Access to Technology in the Twenty-first Century

IMPLICATIONS OF THE DIGITAL DIVIDE FOR AFRICAN AMERICAN MALES

Toni Stokes Jones and Nancy Copeland

Legislation such as No Child Left Behind requires that all American students have access to technology and that all their teachers be prepared to utilize technology in the classroom so that their students can be technology literate by the time they finish the eighth grade (U.S. Department of Education, 2006). Infusing technology into education is also a pressing issue for educational leaders in other developed countries (e.g., Canada, European Union, United Kingdom, France, Australia, and Italy) as well as less-developed countries (e.g., Philippines, Chile, Singapore, Costa Rica). This chapter addresses issues of digital equity as they relate to African American students and their global counterparts. It also examines students’ information communication technology (ICT) access in schools and homes in the United States and abroad. This chapter will discuss African American males’ access to ICT.

How Technology Influences the Digital Divide

Information communication technology (ICT) refers to desktop and laptop computers, handheld computers (or personal digital assistants/PDAs), and cell phones that
allow access to the Internet via various methods (e.g., telephone lines, broadband or wireless connections). Many countries have made tremendous gains in providing students with access to ICT in schools, homes, workplaces, and public facilities. It is important to note, however, that the method by which ICT access is achieved is based on a number of factors, including economics, social status, geographic location, technological infrastructure, and in some cases race/ethnicity.

The United States is a leader in providing access to ICT, yet as more U.S. schools recognize the need to integrate ICT into their classrooms concerns over the unequal distribution of access to technology mount and grow. The phrase *digital divide* was coined to refer to this gap between the technology “haves” and “have-nots” (Norris, cited in Jackson et al., 2003). Affluent schools, typically in suburban areas, have already created technology-rich learning environments for their students, but schools in many urban and rural districts were late to join the digital revolution. Subsequently, students at ICT-poor schools have little or no access to the information technologies that were touted to substantially improve their academic achievement and better prepare them for the world of work in the twenty-first century. Worse still, the patterns of unequal access are typically seen along racial and economic lines, with urban and rural schools that have significant African American or high-poverty populations falling into the “have-not” category.

The digital divide exists in developing countries for similar reasons. In those nations, private schools are often better funded and as a result have access to state-of-the-art ICT, whereas public or government schools have less funding and less access. Moreover, the requirements for an adequate technological infrastructure are often not present in developing countries. Low rates of literacy are additional technology barriers in these nations and, as such, make it difficult for their school populations to engage in ICT. For example, in countries like South Africa, where the technological infrastructure is available and access to the Internet is growing, wealthy Whites—who comprise the minority—are the predominant “haves” (Kirkman, 2003).

**Reasons for Including Technology in Education**

In the United States, the Partnership for 21st Century Skills (2006) includes ICT literacy as one of six components necessary to improve the quality of education, make high school more rigorous, and enable high school students to “use technology
to learn content and skills—so that they know how to learn, think critically, solve problems, use information, communicate, innovate and collaborate.” Similarly, educational policy in Canada is set separately by each of the provincial and territorial legislatures, and both the central government and the various legislatures see the need for ICT in schools, and for many of the same reasons that are espoused in the United States. The Conference Board of Canada also maintains that ICT, especially the Internet, is a “valuable source of the information and knowledge [Canadian youth] need to improve their employability skills” (2001, 10–11). Likewise, Australia and the United Kingdom value the use of ICT to support student learning. According to Bruniges (n.d.), one of the goals of education in Australia is to have students leave school being “confident, creative and productive uses of new technologies.” The United Kingdom’s national curriculum requires that all students be “given opportunities to apply and develop their ICT capability, through the use of ICT tools to support their learning in all subjects” except physical education (Edwyn, 2001, 21). Each of the above-noted countries also aims to reduce its own national digital divide related to lack of access to ICT.

New Zealand has also recognized the need for ICT in schools and has a broad goal of enhancing “the development of students' knowledge, understandings, skills, and attitudes through the appropriate and effective use of ICT” (ICT Strategy for Schools, 2002–2004: New Zealand, 2004). Furthermore, the International School Manila (ISM)—a private, nonprofit, coeducational institution consisting of an elementary, middle, and high school in the Philippines—asserts that its “curriculum is technologically current for students” and that all its school personnel “use information technology as a learning tool” (Thew, 2000, 6).

