. To effectively implement the programme, the government distributed teachers' guides and wind-up radios that do not require electricity.

These activities are combined with bimonthly meetings and introductory workshops for teachers to give them necessary pedagogical support to adapt to the interactive style of teaching. USAID financed the project and jointly designed the content with INRAP.

USAID-Guinea also financed the participation of 14 primary, secondary, and professional schools in the GLOBE (Global Learning and Observation to Benefit the Environment) programme by donating one laptop to each of the schools for the students and teachers to collect data. Activities covered atmospheric research, soil, earth, biological, and geological data and information-gathering using scientific instruments provided by GLOBE.

This facility enabled the teachers and their students to share scientific measurements of geological systems and their observations with students and scientists throughout the world. The project is an international network of more than one million students in over 1,400 schools in 105 countries.

Tertiary level
Université de Conakry has a campus network maintained by a fibre optic backbone and 100BaseT Ethernet cables linking the buildings and faculties and 1,000 computers in the offices of lecturers and administrators.[7] Each faculty has a laboratory of five to nine computers for use by the lecturers and students alike. However, the PC-to-user ratio in the laboratories is 10:1,000.

The government established the network with assistance from the U.S. government at a cost of USD$2 million. The principal objective is to interconnect the network to the entire educational system in Guinea including the country's second university and other remote campuses. The latter are to be connected by wireless to the hub in the University of Conakry where the e-mail,

Web, and file servers are located. The university's Internet and telephone facility is serviced by a 3.5 metre diameter installed VSAT.

The Faculty of Science of the University of Conakry has, in collaboration with ISSEG, the Higher Institute for Science Education, developed e-content modules for mathematics, physics, biology, and chemistry. The success of the initial e-modules encouraged the university to increase the number of e-content courses. In early 2003, the Centre Universitaire de Labe, under the Université de Conakry, also produced an e-mathematics module. The university plans to establish resource centres nationwide to increase accessibility to these courses. Similarly, the University of Kankan is extending the network to its remote campuses.[8]

Other on-line university courses are offered in collaboration with the Agence Universitaire de la Francophonie (AUF) in the universities of Conakry and Kanakan and the decentralised campus of Labe.[9]

RESAFAD, the African network for distance education (Réseau Francophone de Formation à Distance), in collaboration with MEPU-EC, delivered teacher-training courses via the Internet to teachers in the country.[10] The courses were targeted at head teachers who manage schools of six or more classes and were aimed at raising the quality of school leadership and management.

About 960 head teachers were involved in the programme, which was intended to impact all primary school teachers following a cascading pattern of capacity transfer from the head teachers to teachers under their supervision.

The Department of Training Planning, Administration and Education Management (DFPAGE) in ISSEG was directly responsible for the implementation of the RESAFAD programme. A cyber café that can accommodate thirty people was set up for the teachers to use at ISSEG. Plans were made to establish cyber centres in the eight regions of the country to link the facility for teachers nationwide.

Generally, the RESAFAD project aims at assisting developing countries to participate in knowledge-based economies and uses ICT to provide state-of-the-art employment-focused education to deliver training to the workforce, thereby reducing the pressure on formal education systems.

Tertiary science education
The Fundamental Levels of Quality and Equity project, NFQE (Niveaux Fondamentaux de Qualité et Equité) also used multimedia tools and equipment to deliver its programmes.[11] This bi-modal training programme targeted at teachers and pupils was launched in 1997 and combined traditional teaching methods with radio and audiocassette in distance learning activities. The main components of the programme were:

- Leadership development support in education
- Assistance in the preparation of policy implementation
- Teacher training, specifically in time and class management, mathematical logic, reading and questions administration

- Training of teacher-trainers
- Development and improvement of teaching materials for pupils
- Building management capacity using computers
- Preparation of a national teacher-training policy

USAID-Guinea was the main financier of the NFQE project that ended in 2004. The programme impacted more that 1.5 million pupils, 25,300 teachers, and 4,000 head teachers nationwide. It offered more than 60 hours of training to elementary school teachers via the Internet, radio, and other media.

USAID signed an agreement with the University de Kankan to teach Internet and network courses.[12] This provided 33 computers – one to each of the 33 district education headquarters. However some of the DPEs do not have electric power supply and could not use their computers.

Other initiatives in teacher education
Other interventions have been recorded in the primary-teacher education contexts. ISFAD, Guinea's Higher Institute for Distance Education (Institut Supérieur de la Formation à Distance) launched a distance learning teacher-training programme to augment placements for teacher trainees. The distance learning candidates did not need to pass the teacher-trainee entrance exams. Rather, they paid fees annually and were required to pass only the annual examinations set by the examining board.[13]

ISFAD started the programme with 800 trainees in the 2003/2004 academic year and employed radio programmes in addition to course manuals to educate the teacher-trainees. There are plans to include video materials, but ISFAD has yet to acquire the equipment for video production.

The National Distance Teaching Service (Le Service National d'Enseignement à Distance) also uses audio materials, both radio and audiocassettes, to deliver French-language courses to teachers nationwide using material adapted from the AUF.

Adult education
In a bid to reduce the level of illiteracy in Guinea, ISSEG, though an institute for higher education, launched the POSCHIAVO adult education project[14] in collaboration with the Institut Suisse de Pedagogie pour la Formation Professionelle based in Lugano in Switzerland to teach people in disadvantaged and rural comities to read.

