IMPACT OF THE DIGITAL DIVIDE
ON LOW-INCOME AND MINORITY STUDENTS

1Willie K. Ofosu, 2Austin B. Asgill
Penn State Wilkes-Barre1/ Southern Polytechnic State University2

Abstract

Computer applications in processing information have established computing as a necessary tool for industry as well as the home. In recent times, information has become a commodity that all people require in their professional lives, for entertainment as well as personal use. More and more educational institutions and libraries are employing computers to facilitate their activities in educational scholarship. Factors such as these establish the functionality of the computer as an essential requirement in the lives of all people who need to use information.

The context of digital divide focuses on the separation between those who have easy access to computer facilities and those who do not. It is established by the National Telecommunications and Information Administration that minorities, low-income persons, the less educated and children of single-parent household are some of those who are most affected by the lack of access to information resources particularly when they reside in rural areas or central cities. It can be argued that these are some of the very parties who need such facilities for personal development. The digital divide is thus a gulf that must be bridged if there is to be some form of equity in the aspirations of all people in the society.

With many academic institutions now requiring that their students each own a computer as a basic tool for use during their college education, this paper will attempt to examine the impact of such requirements on minority students, students from low-income families, and those who are attempting to work and pay their own way through college.

I. Introduction

It is an accepted fact that education is important in the developmental process of any nation. This invariably leads to the question of numbers of educated people and numbers of the uneducated. Quality of education must always be factored into the discussion since it contributes to maximum productivity out of any educated person, and one of the tools that facilitate quality education is the computer. This is in light of the fact that computers are used to access the vast amount of information on the Internet. The Internet can therefore be viewed as a valuable education resource.

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In the executive summary of Falling Through the Net: Defining the Digital Divide, a document prepared by the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce, the need for all Americans to have access to the Internet is highlighted by the statement “The Clinton Administration is committed to connecting all Americans to the National Information Infrastructure.” The NTIA notes that more Americans have access to telephones, computers, and the Internet than at any prior time. “At the same time, however, NTIA has found that there is still a significant “digital divide” separating American information “haves” and “have-nots”.

II. Economic Impact on Education

Historically, those who have controlled the educational infrastructure have always played a dominant role in their society. It has been used to enhance a people’s character and belief in themselves by instilling proper values in the youth to create in them the ability for high expectations of themselves. Hence the value of education has always been appreciated by all generations. Considering the fact that a people’s future depends on the education of its youth, it is fair to examine the impact of economy on the education of minority students.

In reporting the disparities found, the NTIA report states “Whites are more likely to have access to the Internet from home than Blacks or Hispanics have from any location.” In discussing the widening of the digital divide between the “haves” and “have-nots”, the document states “The digital divides based on education and income level have also increased in the last year alone. Between 1997 and 1998, the divide between those at the highest and lowest education levels increased 25 percent, and the divide between those at the highest and lowest income levels grew 29 percent”. As stated in the executive summary of the NTIA document, “Information tools, such as the personal computer and the Internet, are increasingly critical to economic success and personal advancement.” This paints a bleak picture for the “have-nots”, and the underprivileged as regards to economic success and personal advancement.

To cite an example of one group classified as minority, Cornell West states “The fundamental crisis in black America is twofold: too much poverty and too little self-love. The urgent problem of black poverty is primarily due to the distribution of wealth, power, and income”. The link between economy, minorities and the digital divide is emphasized in the NTIA document with the statement “Minorities, low-income persons, the less educated, and children of single-parent households, particularly when they reside in rural areas or central cities, are among the groups that lack access to information resources.”

Some of the objectives of the education process are to

- provide the student with the basic skills to prepare him/her to enter a profession of one’s choice
- develop the thinking process of the student in preparing one for dealing with different life
situations
• develop in the student the mental attitude that prepares one in taking on new challenges.

The acquisition and utilization of information gathered through the education process can be a key to the progress one makes in life. It is therefore essential for one to have the tools necessary to acquire information. The problem can therefore be defined as one in which economic security places a student at an advantage in ensuring the student’s success in the educational process. As stated above, this success will help to establish future successes of the individual. Inability to perform satisfactorily as a student in the educational process can adversely affect the individual’s future.