The United World College of South East Asia (UWCSEA), a boarding school in Singapore, has similar aspirations for its students. Like ISM, the UWCSEA comprises elementary, middle, and high school grade levels. Technology is integrated into its curriculum to support UWCSEA’s largely computer-literate student body, and “it is expected that by age 13 the majority of students will have basic knowledge and confidence in a full range of I.C.T. skills” (Thew, 2000, 12). Thew notes that another school in Southeast Asia, the Singapore American School, for Americans living in that nation, supports ICT as a part of its overall school environment. There, “The important place of I.C.T. is established, resourced and organized” (16). Similarly, both the Nigerian and South African governments recognize that ICT benefits students and teachers as well as families and nations. In 2001, the Nigerian government
announced its intention to “to make Nigeria an IT [information technology]-capable country in Africa and a key player in the information society by the year 2005” (Kirkman, 2003). The South African government has also made significant strides in providing improved ICT access, albeit largely to wealthy Whites (Kirkman, 2003).

Clearly, both developed and developing countries see the need for integrating ICT into education. The developing country of Chile reasons that ICT supports a new society that requires new skills. As technology is prevalent in all aspects of life, ICT can help to enhance productivity and support efforts to “create more effective learning environments” (Hepp et al., 2004, 1). Cawthera (2002) cites two main reasons for computers in schools: (1) They provide a cost-effective way of improving the quality of and access to education; and (2) information communication and technology are important to the future of any economy and therefore demand attention in schools.

### Access to Technology: Policy versus Reality

Many nations recognize the need for their students and teachers to utilize technology to support and enhance the quality and effectiveness of learning—and they all want to use ICT to do so. In these nations, families are encouraged to have ICT equipment (in particular, computers with Internet access) in their homes, but is this the reality or just policy? Data from the United Nations (2004) and the U.S. Central Intelligence Agency (2006) show that the number of Internet users in developed and developing countries increased overall from 2001 to 2005 (see table 1). Moreover, what about access to ICT in developing countries as it relates to gender? Little or no data regarding that are available. Indeed, mention of gender and ICT in developing countries most often indicates that girls have less access not only to ICT but also to education than do boys (Isaac, 2002; Key Literacy Statistics, 2006). For these reasons, this chapter will devote only minimal discussion to the access to technology according to gender, especially in developing countries.

### Developing Country: Chile

Since 1992 Chile has been a leader in South America with regard to educational use of and access to ICT. In that year, Chile established a goal of providing Internet access to all 10,000 of its public schools. The Chilean Ministry of Education teamed
up with telecommunications companies to ensure that over 90% of Chilean students had access to an Internet-accessible computer in their school. One outcome of these collaborative efforts was Enlaces, which implemented an ICT teacher-training program. Through Enlaces, “Staff members at more than 20 universities throughout Chile have helped train about 70,000 public school teachers in how to use technology to improve instruction” (Gehring, 2004, 3).

According to the 2002 Chilean national census, 20.5% of households had a computer in the home, yet only 10.2% had Internet access. By 2004, a substantial percentage of Chilean teachers used computers in the classroom as well as at home. Chilean teachers were provided training in the use of ICT to support student learning, which alleviated their own anxieties about using technology in the classroom. As a result, more students in rural schools had increased access to ICT and were engaged in learning content using ICT. Another program created by the Enlaces team is Wordarium, which supports the development of language arts skills for

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<th>TABLE 1. NUMBER OF INTERNET USERS BY COUNTRY, 2001 AND 2005</th>
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<tr>
<td>Number of Internet Users</td>
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<tr>
<td>2001*</td>
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<tr>
<td><strong>DEVELOPING COUNTRIES</strong></td>
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<tr>
<td>Chile ‡</td>
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<td>Philippines</td>
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<td>Nigeria</td>
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<td>Jamaica‡</td>
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<td>South Africa</td>
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<td><strong>DEVELOPED COUNTRIES</strong></td>
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<td>United States</td>
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<td>Singapore</td>
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<td>New Zealand</td>
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* Data is most often received from the Telecommunications Ministry or regulatory agency in each country in response to an annual questionnaire. Estimates are derived from Internet Service Provider (ISP) subscriber counts. When country data are not available estimates are obtained by taking old data from previous years or from market research and multiplying them by some factor to obtain an estimate of current Internet users. Most recent data: 2002. source: International Telecommunication Union, World Telecommunication Indicators (Geneva 2002). Retrieved from http://cyberschoolbus.un.org/infonation3/menu/advanced.asp, May 12, 2006.

