Technology and Social Inclusion

Rethinking the Digital Divide

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Citation:

Technology and Social Inclusion: Rethinking the Digital Divide
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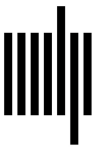
DOI: 10.7551/mitpress/6699.001.0001
ISBN (electronic): 9780262257176
Publisher: The MIT Press
Published: 2004

OA Funding Provided By:

OA Funding from Author



The MIT Press

Introduction

The purpose of this book is to examine the relationship between information and communication technology (ICT) and social inclusion. A starting point for my research has been the concept of a digital divide, used by the U.S. National Telecommunications and Information Administration under the Clinton administration to refer to the gap between those who do and do not have access to computers and the Internet. However, during the process of my research, the notion of a digital divide and its logical implication—that social problems can be addressed through providing computers and Internet accounts—have seemed increasingly problematic. Three vignettes will help illustrate this point.

A Slum "Hole-in-the-Wall"

In 2000 the government of New Delhi, in collaboration with an information technology corporation, established a project, known as the Hole-in-the-Wall experiment, to provide computer access to the city's street children.[1] An outdoor five-station computer kiosk was set up in one of the poorest slums of New Delhi. Though the computers themselves were inside a booth, the monitors protruded through holes in the walls, as did specially designed joysticks and buttons that substituted for the computer mouse. Keyboards were not provided. The computers were connected to the Internet through dial-up access. A volunteer inside the booth helped keep the computers and Internet connections running.

No teachers or instructors were provided, in line with a concept called minimally invasive education. The idea was to allow the children

unfettered 24-hour access to learn at their own pace and speed rather than tie them to the directives of adult organizers or instructors.

According to reports, children who flocked to the site taught themselves basic computer operations. They worked out how to click and drag objects; select different menus; cut, copy, and paste; launch and use programs such as Microsoft Word and Paint; get on the Internet; and change the background "wallpaper." The program was hailed by researchers (e.g., Mitra 1999) and government officials[2] as a groundbreaking project that offered a model for how to bring India's and the world's urban poor into the computer age.

However, visits to the computer kiosk indicated a somewhat different reality. The Internet access was of little use because it seldom functioned. No special educational programs had been made available, and no special content was provided in Hindi, the only language the children knew. Children did learn to manipulate the joysticks and buttons, but almost all their time was spent drawing with paint programs or playing computer games.

There was no organized involvement of any community organization in helping to run the kiosk because such involvement was neither solicited nor welcomed (see chapter 6). Indeed, the very architecture of the kiosk—based on a wall rather than in a room—made supervision, instruction, and collaboration difficult.

Parents in the neighborhood had ambivalent feelings about the kiosk. Some saw it as a welcome initiative, but most expressed concern that the lack of organized instruction took away from its value. Some parents even complained that the kiosk was harmful to their children. As one parent stated, "My son used to be doing very well in school, he used to concentrate on his homework, but now he spends all his free time playing computer games at the kiosk and his schoolwork is suffering." In short, parents and the community came to realize that minimally invasive education was, in practice, minimally effective education.

An Information Age Town

In 1997, Ireland's national telecommunications company held a national competition to select and fund an "Information Age Town."[3] A major

rationale behind the effort was to help overcome the gap between Ireland's emerging status as a multinational business center of ICT *production* and the rather limited *use* of ICT among Ireland's own people and indigenous small businesses.

Towns of 5,000 people and more across Ireland were invited to compete by submitting proposals detailing their vision of what an Information Age Town should be and how they could become one. The winning town was to receive 15 million Irish pounds (at that time roughly $22 million U.S. dollars—USD) to implement its vision.

The sponsor of the competition, Telecom Eirann (later renamed Eircom), was getting ready to be privatized. The company naturally had an interest in selecting the boldest, most ambitious proposal so as to showcase the winning town as an innovative example of what advanced telecommunications could accomplish for the country under the company's leadership. Four towns were chosen as finalists, and then Ennis, a small, remote town of 15,000 people in western Ireland, was selected among them as the winner. The prize money that Ennis received represented over $1,200 USD per resident, a huge sum for a struggling Irish town.

At the heart of Ennis's winning proposal was a plan to give an Internet-ready personal computer to every family in the town. Other initiatives included an ISDN line to every business, a Web site for every business that wanted one, smart-card readers for every business (for a cashless society), and smart cards for every family. Ennis was strongly encouraged by Telecom Eivann to implement these plans as quickly as possible.

Meanwhile, the three runners-up—the towns of Castlebar, Kilkenny, and Killarney—each received consolation prizes of 1 million Irish pounds (about $1.5 million USD). These towns were given as much time as they needed to make use of the money.

How did the project turn out? A visit to Ennis three years later by a university researcher indicated that the town had little to show for its money. Advanced technology had been thrust into people's hands with little preparation. Training programs had been run, but they were not sufficiently accompanied by awareness programs as to why people should use the new technology in the first place. And, in some instances,

well-functioning social systems were disrupted in order to make way for the showcase technology.