III. Institutional Requirements

Computers have revolutionized not only industry, but the education system as well. Apart from the ease with which information can be accessed, simulation packages help in demonstrating to students, applications that would otherwise only be viewed in an industrial setting. These are all possible through the use of computers. The computer can thus be considered as a modern day tool that all students need, if they are to succeed in school. For this reason, many institutions create computer laboratories where students can have access to computing facilities. While these can supply the basic needs, they may not be entirely sufficient in cases where the student-computer ratio may be high for highly populated institutions or in cases where a student needs to complete some project or assignment at home. It is therefore within reason that institutions may require students to own personal computers. This can be a problem for economically disadvantaged persons.

Considering the wealth of information that can be accessed electronically, more and more, instructors are directing students to the Internet for research purposes. This therefore places a burden on the economically disadvantaged minority and the person from a low-income family to have a telephone and Internet access in the home in addition to owning a personal computer. To the affluent society, these may add up to costs that will make negligible impact on their income. To the minority and the low-income family, the costs may be prohibitive. This may create serious problems for individuals who may not have scholarships or the access to getting loans. One avenue of using the Internet is through libraries that have Internet access. Consider however a person who may be living in a rural area or in the central part of a city where libraries may not be available. The problems compound and render the minority or the low-income student inefficient in completing their schoolwork. This situation can permanently lock some people in at the lower end of the economic structure with no hope for the future in sight. The only alternative is to relax the requirements, but this cannot be done if quality education is to be achieved.

It is necessary to make education possible to all who aspire to improve their academic standing and hence, their ability to achieve a higher standard of living. It is therefore imperative for any government that cares for the welfare of its people to enable all the people who have the interest and the desire to achieve high academic standing to do so, and that is the current
situation.

The government appreciates the importance of the Internet in association with the technological development of the information age and the relationship of this to education. In Introduction to Telecommunications, Voice, Data and the Internet, Marion Cole states “An educational fund was also provided to fund Internet services to schools and libraries. This fund is known as the E-rate fund.” This source goes on to state that Republicans refer to the E-rate “... as the Gore tax simply because, as vice-president, Al Gore was the main politician pushing to make the Internet an information superhighway. Democrats and Republicans continue to fight over this program. It has been made political in part because members of Congress do not want to be viewed as denying Internet access to underprivileged children.” In discussing arguments between the supporters and the opponents of the E-rate funding, the author comments “Rich people in our society can afford to provide their children with Internet access. Why should the rich want to deprive disadvantaged children of one of the tools that will help them better their lives?”

In line with the above, the government can give assistance to students in the form of loans for technological equipment that support the information age. This will help students in purchasing the personal computers that will support their work. Alternatively, institutions may be given grants that can be used to purchase laptop computers, which can be loaned to students while they are studying at the particular institution.

IV. Closing the Divide

Many of the nations engineering and engineering technology schools have been striving to increase the number of underrepresented minorities who enroll in their programs. The fact that these are the groups most affected by the digital divide has not been good news for them. A commerce department study has found that between December 1998 and August 2000, the gap in home Internet access between Black households and the national household average increased from 15 to 18 percent. The gap between Hispanic households and the national average widened from 13.6 to 17.9 percent. As a result, many young people might not even think about pursuing these fields of study because their exposure to the fields has been limited by a lack of opportunity to work with computers. This can have an economic impact on their futures as these fields often provide some of the more lucrative employment opportunities in industry.

Schools in predominantly minority institutions, such as historically Black Colleges and Universities (HBCUs) and Hispanic institutions, face greater challenges as they serve large numbers of students who have had limited access to computers. A study of networking and connectivity at the nation’s HBCUs published by the US Department of Commerce has found that fewer than 25 percent of students at these institutions own a computer. This compares to a 50 percent average for all the institutions of higher education nationally.

