

Summary

Jamaican schools were among the first in the Caribbean to acquire computers and Internet connections. The Jamaica 2000 project led to the installation of computer labs in all secondary schools to support courses in computer studies and computer science. Jamaica 2000 is now succeeded by e-Learning Jamaica (e-LJam), a more comprehensive project addressing overall enhancement of teaching and learning using ICT to support constructivist pedagogy, authentic assessment, and other change strategies. Several primary-level initiatives planned pilot projects that were to lead to scaled implementation of ICT, however these projects were in some cases either substantially curtailed (New Horizons Project), not sustained (Ed Tech 20/20), or have yet to be completed (Primary Education Sector Project). According to a 2006 baseline survey, substantial investments and large-scale initiatives at both the primary and the secondary levels have yet to yield



significant impact in terms of access to ICT or ICT support for educational reform. Progress at the tertiary level has been steadier, with all of Jamaica's tertiary institutions offering combinations of certificate, diploma, and degree programs in ICT-related disciplines. Teachers' colleges, however, and in-service training programs for teachers in general, do not yet support emphasis on ICT that is commensurate with the history of commitment and ambition. The TVET organization HEART Trust/

Basic Data

Category	Date	Value
Population	2006	2,758,124
Per capita GDP (PPP)	2005	\$4,500
Economy, GDP composition by sector	2006	Agriculture (4.9%), industry (33.7%), services (61.5%)
Literacy, total population 15 and over	—	84.1%
Literacy rate (women)	—	91.6%
Gross enrollment ratio, primary	2002/3	99.8%
Gross enrollment ratio, primary (girls)	2002/3	99.5%
Gross enrollment ratio, secondary	2002/3	84.1%
Gross enrollment ratio, secondary (girls)	2002/3	85.1%
Number of primary schools	2006	355
Number of secondary schools	2006	—
Language of instruction	—	English

Sources: World Factbook, UNESCO, The Natoma Group

NTA offers perhaps the most comprehensive and effective support for developing ICT capacity, requiring computer proficiency at all 27 of its campuses and offering more advance technical certification at six computer labs nationwide.

The most populous country included in this critical review,⁵ Jamaica has the most extensive and varied history of ICT use in education. In addition, the island hosts several key regional education institutions or initiatives, including UWIDEC, the HEART Trust/NTA, and the Caribbean Regional Sustainable Tourism Development Program.

The Jamaican economy, however, has experienced troubles stemming from a variety of causes. These range from political violence in the 1970s, to organized crime and neighborhood violence in the 1980s and after, to problems in the financial sector that include inflation, unemployment, and high internal debt, to weather events such as drought (1997) and catastrophic hurricanes such as Gilbert (1988) and more recently Ivan (2004).

In combination with the economy's reliance on the service sector, these economic challenges and the resulting island-wide low-income levels make improvement of the effectiveness of education in Jamaica a high priority. As of 1999, the Government of Jamaica allocated 12.9 percent of its overall budget to education. Key challenges, however, include poor student performance, inequities within

the system based on race, class, and gender, and limited access to secondary education.

Unfortunately, Jamaica's relatively long history of experimentation with ICT has yet to bear substantial fruit.

Policy and planning

Although Jamaica continues to launch large-scale projects in ICT, with strong support from the office of the Prime Minister, activities are yet not guided by policy or by a strategic plan. A strategic plan was developed at the end of 2006, leading to the drafting of a new ICT policy in education that has yet to be adopted. The policy includes support for e-LJam.

Primary education

Starting in 1998, MOEY has worked to ensure that all primary schools with electricity have had at least one computer with Internet. In addition, several projects have increased access to ICT and technical capacity at the primary level. These include:

⁵ The more populous countries in the Caribbean—Cuba, the Dominican Republic, Haiti, and Puerto Rico—have been excluded so as to enable concentration on SIDS.

Relevant Policies

Policy	Status	Date	Key points
ICT Policy for Education*	Draft	December 1998	<ul style="list-style-type: none"> ■ Promote equitable access to education through ICT ■ Create a teaching force with skills required to use ICT to enhance the teaching/learning process ■ Improve the efficiency of educational administration ■ Provide support to distance education and lifelong learning
RFP for ICT Strategy	Published	October 2006	<ul style="list-style-type: none"> ■ MOEY has advertised for a consulting firm to guide development of a strategic plan
ICT Policy for Education Sector**	Announced draft	September 2007	<ul style="list-style-type: none"> ■ Unknown, but includes statement of support for e-LJAM

* Although the document is cited in Miller (see the List of Works Consulted, in Volume 1 of the Survey), the title of the policy is unknown. It does not appear that the policy was adopted. The current education planning document, a white paper titled "Education: The way upward—A path for Jamaica's Education at the Start of the New Millennium", does not list ICT use among its seven strategic objectives.