The Institut Supérieur des Sciences d' Éducation Générale (ISSEG),[15] a teacher-training establishment, partnered with the Service National d'Alphabétisation (National Literacy Service) and NGOs engaged in adult education activities and programmes. The NGOS provided 16 trainees, 12 of which were retained under the project after their training to undertake adult literacy teaching assignments in designated communities. The remaining four found jobs with other NGOs.

To ensure project sustainability, the literacy programme was integrated with a community development project for each beneficiary community. One village was assisted financially to build and operate a rice mill; another had a corn mill; and in another a cyber café was established.

In this project the communities, in collaboration with their trainer, identify a project and request assistance form POSCHIAVO to implement it. The communities refund 70% of the cost of their projects, and that money is used as a revolving fund to assist other needy villages or communities. Facilities are withdrawn from any community that refuses to refund the funds.

Initially POSHIAVO used e-learning resources to train the trainers provided by the NGOs. Once in the field, the Swiss donor also sent in trainers who helped the local trainers, over a two-week period per community, to deliver the literacy programmes where the trainers encountered difficulty. The involvement of the Swiss trainers was a quality improvement and evaluation strategy intended to ensure that the training approaches were well assimilated both by the trainers and the adult learners.

Generally, the POSCHIAVO project used training and communication resources offered by Internet to optimise literacy and community development and to organise a network of micro-projects focused on education for community development and quality improvement. The project aims at replicating the literacy and micro-project activities nationwide.

There are two components to the course content for the trainers: ICT and community development. ICT covers Microsoft Office applications: such as Word, Excel, and PowerPoint, while community development covered family budgeting, micro-enterprise management, preparing community development micro-projects, community health, and social psychology.

Implementing ICT in Education: What Helps and What Hinders?

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

Table 4: Factors Influencing ICT Adoption

Sectors	Enabling features	Constraining features	Risk factors
ICT deployment	• Installation of the high-speed Internet facilities in Sotelgui and the universities. • Extension by the universities of Internet and other services to the public via wireless links and Sotelgui.	• Universities financially constrained from extending the facilities even on the campuses. • Private sector ISPs emphasise commercial service against community service. • Low levels of ICT literacy in the general and teaching population.	• Possibility of failure of government or universities to renew or maintain installed facilities. • Inability of government to extend ICT infrastructure due to financial and budgetary constraints.

Non-formal education	The establishment of 300 NAFA centres (rural second-chance schools) for drop-outs or unenrolled children by the UNDP.	Insufficiency of project funds for the establishment of NAFA centres to cover all the needy communities in the country.	Financial means to continue and maintain the facilities after project completion.
Gender equity	Girls accorded 80% priority enrolment in the NAFA centres.	Tradition keeps girls from being educated, especially in the rural areas.	Abandonment of the priority policy for girls with time.
Vocational and professional education	Government policy to increase the number of schools and enlarge the intake of vocational and professional student populations.	Government budgetary constraints.	Student preference for academic to professional/vocational training.
Community-focused education	The plan to extend the POSCHIAVO and similar projects to other disadvantaged and rural communities.	Poor financial management practices or attitudes of trainee associations in deprived communities.	Possibility of project bankruptcy owing to the refusal of communities to reimburse scarce project funds.
ICT policy implementation	Policy developed and announced and options advertised.	Slow pace of deregulation and privatisation of the communications sector.	

Notes

1.   The World Factbook 2007. https://www.cia.gov/library/publications/the-world-factbook/geos/gv.html
2.   Human Development Report 2006. United Nations Development Programme (UNDP):http://hdr.undp.org/hdr2006/statistics/countries/country_fact_sheets/cty_fs_GIN.html
3.   Rapport National de la République de Guinée. Séminaire Ministériel sur l'Education des Populations Rurales en Afrique. Septembre 2005. Organisation des Nations Unies pour l'Alimentation et l'Agriculture (FAO) : http://www.fao.org/SD/ERP/addisababa/session%202%20country%20presentation/PPP%20Guinee.ppt#411,31,Évolution des effectifs (1999-2004)
4.   The World Factbook 2007. The Central Intelligence Agency (CIA): https://www.cia.gov/library/publications/the-world-factbook/geos/gv.html
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6.   From Repetition to Comprehension : Interactive Methods focus student-centered learning in Guinea. May 2005. International Education System (IES): http://ies.edc.org/news/articles.php?id=24
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11.	Pratiques de formation reposant sur l'utilisation des médias, de la fad et de l'internet. Edusud : http://www.edusud.org/adea/guinee-c1.pdf

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13.	L'Expérience Guinéenne en Formation à distance. Edusud : http://www.edusud.org/IMG/pdf/aguinee.pdf

14.	Peraya, Daniel. The Poschiavo Project : remote formation with the project of regional development. 1999. THOT:http://thot.cursus.edu/en/rubrique.asp?no=1465

15.	Guinea-Our Projects. dvv international: http://www.iiz-dvv.de/englisch/Kooperationen/Afrika/guinea.htm.

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1 https://www.cia.gov/library/publications/the-world-factbook/geos/gv.html

2 http://hdr.undp.org/hdr2006/statistics/countries/country_fact_sheets/cty_fs_GIN.html

3 http://www.fao.org/SD/ERP/addisababa/session%202%20country%20presentation/PPP%20Guinee.ppt#411,31,Évolution des effectifs (1999-2004)

4 https://www.cia.gov/library/publications/the-world-factbook/geos/gv.html

5 http://www.uneca.org/aisi/docs/PLAN%20NICI%20GUINEE.doc)

6 http://ies.edc.org/news/articles.php?id=24

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