Institutions that enroll a large number of students with limited exposure to computers and
the Internet have often had to make special efforts to bring these students up to speed to assure their success in their programs. Some of these efforts include the following:

- Offering incoming students the opportunity to enroll in summer “bridge” programs.
- Increasing the number of computer laboratories that are available on campus.
- Having computer laboratories that are open 24 hours a day, seven days a week to allow for a lot of self learning with help from student assistants.
- Allowing students who want extra training to work as volunteers in the laboratories.
- Providing introductory courses where students can learn to use computers as a tool and to surf the Internet.
- Establishing relationships with corporate partners such as IBM, Dell, Microsoft, and Motorolla. This enables them to provide state-of-the-art equipment on which to train students.
- Provide wired (or wireless) access to the Internet in the dormitories.
- Developing programs for K-12 students that bring them on campus and exposes them to the basics of computing, and using computers for design.

Fortunately, compared with the vast majority of HBCUs, those with engineering schools are in relatively good shape in terms of computing and Internet access. It is estimated that some 25 percent of HBCUs lack Internet access, but those institutions with engineering programs all have access and the dormitories of many of these institutions are either fully wired or in the process of being wired. The Commerce Department study of networking and connectivity at HBCUs concluded that “at approximately 50 percent of HBCU campuses, ‘on demand’ access to computing resources is not at a critical location – the campus dormitory.” About 45 percent of HBCUs have common dormitory area connected to computer networks, compared with 63 percent of individual rooms at all institutions. However, for those students who do not own a computer, dorm access may be academic since they must depend on campus computer laboratories for Internet access.

Whilst institutions of higher education are taking strides towards closing the digital divide, it appears that there is still a problem in grades K through 12 where students do not get the exposure to computers that might lead them to consider the engineering disciplines. While nearly all K-12 schools now have computers, they often have far fewer than is needed, especially if they are located in rural areas or the inner city areas. These are the usually the areas with large concentrations of low-income and minority populations.

V. Conclusion

It has been well documented in the literature that the digital-divide continues to exist and that it appears to be widening for minorities and low-income individuals. This is creating a negative impact on the educational and economic opportunities available to these groups. This is turn is adversely affecting society because a good proportion of its human resources are not able to effectively participate in the development of the society.
The good news is that many institutions of higher education are aware of the problem and have instituted measures to assist those students who are lacking in computer skills and access to the Internet. The government can help with the problem by providing assistance to students in the form of loans for technological equipment that support the information age. This will help students in purchasing the personal computers that will support their educational work.

Unfortunately it appears that more has to be done at the K through 12 grade levels where the problem seems to be worse. For these schools, the government may have to consider the provision of Internet facilities to all schools as part of the technical support to schools. Here too, this will help in light of the information age.

References


Willie K. Ofosu

Dr. Willie K. Ofosu is an Assistant Professor and Head of Telecommunications Engineering Technology program at Penn State Wilkes-Barre, where he teaches telecommunications, wireless systems, networking, optoelectronics and analog and digital electronic. He is a member of IEEE, IEE (England), and a Chartered Engineer (CEng) of England. He is also a member of the National Association of Radio and Telecommunications Engineers (NARTE) and contributes to their Education Committee. His research interests are in RF components and antennas. He is an advocate of diversity in the educational environment. Dr. Ofosu received his Ph.D. from the Electronic Systems Department at University of Essex in England.

Austin B. Asgill

Dr Austin B. Asgill received his B.Eng.(hons) (E.E.) degree from Fourah Bay College, University of Sierra Leone, his M.Sc. (E.E.) degree from the University of Aston in Birmingham and his Ph.D. in Electrical Engineering from the University of South Florida. He is an Associate Professor of Electrical and Computer Engineering Technology at Southern Polytechnic State University (SPSU). Prior to joining the faculty at SPSU, he was an Associate Professor of Electronic Engineering Technology at Florida A&M University (FAMU), where he served as Program Area Coordinator and Interim Division Director. With over 19 years of teaching experience in Electrical/Electronic
Engineering and Engineering Technology, he currently teaches in the areas of networking, communication systems, digital signal processing, and analog and digital electronics. He has worked in industry in the areas of telephony, networking, switching and transmission systems, and RF and MMIC circuits and system design. Dr. Asgill also has an MBA in Entrepreneurial Management from Florida State University. He is a member of the IEEE, the ASEE and is a licensed professional engineer (P.E.) in the state of Florida.