** Although the new policy had not been released in draft form as of publication of the Survey, announcements appeared in September and November of 2007 stating that the draft was nearing completion (Jamaica Information Service, Sept. 27, 2007, and Nov. 11, 2007 – http://www.jis.gov.jm/education/html/20070926T120000-0500_13093_JIS_ICT_POLICY_FOR_EDUCATION_SECTOR.asp – Accessed Nov. 21, 2007.* This policy document was created using the OERU template.

Sources: MOEY, The Natoma Group

ICT Resources in Primary Schools

School type	Number	Median enrollment	ICT profile
Primary schools, public	355	—	■ At least 1 computer with Internet connection in all schools with electricity
All-age schools, public (primary and lower secondary)	88	—	■ 15 pilot Primary Education Support Project (PESP) schools with ICT installations and teacher development

Source: MOEY

Ed Tech 20/20

The Jamaica Computer Society Education Foundation (JCSEF) with funding from IDB and the World Bank⁶ launched a cluster-based approach to ICT in primary schools, Ed Tech 20/20. The project pilot-tested computer-and-Internet installations in roughly 20 primary schools. Clusters of four to five primary schools were linked to a single secondary school or teachers college, which would provide professional development and technical support.

New Horizons Project (NHP)

Primary intended to increase literacy and numeracy levels among students in 72 primary schools, the NHP originally included plans for installation of computer labs in 15 primary schools, with audio-visual equipment provided to the remaining 57 schools. Over the course of the seven-year project, ICT-related objectives were revised to target establishment of 6 “hub” multimedia centers that were to provide shared resources to schools in their regions. In 2001, this target was further revised as a result of financial issues surrounding NHP and questions arising around management and sustainability of the centers, leading to the development of a pilot Education Technology Resource Centre (ETRC).

Primary Education Support Project (PESP)

Funded by loans of over US\$40 million, PESP was launched in 2001 as a comprehensive and holistic enhancement of teaching and learning at the primary level through qualitative improvements, civil works, and institutional strengthening. Curriculum and assessment initiatives, complemented by professional development of over 7,000 teachers plus additional professional-development activities, and school construction and maintenance programs comprise the central initiatives in the

project. The ICT sub-component has deployed hardware in 15 pilot schools, with professional development for the principal and one teacher in each school addressing use of office-productivity software and integration of ICT into the curriculum. PESP may also include audio-cassette-based Interactive Radio Instruction programming in math.

The PESP project is designed to be scalable within the Jamaican primary-school system, and to lead to a gradual increase in the effective use of ICT to enhance teaching and learning, with specific emphasis on the transition from “transmissionist” to “constructionist” pedagogies. The latter are considered within PESP to be more supported more effectively and organically by ICT.

Cable & Wireless Jamaica Foundation/Teens for Technology

In late 2006 and 2007, the telecommunications provider Cable & Wireless Jamaica, Ltd., in collaboration with the NGO Teens for Technology provided computers and free DSL Internet access (where available) to 108 Jamaican primary and secondary schools. Schools were selected to receive computers based on need and prior initiative in acquiring and using ICT.⁷

Secondary education

The major implementation of ICT in Jamaican secondary schools is the Jamaica 2000 project.

⁶ Ed Tech 20/20 was among the first project funded by *infoDev*, which has provided grant-based funding for the current study.

⁷ As of the drafting of the Survey, no information is available about the organization Teens for Technology, or about plans for TPD or technical support in participating schools.

Jamaica 2000/The Jamaica Computer Society Education Foundation

The Jamaica 2000 project was among the first Caribbean initiatives to target the nation-wide introduction of ICT into secondary schools. In 1989, the Jamaica Computer Society determined that over the subsequent decades Jamaica was likely to fall further behind developed countries due to a lack of computer-programming capacity and overall technical skills. In 1990 Jamaica 2000 was launched—as well as an implementing organization, the JCSEF, an NGO—to increase the capacity of IT teachers in schools, ensure that computer science was an examinable subject in CXC-affiliated countries, and to provide each of the 144 Jamaican secondary school (as of 1989) with a 15-computer lab. Over the course of the next decade, several organizations would partner with JCSEF (HEART Trust/NTA and the Business Partners organization), while the MOEY and the Government of China partnered to separately equip 29 secondary schools not served by JCSEF.

