

Summary

Systemwide use of ICT in schools in Aruba has not progressed at a rate commensurate with the country's economic success. Chief barriers are the absence of ICT policy or ICT prioritization in education, a concomitant lack of funds, and teachers' inadequate mastery of ICT skills.

However, the Aruba Pedagogical Institute (IPA), trains all primary teachers and houses the School of Tomorrow project. School of Tomorrow supports two ICT pilot schools as well as a technology-rich model classroom that facilitates experimentation with ICT integration, teaching to multiple intelligences, and development of collaborative and project-based learning activities.

Aruba was awarded independence from the Netherlands Antilles in 1986, and remains a



separate, autonomous member of the Kingdom of the Netherlands. Tourism has been the main economic driver over the last five decades, followed

Basic Data

Category	Date	Value
Population	2006	71,891
Per capita GDP (PPP)	2004	\$21,800
Economy, composition	2006	Tourism, oil production and refining
Literacy, total population 15 and over	2006	97
Literacy rate (women)	—	NA
Gross enrollment ratio, primary	2002/3	115.1
Gross enrollment ratio, primary (girls)	2002/3	111.6
Gross enrollment ratio, secondary	2002/3	103.1
Gross enrollment ratio, secondary (girls)	2002/3	106.7
Number of early education, or "kindergarten," schools (students 4–6 years old)	2006	25
Number of basic education schools (students 6–12 years old)	2006	34
Number of secondary schools	2006	13
Language of instruction	—	Dutch

Sources: World Factbook, UNESCO, Min. of Education and Labor

Relevant Policies

Policy	Status	Date	Key points and objectives
No ICT-related policy	—	—	—

Source: MOEL

by oil refining. Hotel occupancy rates substantially above the regional average afford Arubans one of the higher standards of living in the Caribbean.

Policy and planning

The current education policy in Aruba was adopted in 1988. This document does not include consideration of ICT-related issues. Development of a policy addressing ICT in education is included as an objective in Aruba's education plan for 2007–2017.

The absence of ICT policy in education notwithstanding, the DOE is in the process of a 10-year curriculum reform project. The primary goal of reform is to re-design the education system overall, introducing greater innovation and integrating different courses. The introduction of Papiamentu, the native language of Aruba, into the lower-primary curriculum is considered essential for development of the children. A secondary goal of the process

involves developing an integrated curriculum that includes integrated use of ICT.

ICT in primary and secondary schools

Over the course of the past 15 years, most ICT initiatives in schools in Aruba have been initiated by organizations outside the DOE (e.g., NGOs, private sector organizations). However, government-sponsored renovation of 13 secondary schools between 1995 and 2000 included establishment of one computer lab in each school with a WAN linking these schools to the Internet through a central server.

Secondary schools in Aruba are augmented by technical and vocational schools offering training and education in subjects such as hotel management, construction, and healthcare. Technical/vocational schools offer students access to computers with ADSL-based Internet connections.

Primary schools

Of the 25 kindergarten schools (ages 4–6), three schools have computer labs, with another 11 schools having one to two computers in classrooms.

Of the 34 basic-education schools (ages 6–12), 20 schools have computer labs. These schools do not typically have computers in classrooms. However, an additional seven basic-education schools have

ICT Resources in Schools

School type	Number	Median enrollment	ICT profile
Kindergarten schools	25	Unknown	<ul style="list-style-type: none"> ■ 3 schools have computer labs ■ 11 schools have 1–2 computers in classrooms (as of January 2005)
Basic education schools	34	~250	<ul style="list-style-type: none"> ■ 20 school have computer labs ■ 15 desktop computers per lab ■ 7 schools have mobile labs (~15 laptops) ■ Educational software (Dutch, math, science)
Secondary schools (includes vocational/technical)	13	Not known	<ul style="list-style-type: none"> ■ >30% of schools have computers and are connected to the Internet ■ Primary uses are acquainting students with ICT, preparing for ICT exams and building students' abilities to use ICT for different vocational applications ■ Schools with computers have educational software (Dutch)

Source: MOEL

mobile carts, with approximately 15 laptops per cart, enabling computer use in classrooms. Students have access to educational software reinforcing learning in Dutch language arts, math, and science.

Computer-lab installations typically include: one computer lab with 15 desktops or laptops, a minimum of one color printer, one scanner, one digital video camera, 3 digital photo cameras, 15 audio headphones, and 15 webcams.

The Pedagogical Institute of Aruba (IPA) School of Tomorrow initiative has designated two basic-education schools as pilot sites for the integration of ICT into the curriculum through project-based learning. These schools make use of curricula that include ICT, and that have resulted from Aruba's curriculum-reform process, while testing pedagogical strategies that support active learning and learner-centered activities.

The DOE currently plans to complete preparation of primary schools to receive ICT in the 2008–2009 academic year.

Secondary schools

Over 33 percent of secondary schools have computers and Internet connections (via systemwide WAN). Students primarily use these computers to build ICT skills and to prepare for ICT exams. IT curricula include use Microsoft Office productivity tools. Educational software is also available to reinforce learning in math, language arts, and science. Students use SuperLogo as a platform to build programming skills.