† Statistics may include users who access the Internet at least several times a week to those who access it only once within a period of several months. source: Retrieved from http://odci.gov/cia/publications/factbook/docs/notesanddefs.html#2153 on May 12, 2006.

‡ Data as of 2004.
third- through eighth-grade students by enabling them to create a dictionary of words they use but are not found in dictionaries (Laval & Flores, 1995).

Another Enlaces program created in a Chilean school, For Knowing and Telling, is a language arts program that led to the publication of a widely distributed story that students from other schools were enlisted to finish (Laval & Flores, 1995).

The overall ICT picture in Chile is this: (1) the numbers of households with Internet access are not significant but growing; (2) most ICT is located in computer labs and not actual classrooms—that is, not every classroom or student has a computer with or without Internet access; (3) teachers’ use of ICT can be categorized as communication, teaching, and technical; and (4) students’ use of ICT can be categorized as communication, productivity, and recreation.

Developing Country: Jamaica
Jamaica, like many other developing countries, lacks the technological infrastructure to provide universal access to ICT. Jamaica has low digital literacy but high aspirations for digital access. Although Jamaica is a latecomer to integrating ICT in education, it is dedicated to fully integrating ICT into its system of education. Through the efforts of Jamaica 2000, a private-public partnership in education, 170 of 250 Jamaican high schools had computer labs in 2002 (Kirkman, 2003).

In January 2003, Jamaica’s Berkman Center for Internet and Society, in collaboration with the Jamaican Ministry of Industry, Commerce, and Technology and other local organizations, initiated a computer-based learning pilot project in that island nation’s schools. The goal of the project was to draw youth into technology through creative innovations (Berkman Center for Internet and Society, n.d.). In 2004, the National Housing Trust and the Jamaica Computer Society Education Foundation were responsible for ensuring that 19 schools each “received between 5 and 15 computers, air-conditioning units, desks and chairs, uninterruptible power supplies and training, among other benefits” (NHT Computers in Education Project, 2004).

Developed Country: United Kingdom
Increased access to ICT is becoming a reality for teachers, students, and families in the United Kingdom. Government initiatives have enabled more schools to have broadband connections and wireless laptops, provide teacher training to integrate technology in their curriculum, and identify ways to increase ICT access outside of
schools. Reportedly, teachers in the UK are more confident teaching with technology, and students’ achievement levels and engagement with ICT is increasing (Office of Her Majesty’s Chief Inspector of Schools, 2002).

The 2002 inspector’s report points out that during a literacy hour/lesson teachers enabled students to practice phonics with a focus on initial sounds and consonant-vowel-consonant words and then to work independently at their computers. That lesson, the report further states, “was directly linked to the National Literacy Strategy. The activities challenged pupils well, both in terms of increasing their literacy knowledge and understanding, and by reinforcing their ICT skills” (10).

Although government initiatives in the UK have had positive effects, they are not without problems. For example, “Too many schools still have difficulty in managing their ICT resources and struggle to increase pupils’ ICT competence, let alone use this across the curriculum” (Office of Her Majesty’s Chief Inspector of Schools, 2002, 13). Additionally, that report notes, lesson objectives are not always adequately supported by ICT, and students sometimes are left unattended at the computer for long periods, among other issues.

**Developed Country: Australia**

Most primary and secondary schools in Australia have Internet access (Kirkman, 2003). Australia’s National Education Performance Monitoring Taskforce released positive findings regarding ICT in that nation’s schools in 2000. Its findings indicated the following:

- 71 percent of Australian schools had a student-computer ratio of 15:1 or less and this ratio is decreasing each year;
- 37 percent of the computers in schools were in laboratories and 31 percent in classrooms;
- laptop computers comprised 16 percent of all computers used for educational purposes in schools—most of these in the non-government school sector;
- secondary schools generally had lower student-computer ratios than primary;
- common applications in schools included integrated packages, reference CDs, educational games and virus protection. (Bruniges, n.d.)

The Australian Programme for International Student Assessment survey of 2000 also reported positive findings for Australia compared to other Organisation for Economic Co-operation and Development countries (i.e., developed countries).
For example, 85% of Australian students had access to computers at home almost daily, 9% reported never having access to computers at home, 43% used a computer almost daily at home, and a little over 31% accessed the Internet daily (Bruniges, n.d.). Moreover, most Australian teachers reported feeling confident integrating technology in their classroom and indicated they had been using ICT and participating in professional development on the subject for over five years.