Over time, the JCSEF modified its objectives to include the improvement of teaching and learning

in Jamaican secondary schools. Although lab installation met desired levels—with assistance from MOEY as mentioned—overall impact of the Jamaica 2000 project has been limited. For analysis of the results of Jamaica 2000 and related efforts, see the “Current state of ICT in Jamaican schools” section included in this profile.

Teacher professional development

The tertiary institutions below offer pre-service teacher education.

In-service

The MOEY has a Professional Development Unit (PDU) that is responsible for in-service TPD. Staff of the PDU includes an ICT Training Coordinator (as well as a training coordinator for NHP). At the primary level, MOEY has tended most recently to focus its ICT in-service efforts on school leadership: In the past four years, over 200 principals have participated in one-year leadership courses address-

Pre-Service Teacher Professional Development Programs

TPD program type	Target population	Objectives/Degrees	Scale	Barriers
CASE	Students preparing to teach in primary programs	<ul style="list-style-type: none"> ■ Diploma in primary teaching ■ 3-year Curriculum includes a 1-semester course in education technology 	■ Unknown	<ul style="list-style-type: none"> ■ Limited access to ICT on campus; lack of integration into students' learning processes ■ Single course in education technology may fail to prepare students to use technology effectively
Knox Community College	Students preparing to teach in primary or secondary programs	■ B.Ed. specializing in primary or secondary education	■ Unknown	<ul style="list-style-type: none"> ■ Technology infrastructure on 3 of the colleges 4 campuses is limited ■ No ICT component is listed in the degree requirements
NCU	Students preparing to teach in early-childhood, primary, secondary and other programs	■ B.A. and B.S. degrees as credentials for teaching	■ Unknown	■ No ICT requirement, but computer studies can be chosen as a major or minor area of specialization
UTech	Students preparing to teach in TVET programs	■ B.Ed. degree	■ Unknown	<ul style="list-style-type: none"> ■ Unknown; lack of access to technology in schools may lead to loss of skills, high turnover, etc. Core courses include: information technology; instructional technology; computer-based learning design
UWI	Students (including certificate or diploma holders from teachers colleges) preparing to teach in primary or secondary programs	■ B.Ed. degree	■ Unknown	■ Unknown; available majors do not include instructional technology or computer studies

Sources: MOEY, UWI, The Natoma Group

In-Service Teacher Professional Development Programs

TPD program type	Target population	Objectives	Scale	Barriers
Ed Tech 20/20	Primary teachers	<ul style="list-style-type: none"> Enhance teaching and learning, in part through use of ICT 	<ul style="list-style-type: none"> 20 primary schools (unclear the number of teachers trained per school) 	<ul style="list-style-type: none"> Primary teachers trained by secondary teachers; unclear motivations/incentives/capacity
New Horizons Project (NHP)	Primary teachers	<ul style="list-style-type: none"> Improve literacy and numeracy learning 	<ul style="list-style-type: none"> 72 primary schools 	<ul style="list-style-type: none"> Initial plans for 15 multimedia centers scaled down to 1 center
Primary School Enhancement Project	Primary teachers, principals	<ul style="list-style-type: none"> Enhance teaching and learning through integration of ICT 	<ul style="list-style-type: none"> Systemwide; TPD for 7,000 primary teachers 15 pilot schools with ICT installations 	<ul style="list-style-type: none"> Limited use of ICT Limited scale of ICT-focused TPD (only one teacher and the principal from each of the 15 pilot schools)
Jamaica 2000	Secondary IT teachers, other secondary teachers	<ul style="list-style-type: none"> Increase capacity for teaching of computer-science; enhance teaching and learning through use of ICT 	<ul style="list-style-type: none"> 166 Jamaican secondary schools 	<ul style="list-style-type: none"> Project apparently focused on hardware acquisition and installation Limitations of cascade model Rapid changes in field of Computer Science
e-Learning Jamaica	Secondary teachers and principals	<ul style="list-style-type: none"> Enhance teaching and learning through integration of ICT 	<ul style="list-style-type: none"> 1 teacher and 1 principal in all 166 Jamaican secondary schools 	<ul style="list-style-type: none"> Learner-centered pedagogies don't match teachers or students needs for CXC performance Limitations of Cascade model of TPD Complex array of proposed technologies increases burden on TPD 3-year project timeframe is very short

Sources: MOEY, e-Learning Jamaica, The Natoma Group

ing ICT as part of a broader transformation of teaching and learning.