For example, as is the case in the rest of Ireland, the unemployed of Ennis had been reporting to the social welfare office three times a week to sign in and receive payments. Following their visits, the people usually stayed around the office to chat with other unemployed workers. The sign-in system thus facilitated an important social function to overcome the isolation of the unemployed.

As part of the "Information Age Town" plan, though, the unemployed received computers and Internet connections at home. They were instructed to sign in and receive electronic payments via the Internet rather than come to the office to sign in. But many of the unemployed couldn't figure out how to operate the equipment, and most others saw no reason to do so when it deprived them of an important opportunity for socializing. A good number of those computers were reportedly sold on the black market, and the unemployed simply returned of their own accord to coming to the social welfare office to sign in.

Meanwhile, what happened in the other three towns? With far fewer resources, they were forced to carefully plan how to make use of their funds rather than splurging for massive amounts of equipment. Community groups, small businesses, and labor unions were involved in the planning process. Much greater effort and money were spent on developing awareness, planning and implementing effective training, and setting up processes for sustainable change rather than merely on purchase of equipment. The towns built on already existing networks among workers, educators, and businesspeople to support grassroots uses of technology for social and economic development. Information about social services and job opportunities was put online. Small businesses and craft workers learned how to pool their resources to promote their products through e-commerce. Technology coordinators were appointed at schools and worked with other teachers to develop plans for better integration of ICT in classrooms. In the end, according to a researcher from University College Dublin,[4] the three runners-up, which each received only one-fifteenth of the money that Ennis received, actually had more to show for their efforts to promote social inclusion through technology than did the winner.

A Model Computer Lab

An international donor project funded by the U.S. Agency for International Development (USAID) decided to donate a computer laboratory to the college of education at a major Egyptian university. The purpose of the donation was to establish a model teacher training program in computer-assisted learning in one of the departments of the college. State-of-the-art equipment was selected, including more than forty Pentium III computers, an expensive video projection system, several printers and scanners, and tens of thousands of U.S. dollars worth of educational software. This was to be a model project that both the U.S. and Egyptian governments would view with pride. To guarantee that the project would be sustainable, the Egyptian university would be required to manage all the ongoing expenses and operations, including paying for Internet access, maintaining the local area network (LAN), and operating the computer laboratory.

Under a paid contract from USAID, a committee from the college of education put together a detailed proposal on how the laboratory would be used, run, and maintained. Based on this proposal, USAID purchased all the hardware and software. However, well before the equipment was installed, it became clear that the college would have difficulty absorbing such a huge and expensive donation. Other departments within the college, which together had access to only a handful of computers, became envious that a single department would have such modern and expensive equipment, and they attempted to block the university's support for the lab. The college of education and the university could not easily justify spending the money to house and maintain such an expensive laboratory for a single program when other programs were poorly funded. No money was available to hire an outside LAN manager or provide Internet access at the level agreed upon in the proposal. Faculty relations problems also arose, as a key department chair resented the involvement and initiative of less senior faculty members who were taking computer training and working together to plan new curricula. Because of all these difficulties, the expensive state-of-the-art computers sat in boxes in a locked room for more than a year before they were even installed, thus losing about one-third of their economic value.

Rethinking the Digital Divide

Each of the programs described in the preceding vignettes was motivated by a sincere attempt to improve people's lives through ICT. But each program ran into unexpected difficulties that hindered the results. Of course, any ICT project is complicated, and none can be expected to run smoothly. But the problems with these projects were neither isolated nor random. Rather, these same types of problems occur again and again in technology projects around the world, which too often focus on providing hardware and software and pay insufficient attention to the human and social systems that must also change for technology to make a difference. As seen in these three vignettes, meaningful access to ICT comprises far more than merely providing computers and Internet connections. Rather, access to ICT is embedded in a complex array of factors encompassing physical, digital, human, and social resources and relationships. Content and language, literacy and education, and community and institutional structures must all be taken into account if meaningful access to new technologies is to be provided.

Some would try, as I have tried in the past, to stretch the notion of a digital divide to encompass this broad array of factors and resources. In this sense, a digital divide is marked not only by physical access to computers and connectivity but also by access to the additional resources that allow people to use technology well. However, the original sense of *digital divide*, which attached overriding importance to the physical availability of computers and connectivity rather than to issues of content, language, education, literacy, or community and social resources, is difficult to overcome in people's minds.

A second problem with the digital divide concept is its implication of a bipolar societal split. As Cisler (2000) argues, there is not a binary division between information haves and have-nots, but rather a gradation based on different degrees of access to information technology. Compare, for example, a professor at UCLA with a high-speed connection in her office, a student in Seoul who occasionally uses a cyber café, and a rural activist in Indonesia who has no computer or phone line but whose colleagues in the nongovernmental organization (NGO) with whom she is working download and print out information for her. This example illus-

trates just three degrees of possible access a person can have to online material.