One would think that these impressive findings about ICT access would extend to Australia’s indigenous and disadvantaged population, but this is not the case (Blackmore et al., 2003). These students are faced with barriers to ICT access similar to those of their low-income, rural, and inner-city African American counterparts in the United States. Remote and rural living conditions, poor technological infrastructure, and low literacy rates contribute to the digital divide “down under.” Classrooms and pedagogy that lack ICT integration, coupled with low parental involvement and dwindling employment opportunities, contribute to digital literacy and ICT access being in short supply for Australia’s indigenous, special needs students. Each of these conditions leaves the students in disadvantaged circumstances. ‘Disadvantaged’ is better understood as the cumulative effect of a complex conjuncture of factors. Groups traditionally understood to be disadvantaged in Australia are rural and isolated students, Indigenous students, students with disability, children of non-English speaking background and girls. But it is not a disadvantage per se to be male or to be female, to be an Aboriginal, or to have physical or intellectual disabilities” (Blackmore et al., 2003). Moreover, teachers of indigenous students in Australia are often less comfortable integrating technology into the curriculum and have less access to professional development that would ensure their capacity to support the culturally favored modes of communication—music, word, and visual graphics—of indigenous groups.

Often the issues of ICT access in Australia (and across the global community) relate to socioeconomic disparities that intertwine with race/ethnicity and gender. However, the literature reveals a need for greater access for indigenous, special needs, and other disadvantaged students in Australia (Blackmore et al., 2003; Le@rning Federation, 2000). An example of integrating ICT in the curriculum with indigenous kindergarten and first-grade students in a community in Western Australia suggests that when given “frequent use of the computer and other technology (e.g., the digital camera) to enhance language learning, students demonstrated movement along
the Reading and Writing First Steps Developmental Continuum (oral language, reading, writing and spelling)” (Blackmore et al., 2003).

Regarding gender, indigenous male students in Australia have been found to use computers differently from their female counterparts (Blackmore et al., 2003). Moreover, these boys report being especially interested in using and learning with ICT and often do well when learning with ICT. They also report being more comfortable using computers, are more engaged with ICT, and use it more often at home and in school when it is present.

**Developed Country: United States**

Although the United States is a leader in providing ICT access to its citizens, the conclusions of the U.S. Department of Education (2006), the U.S. Department of Commerce’s National Telecommunications and Information Administration (1995, 1998), and other entities that focus on ICT access reveal a vast disparity among racial/ethnic groups and social classes in the United States. American schools serving primarily racial/ethnic minorities or high-poverty communities were found to have the least access to the Internet. Civil rights leader Jesse Jackson has likened this situation to “digital apartheid,” reflecting the egregious social divides along racial lines of the past (Peters, 2001, 25). Pinkett (2001) suggests that providing all Americans with equal access to ICT resources could become a key civil rights issue of twenty-first-century America.

In the 1990s, concerned that the nation’s poor and non-White communities would fall further behind in ICT access, President Clinton launched “a national mission to ensure that every student in every school will be technologically literate in the 21st century” (Riley, 1996). As a result, billions of dollars in federal funds were earmarked for U.S. schools to equip themselves with “modern computers, high quality educational software, trained teachers, and affordable connections to the Internet.”

Since then, substantial progress has been made to ensure that all U.S. students have equitable access to ICT resources. Reports from the National Center for Education Statistics (2004) indicate that virtually every American public school (99.5%) has Internet access, including 93% of instructional rooms (classrooms, libraries, and computer labs), and that only a slight gap remains between the “haves” and “have-nots” in this nation. Student/computer ratios are an important gauge of student access to ICT. Averaging 4.4 computers per student, U.S. schools have ample
infrastructure to engage students with technology. Those enrolling large numbers of minority and low-income students also have considerable Internet access and similar student/computer ratios. Reports such as these fuel the belief that the digital divide crisis is over and should no longer be at the forefront of the national agenda (Arrison, 2002). Table 2 summarizes the U.S. ICT access data.