Teacher professional development

Teacher education in Aruba begins during secondary education: prospective primary teachers enter a five-year program (general education); after graduation, this program is followed by four years' study at the Aruba Pedagogical Institute (IPA). The ICT curriculum consists of two modules—Basic ICT skills and ICT in education—that are taken by all pre-service teachers.

Teacher Professional Development Programs

TPD program type	Target population	Objectives	Scale	Barriers
DOE ICT in-service training	In-service primary and secondary teachers	Familiarize teachers with ICT and curriculum integration Enable trained teachers to serve as champions or "multipliers"	<ul style="list-style-type: none"> 29 teachers trained in 2004 	<ul style="list-style-type: none"> Second phase, in which teachers receive TPD on championing ICT in schools, has not taken place Teachers' limited access to ICT in schools Program is not coordinated with new ICT-appropriate curriculum
UNESCO ICT liaison training	In-service teachers in primary and secondary schools	Empower teachers to serve as points-of-contact for system-wide assessment of ICT in schools	<ul style="list-style-type: none"> 34 teachers in one workshop 	<ul style="list-style-type: none"> Primary teachers are transferred among schools each year Abilities vary widely among teachers
Aruba Pedagogical Institute (IPA)	Pre-service primary teachers	Familiarize teachers with ICT Build foundational understanding of ICT integration	<ul style="list-style-type: none"> All candidates preparing to teach in primary school Enrollment is less than 100 students Two course modules (with additional support by on-site School of Tomorrow) 	<ul style="list-style-type: none"> Limited access to ICT in primary schools does not support ICT integration effectively
School of Tomorrow at IPA	Pre-service and in-service teachers; students	Investigate practice of integrating ICT in the Aruban curriculum Develop resources and support ICT projects for schools	<ul style="list-style-type: none"> Select teachers and researchers 	<ul style="list-style-type: none"> Funding for ICT in Aruba has yet to enable results and/or practices to be disseminated widely Majority of faculty in Aruban schools lacks essential ICT skills

Source: MOEL

Secondary teachers are educated outside Aruba, typically at universities in the Netherlands. A small number are educated in Aruba in response to school staffing needs.

The IPA School of Tomorrow team (www.schooloftomorrowipaaruba.com) coordinates pre-service ICT studies. The School of Tomorrow team also supports the two pilot schools participating in the School of Tomorrow project and operates a School of Tomorrow lab at IPA. The lab serves as a model classroom, modeling the affordances of a technology-rich learning environment, facilitating experimentation with ICT by both pre-service and in-service teachers, and supporting the use of ICT in Aruban schools.

In part because the School of Tomorrow is relatively new, the majority of teachers currently in service in Aruba lack ICT skills required to benefit from or support School of Tomorrow activities.

The School of Tomorrow has also developed (or participated in the development of) Web-based resources. These include a site cataloguing Aruban flora and fauna and a general-reference site, which covers subjects such as topography, political structure, and the economy. The School of Tomorrow has also managed collaborative projects among students at the Colegio Cristo Rey, one of the Classroom of Tomorrow pilot schools, and among IPA teacher-candidates.

As part of these projects, participants were supported in the creation of blogs. Although both student and teacher blogs remain available on the Web (www.schooloftomorrowipaaruba.com/wc2006/cave/blogs.htm), in almost all cases activity consists of a few posts and comments on and around the dates that the blogs were launched.

A separate Cascade-method TPD initiative was launched in 2004 to train teachers from each primary school to become ICT leaders who would be responsible for training other teachers in their schools. Although the first phase of training was completed, the second phase, which comprised train-the-trainer sessions, was not held as a result of lack of funding and other factors.

Tertiary education

In addition to IPA, tertiary education is provided by the University of Aruba (UA), which offers pro-

grams in law, finance and economics. Enrollment is approximately 200 students.

UA affords students access to computers with ADSL Internet connection.

Non-formal, distance, and open education

Non-formal, distance, and open modes of education are not currently factors in Aruban education at this time.

EMIS

As of early 2007, the DOE is not engaged in EMIS implementation. Among the barriers to effective EMIS is a countrywide lack of technical expertise. Compounding this situation is lack of funding for EMIS within the DOE.

Barriers and challenges

- **Lack of guidance from policy may influence priorities.** Aruba is one of very few Caribbean countries that does not have an ICT policy for education adopted or in draft form, or in process. Development of ICT policy is included in the National Education Plan for 2007–2017. Other barriers cited in this section may stem from or be reinforced by the absence of policy. Specifically, as Aruba is among the wealthier countries in the region and has historically allocated a relatively high portion of government spending to education, problems arising from inadequate funding are very likely made more challenging.
- **Inadequate funding affects ICT access and human resources.** Although several ICT-focused TPD initiatives have taken place across the entire primary-school system, impact has been minimal because teachers and their classes do not have adequate access to computers and the Internet. Similarly, lack of technical capacity within the DOE and local consultants—cited as contributing factor in the lack of EMIS—has been attributed partially to inadequate wage scale for ICT-related jobs.
- **Teachers' ICT skills are inadequate.** Efforts are made at IPA and the School of Tomorrow to support integration of ICT across the primary curriculum. Ineffective TPD, however, combines with lack of access and incentive to minimize use of ICT to support broad-based learning in schools.