

# The Use of Technology in Urban Populations: Issues, Trends, and Discussions for Schools

**Terry T. Kidd**

*University of Texas School of Public Health, USA*

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## INTRODUCTION

The introduction of microcomputers into classrooms during the 1980s was heralded by many as the dawn of a new era in American education. Proponents argued that technology had the potential to fundamentally transform the nature of teaching and learning (Papert, 1980; U.S. Congress, Office of Technology Assessment, 1988). However, over time, it has become apparent that it is far easier to acquire hardware, software, and Internet access (Becker, 1991; Dividing lines, 2001) than it is to capture the potential of technology in significantly meaningful outcomes (Cuban, 2001). Likewise, educators concerned about the chronic underachievement of urban learners often fall prey to the allure of technology as a tool for reversing the historical influences of poverty, discrimination, inequity, chronic underachievement, and lack of opportunity. However, 25 years after the introduction of the computer into the classroom, many of the expectations associated with technology in education remain unrealized. In this article, we discuss new technological horizons for urban learners, and highlight issues relating to the socioeconomic trends of technology in schools. In addition, we provide specific examples of technology interventions that can be implemented to engage urban students in meaningful learning activities.

## The Socioeconomics of Technology in the Urban Environment

Within the past decade, a growing body of evidence supports the ever-widening technological gap among members of society, in particular children and the elderly (NTIA, 1995, 1997, 1999), in particular, urban school environments with the inner cities. This "Digital Divide" has become a leading economic and civil rights issue. The Digital Divide is referred to as a social/political issue encompassing the socioeconomic gap between

communities that have access to computers, the Internet, and other information-technology-related services and those who do not. The term also refers to gaps that exist between groups regarding their ability to use ICTs (information and communications technologies) effectively, and the gap between those groups in urban environments that have access to quality, useful digital content and those that do not. Disparities in computer and information technology use can be found among individuals in rural and urban locations, with the division drawn upon socioeconomic lines. This trend indicates that those who have the means only become more information rich, while those who are poor and of the working class, mostly those in the inner city/urban environments, are lagging even further behind. The groups identified who lack access to information and technological resources include minorities, specifically African American and Hispanic Americans; those who are poor and of the working class; individuals of low income; those who possess less than a high school level of education; children of single parents; residents of inner cities and rural areas; and the elderly (NTIA, 1995, 1997, 1999). Despite the current literature on this issue and the efforts of state and local government agencies, the current literature indicates that outside of a person's workplace, educational institutions are the second most frequent place where individuals have access to the Internet. Since many in society do not have adequate knowledge of technology to pass on to their society, community, or children, educational institutions will serve as the catalyst for preparing America's community for the age of technology. Since urban educational institutions are important for information and technology literacy and access, the federal government has arranged for funds to aid America's urban schools in purchasing technology infrastructure and professional developments. Educators, community

development personnel, and technologists should be aware of the government initiative to help bridge the information and technological divide.

Since, the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce has released five reports examining this problem, all under the heading “Falling Through the Net” (NTIA, 1995, 1997, 1999, 2000). Each study has reached the same glaring conclusion: the digitally divided are becoming more divided. For example, in their most recent report, the NTIA (1999) writes:

*The data reveal that the Digital Divide—the disparities in access to telephones, personal computers (PCs), and the Internet across certain demographic groups—still exists, and in many cases, has widened significantly. The gap for computers and Internet access has generally grown larger by categories of education, income, and race.*

Excerpts from 1999 NTIA report include the following information that reveals the disparity in the information, communication, and technology access and utilization:

- **Income:** Households with incomes of \$75,000 and higher are more than 9 times as likely to have a computer at home, and more than 20 times more likely to have access to the Internet than those with incomes of \$50,000 or less, which is prevalent in the inner city. Between 1997 and 1998, the Digital Divide between those at the highest and lowest education levels increased 25%.
- **Education:** The percentage-point difference between those with a college education or better, when compared to those with an elementary school education, is as high as 63% for computer penetration, and 45% for Internet penetration. Between 1997 and 1998, the Digital Divide between those at the highest and lowest levels of income grew 2%.
- **Race:** African Americans and Hispanic households are approximately one-half as likely as households of Asian/Pacific Islander descent, as well as White households, to have a home computer, and approximately one-third as likely as households of Asian/Pacific Islander descent, and roughly two-fifths as likely as White households, to have home Internet access. The gaps between

White and Hispanic households, and between White and African American households, are larger than 23 percentage points (computers) and 13 percentage points (Internet), which is more than 6 percentage points (computers) and 10 percentage points (Internet) larger than they were in 1994.

- **Income and race:** For households earning between \$35,000 and \$74,999, 40.2% of African Americans and 36.8% of Hispanics owned a computer, compared to 55.1% of Whites, while for households earning between \$15,000 and \$34,999, 7.9% of African Americans and 7.6% of Hispanics had Internet access, compared to 17% of Whites. A similar pattern emerges in each income category. What has been discovered is that minorities in the urban inner cities are lagging behind non-minorities even at the same level of income.

Clearly, according to a variety of demographic indicators, income, education, race, and more, there are significant disparities in the ability of Americans to access and use modern technologies. However, regardless of the social, economic, or racial characteristics one attributes to the Digital Divide, it is clear that there are two distinct groups that have emerged as a result of the information age: those who have the ability to access information and technology at will and those who do not have the means, access, or support to acquire and utilize information and technology. By defining the Digital Divide in these terms, one should draw attention away from the mere concepts of technology infrastructure and training and move towards a more holistic conceptualization that looks at how new technologies can serve to empower individuals, families, and communities. The biggest impact of this divide has been identified in low-income urban areas where schools and the community have been affected.

### **Adoption and Use of Technology in Urban Schools**

Left undefined, the term “technology” is often synonymous with “computers.” Indeed, most discussions of educational technology focus on computers. However, in this paper, we use the term technology to describe and include a large arena of classroom possibilities including hardware like computers, peripheral such

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