The picture is somewhat different, however, when access to ICT beyond schools is considered. In that regard, digital inequities along racial, economic, and educational lines are readily apparent:

- 60% of African Americans have a home Internet connection, compared to 74% of White Americans.
- 57% of African Americans report going online frequently, compared to 70% of Whites.
- 29% of Americans who have not graduated from high school, compared to 61% of high school graduates and 89% of college graduates, have never gone online. (Pew Internet and American Life Project, 2005)

Mossberger, Tolbert, and Stansbury (as cited in Mossberger, Tolbert, & Gilbert, 2004) found similar inequities in ICT access and use based on ethnicity, geographic location, and socioeconomic status. However, home access to ICT by gender was found to be virtually the same across all racial/ethnic groups with one exception: African American males use the Internet slightly less frequently (a difference of just two percentage points) than African American females (Mossberger, Tolbert, & Gilbert, 2004; U.S. Department of Education, 2006).

The prevalence of broadband may cause a new divide between those who have faster Internet connections (e.g., cable modems, DSL, wireless broadband) in

### Table 2. Percentage of U.S. Schools with Internet Access, 2003

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<th>In Schools</th>
<th>In Instruction Rooms</th>
<th>Students Per Instruction Room Computer</th>
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<tbody>
<tr>
<td>All schools</td>
<td>99.5%</td>
<td>93.0%</td>
<td>4.4</td>
</tr>
<tr>
<td>High minority schools (&gt; 50%)</td>
<td>99.5%</td>
<td>92.0%</td>
<td>5.1</td>
</tr>
<tr>
<td>High poverty (&gt; 75% free/reduced lunch)</td>
<td>99.0%</td>
<td>90.0%</td>
<td>5.1</td>
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</table>

* Some data not available for all schools.
the United States and those who have dial-up or no connectivity. According to a U.S. Department of Commerce (2004a) report, the American online experience is significantly enhanced with a faster connection:

Broadband users are more likely to use the Internet more frequently and in a wider variety of ways. Among Internet users, those with broadband connections at home are more likely to be daily Internet users (66.1%) than those with dial-up service (51.1%). Persons with broadband at home also engage in more types of activities online.

American students use the Internet for a variety of school tasks including research, writing papers, homework help, and communicating with classmates (Levin & Arafeh, 2002). If access at home is limited to slower-speed connections, chances are that these students will use the Internet less frequently.

Socioeconomic status and locale are critical factors in understanding ICT inequities for urban African American males with high dropout and low literacy rates. When high-speed access is available—although the Pew Internet and American Life Project (2005) indicates that fewer than 25% of lower-income families have such access—Internet use may be limited because low reading comprehension (Mossberger, Tolbert, & Gilbert, 2004). Moreover, ICT access in public facilities such as libraries may also be limited because of decreased local funding and lower-quality services (fewer or older computers). Friends and relatives who have Internet service are another source of access, yet in lower-income communities individual social networks are more likely to include unemployed and less-educated members who also lack Internet access. Thirteen percent of African Americans had broadband connections at home in 2004 (Horrigan, 2004).

ACCESS TO TECHNOLOGY: STATE OF MICHIGAN

The overall level of ICT access in Michigan’s schools parallels national trends showing increased computer and Internet access (see table 3); however, Michigan’s high-minority and low-income schools do not fare as well (Park & Staresina, 2004). Virtually all schools in the state have Internet access (97%), as do nearly all instructional classrooms (89%); yet Michigan’s high-minority schools have less access overall (95%) and specifically in classrooms (81%). Similarly, 95%
of low-income schools in the state have Internet connections, yet only 85% of instructional classrooms have them. The ratio of students per computer for such schools also falls short of national (4.4:1) and statewide (4.2:1) levels.

According to a report presented at the Michigan State Policy Network Education Policy Forum (Bhanpuri, 2003), half of Michigan’s 216 low-performing schools are located in urban areas, and 86% are high-minority schools. Detroit, the largest city in the state, houses a significant concentration of African Americans (84.5%); indeed, 14% of African Americans nationwide reside in the state of Michigan, and African American students comprise 20% of the Michigan public school student population. Students in high-minority schools in Michigan actually have fewer chances to use the Internet because they typically share their schools’ computers with more students (6:1). This is also true of low-income schools (5.5:1). Given that technology is most effective when integrated into settings where learning occurs most—that is, in the school classroom—and because these students may share a computer with as many as 10 others, they therefore have fewer opportunities to use ICT resources to supplement their learning (Park & Staresina, 2004).

Although the exact nature of the impact of ICT on student achievement is difficult to determine given the numerous confounding factors involved, several studies have shown that improvement in student performance occurs when technology use is closely tied to curriculum standards (Center for Applied Research in Educational Technology, n.d.). This finding could present an opportunity for improving the annual yearly progress of low-performing schools in Michigan.