In addition, each of the projects described in this country profile—NHP, PESP, Ed Tech 20/20, Jamaica 2000, e-LJam—has provided professional development to groups of primary or secondary teachers to support specific uses of ICT. In most cases, the cascade model (or the “champion teacher” model) has been used. For this reason, overall coverage relative to the number of teachers in Jamaica appears limited; information about the number of teachers trained by peers is not available.

The NHP project also included development of an EdTech unit responsible for training and professional development of teachers, education officers, NHP associates, and parents. The NHP training curriculum addressed both the use of ICT and the transition to the NHP curriculum. A series of tutorials for self-paced learning was developed, addressing topics that ranged from a “Sensitization Seminar” to digital storytelling.

Overall, however, the salient features held in common by the TPD components of ICT projects in Jamaican schools are striking. At the primary level (NHP, Ed Tech 20/20, PESP), the scale of training (and of ICT installation) is extremely small, leading to the conclusion that no ICT interventions in primary schools have achieved widespread impact. At the secondary level, both Jamaica 2000 and eLearning Jamaica, Ltd., appear focused first on hardware procurement and installation, underemphasizing TPD.

Tertiary education

EMIS and Integration of Technology by MOEY

In addition to its regional leadership in terms of ICT implementation in schools, in 1993 Jamaica also became one of the first countries in Latin America to launch an EMIS initiative. Funded by USAID, this project was intended to strengthen support for information-based decision-making through improved access to school census data, introduction

ICT Programs in Tertiary Institutions

Institution	Target population	Objectives / degrees	ICT
Northern Caribbean University (NCU)	Undergraduates	<ul style="list-style-type: none"> ■ B.Sc., Computer Science with communications emphasis, Computer Science with programming emphasis, Information Science ■ A.Sc., Information Science 	<ul style="list-style-type: none"> ■ Unknown
UTech, School of Computing and Information Technology	Undergraduates	<ul style="list-style-type: none"> ■ B.Sc. degree, Computing and Information Technology, Computing with Management Studies ■ Diploma, Computer Studies 	<ul style="list-style-type: none"> ■ 6 laboratories with 150 up-to-date workstations
UWI	Undergraduates	<ul style="list-style-type: none"> ■ B.Sc., Computer Science, Computer Studies ■ B.Ed., various majors 	<ul style="list-style-type: none"> ■ Yes, quality and level of access is unknown

Sources: UTech, UWI

of computer-based recordkeeping systems in all regions, development of a school-level GIS system, and other measures. EMIS development was completed in 1996, however several important components (including GIS) were not adopted.

As a measure of the limitations of that original system, at a much later point the NHP proposed development and implementation of a Jamaica School Administration Software (JSAS) package—to meet on a local level information needs that had supposedly been met nationally.

As of September 2006, MOEY announced plans to modernize its operations via acquisition of approximately 400 desktop and laptop computers, improvement of data storage and access capabilities, and ICT training for administrative personnel.

TVET

HEART Trust/NTA offers vocational training for secondary-school graduates and all school-leavers

age 17 and older in 27 institutions on an island-wide basis. All students receive basic training in the use of ICT. With a projected enrollment of 101,000 in 2007–2008, HEART Trust/NTA may be the educational institution with the broadest level of impact in terms of ICT capacity among Jamaica's general population.

In addition, the HEART Trust/NTA has three special initiatives involving use of ICT:

- **LMS roll-out:** HEART Trust/NTA is in the process of launching an LMS to provide self-paced e-learning to enrolled students
- **National Qualifications Register:** HEART Trust/NTA is developing an online database to aid its graduates in finding jobs and to aid prospective employers in finding new hires⁸
- **Vocational Training Development Institute:**

⁸ The HEART Trust/NTA is funded by a 3 percent employment tax, based on a company's number of employees; companies hiring HEART Trust/NTA students receive exemptions from the tax.