Michigan is one of only a handful of states to fund personal digital assistants
(PDAs) and laptops for schools, exceeding the national average by several percentage points: for example, respectively, it funds PDAs and laptops at 8.6% and 20.5% Michigan schools compared to 7.6% and 12.4% nationally (Park & Staresina, 2004). This may have positive implications for students of color if in fact their teachers are able to use the PDAs and laptops to increase student access in the classroom. Budgetary constraints have eliminated state-level funding for these resources (they were federally funded in 2004).

Data from the U.S. Bureau of the Census (2004) suggest that income and education also predict Internet use. In Michigan, 17% of African American households earn less than $25,000 and thus are considered low-income. Because poor households have less access to ICT and African American households are disproportionately poor, African American males are less likely to have a computer or Internet access at home or to have the skills necessary to use ICT resources effectively. One study of Internet use by 123 Michigan low-income adults, who received Internet access for the first time through the study, found race, age, and income to be strong predictors of use (Jackson et al., 2003). Lacking appropriate knowledge and skill, many of the study’s participants became frustrated and subsequently limited their Internet use.

Increasingly, however, African Americans are going online, nationally and in Michigan. A 2000 survey of the state’s residents reported 60% as having gone online (Wilson, 2000) This percentage is higher today. Presumably, increased access to computers, the Internet, and other ICT resources, in Michigan and elsewhere in the U.S., will continue to rise as the cost for equipment and Internet services lessens, narrowing the digital gap even further. Thus, educators, parents, community leaders, and other technology decision makers should rethink the traditional idea of digital equity that looks primarily at access. They should instead examine ways to foster inclusion by looking at the digital divide from a “use” perspective, determining the influence of culture and place on ICT attitudes and use, particularly for African American males.

**Policy Recommendations and Implications for Practice**

Although the data reported in this chapter were based primarily on findings from studies published earlier in the twenty-first century, we expect that ICT access and use in the United States will continue to grow. The following are our
recommendations for improving ICT access and use for African American males and all others adversely affected by the digital divide:

- The most obvious recommendation, and perhaps the most difficult to accomplish, is that school districts seek supplemental funding either through corporate and philanthropic sponsors or through state or federal grants to help them lower the student-computer ratio—ideally to the 3:1 range—and provide students with access to state-of-the-art ICT, particularly emerging technologies.
- Although the digital divide has narrowed and African Americans are close to having ICT access equal to White Americans, steps must be taken now to address the new digital divide: that related to the use of ICT via broadband and wireless connections. These means of connecting to the Internet are crucial to fostering broader ICT access and supporting learning.
- The federal government and telecommunications providers alike should enter into pacts with the nation’s public schools and their surrounding communities to facilitate quick and reliable universal access for students and their families.
- Funding for the Enhancing Education through Technology program should be restored to at least FY05 funding levels.
- More after-school and weekend programs that target and encourage African American males to be more proficient users of ICT should be established or expanded.
- ICT professional development opportunities for teachers should be expanded, specifically just-in-time professional development (JITPD) in the form of online training. An ideal solution is to provide teachers with on-site technology specialists trained in instructional design and technology integration who can offer face-to-face instruction during times convenient for most teachers.
- Teachers should be taught how to communicate the importance of ICT to minority parents, many of whom in urban areas are single females with multiple offspring. Schools should provide a small stipend, childcare, or meals for families whose parents participate in ICT training.
- Provide additional support to assist parents in purchasing computers, PDAs, Internet-ready cells phones, and other ICT equipment for students’ home use.
- Improve the cultural diversity of the Internet—when students see resources and materials that reflect who they are and how they think and live, they are more apt to see the Internet as a credible resource.
Scholars need to conduct more research on digital literacy (i.e., access, use, pedagogy, and economics) in African American and other culturally diverse communities.

One very disturbing reality is that improving access to and use of twenty-first-century ICT by and for African American males does not appear to be a priority item on any national, regional, or local educational reform agenda. Most of the extant research examines the use of ICT overall by race far more than by gender; and when looking at access by gender the focus is largely on girls, less on males, and even less on race and gender. More research is needed to determine exactly which digital equities exist for African American males. More urgently, however, more educators must assume responsibility for ensuring that inequities of any kind, especially for African American males, are extinguished.

REFERENCES


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