ICT Programs in TVET Institutions

Institution	Target population	Objectives/certificate	ICT
Caribbean Institute of Technology	Post-secondary students (at least 4 CXC passes)	<ul style="list-style-type: none"> ■ 12-month certificate programs in software design, networking, web design, etc 	<ul style="list-style-type: none"> ■ Yes
HEART Trust/NTP	Post-secondary students (and early school-leavers)	<ul style="list-style-type: none"> ■ 12 and 24-month programs ranging from hospitality to auto mechanics ■ ICT basics are required 	<ul style="list-style-type: none"> ■ Six labs, plus planned implementation of eLearning (via LMS)
UTech	Post-secondary students	<ul style="list-style-type: none"> ■ Many vocational programs; ICT certificates offered 	<ul style="list-style-type: none"> ■ Yes

Sources: HEART Trust/NTP, UTech

Six computer labs at HEART schools, supporting ICT certificate programs

UTech also offers ICT-focused and ICT-supported TVET. In 2006, the university received a technical-assistance loan of USD 980,000 to enhance UTech's use of technology.

In addition, the Cisco Networking Academy program has established two training facilities in Jamaica.

For additional information, refer to the section, "Project profile: HEART Trust/NTA, Jamaica."

Nonformal education and community access to ICT

Jamaican schools support community access to ICT to a limited extent. Roughly, 12 percent of schools offer evening classes in computer studies, and of the 103 schools that offer classes, 95 (or 92 percent) report significant attendance by local adults and youth.⁹

In 2002, IDB approved a US\$17 million loan to the Government of Jamaica to develop ICT capacity both within the government and among low-income communities. Of the total loan, US\$3.5 million was allocated to fund the establishment of approximately 60 community information centers, each with five computers, with scholarships for community users and other program support.

Limited ICT capacity in Jamaican schools

In 2006, MOEY commissioned an assessment of overall ICT capacity in Jamaican primary and secondary schools, "Baseline survey on Information and Communication Technology Capacity in Schools in Jamaica."¹⁰ Although additional disaggregation of data is in order, the overall picture of ICT capacity is clear: Although Jamaica has historically been a leader in pilot-level ICT projects, with MOEY and JCSEF additionally leading systemwide implementations, technical and human capacity in schools remains limited. Key findings include:

- **Limited EMIS:** Many schools were unable to provide numbers of students by grade, or the number of students with access to computers
- **Lack of access to ICT:** The research teams were unable to check computers for operability in many schools, for reasons that include lack of

electricity, missing lab keys, unknown passwords, and equipment in storage or in principals' offices.

- **Computers non-operational:** Of the computers that could be accessed, roughly 22 percent are non-functional. Although this percentage is not atypically high, when combined with the number of computers that could not be checked, the numbers of non-operational computers is very significant.
- **Lack of ICT personnel:** 65 percent of schools reported that they did not have ICT coordinators; in many other cases, ICT coordinators were minimally trained or self-trained.

The report also expresses concern about the level of ICT capacity among school faculty. Ninety percent of teachers responding stated that they can use computers, with 61 percent reporting that they use computers in their teaching (i.e., grades, lesson preparation, etc.) and a further 21 percent reporting that they use computers for instructional delivery. However, only 40 percent of teachers overall are certified. However because these data are generated by self-reporting, and in light of the limited access to ICT in schools, the authors of the report remain skeptical as to teachers' ICT capacity and usage.

Lessons learned

Jamaican respondents and the reports consulted have in many instances not pointed to specific lessons learned. The scale of MOEY and the number of NGOs and other organizations active in ICT in Jamaica may limit the growth of shared knowledge. Ms. Jacqueline Cousins, head of the Media Services Unit, MOEY, had the following to say in distinguishing PESP from its predecessors, NHP and Ed Tech 20/20: "Simply supplying equipment without the other components, we would have the same experience and are now having that experience, in which you go through a first and second generation [of technology inputs] without seeing an impact on practice."¹¹

⁹ No information is available about the distribution of these programs among primary and secondary schools. Given that secondary-school computer labs are typically larger and IT teachers better trained, it is possible that most of the 103 schools offering classes to their communities are secondary schools.

¹⁰ The report was conducted by JCSEF and the INFOSERV Institute of Technology.

¹¹ Telephone interview, October 10, 2006.