The notion of a binary divide between haves and have-nots is thus inaccurate and can even be patronizing because it fails to value the social resources that diverse groups bring to the table. For example, in the United States, African Americans are often portrayed as being on the wrong side of a digital divide (e.g., Walton 1999) when in fact Internet access among blacks and other minorities varies tremendously by income group—with divisions between blacks and whites decreasing as income increases (NTIA 2000). Some argue that the stereotype of disconnected minority groups could even serve to further social stratification by discouraging employers or content providers from reaching out to those groups. As Henry Jenkins, director of comparative media studies at the Massachusetts Institute of Technology, argues, "The rhetoric of the digital divide holds open this division between civilized tool-users and uncivilized nonusers. As well meaning as it is as a policy initiative, it can be marginalizing and patronizing in its own terms" (quoted in Young 2001, A51).

In addition, the notion of a digital divide—even in its broadest sense—implies a chain of causality: that lack of access (however defined) to computers and the Internet harms life chances. While this point is undoubtedly true, the reverse is equally true; those who are already marginalized will have fewer opportunities to access and use computers and the Internet. In fact, technology and society are intertwined and coconstitutive, and this complex interrelationship makes any assumption of causality problematic.

Finally, the digital divide framework provides a poor road map for using technology to promote social development because it overemphasizes the importance of the physical presence of computers and connectivity to the exclusion of other factors that allow people to use ICT for meaningful ends. Rob Kling, director of the Center for Social Informatics at Indiana University, explains this shortcoming well:[5]

> [The] big problem with "the digital divide" framing is that it tends to connote "digital solutions," i.e., computers and telecommunications, without engaging the important set of complementary resources and complex interventions to support social inclusion, of which informational technology applications may be

enabling elements, but are certainly insufficient when simply added to the status quo mix of resources and relationships.

The bottom line is that there is no binary divide and no single overriding factor for determining such a divide. ICT does not exist as an external variable to be injected from the outside to bring about certain results. Rather, it is woven in a complex manner into social systems and processes. And, from a policy standpoint, the goal of using ICT with marginalized groups is not to overcome a digital divide but rather to further a process of social inclusion. To accomplish this, it is necessary to "focus on the transformation, not the technology" (Jarboe 2001, 31). For all these reasons, I join with others (e.g., DiMaggio and Hargittai 2001; Jarboe 2001) in recognizing the historical value of the digital divide concept (it helped focus attention on an important social issue) while preferring to embrace alternative concepts and terminology that more accurately portray the issues at stake and the social challenges ahead.

Social Inclusion

The alternative framework that I suggest in this book is the intersection of ICT and social inclusion. Social inclusion and exclusion are prominent concepts in European discourse.[6] They refer to the extent that individuals, families, and communities are able to fully participate in society and control their own destinies, taking into account a variety of factors related to economic resources, employment, health, education, housing, recreation, culture, and civic engagement.

Social inclusion is a matter not only of an adequate share of resources but also of "participation in the determination of both individual and collective life chances" (Stewart 2000). It overlaps with the concept of socioeconomic equality but is not equivalent to it. There are many ways that the poor can have fuller participation and inclusion even if they lack an equal share of resources. At the same time, even the well-to-do may face problems of social exclusion because of political persecution or discrimination based on age, gender, sexual preference, or disability. The concept of social inclusion does not ignore the role of class but recognizes that a broad array of other variables help shape how class forces

interact. Though a historical treatment of the term is beyond the scope of this book, one could argue that the concept of social inclusion reflects particularly well the imperatives of the current information era, in which issues of identity, language, social participation, community, and civil society have come to the fore (Castells 1997).

This book takes as a central premise that the ability to access, adapt, and create new knowledge using new information and communication technology is critical to social inclusion in today's era (see chapter 1). I thus examine several questions related to this premise: How and why is access to ICT important for social inclusion? What does it mean to have access to ICT? How can access for social inclusion best be promoted in diverse circumstances? By focusing on technology for social inclusion, I thus hope to help reorient discussion of the digital divide from one that focuses on gaps to be overcome by provision of equipment to one that focuses on social development issues to be addressed through the effective integration of ICT into communities, institutions, and societies.

Sources of Data

This book draws largely on my own empirical research in a number of countries throughout the world. I have focused most of my research on countries such as India, Brazil, Egypt, China, and the United States that have extensive poverty; large gaps between rich and poor; substantial but unequally distributed ICT resources; and a myriad of local and national programs attempting to use technology to promote social inclusion.

My empirical research in these countries has included both long-term ethnographic research (e.g., in Hawai'i, 1995–1997 and Egypt, 1998–2001) and short-term, intensive field observations (e.g., in India, 2001; Brazil, 2001; China, 1999 and 2001; and California, 2001). During this widespread and differential research, I visited schools, universities, community technology centers, telecenters, NGOs, and government offices. I observed dozens of technology access and training programs. I interviewed a wide range of people, including government officials and policymakers, educators, representatives of community associations and NGOs, leaders of information technology companies,

and children and adults participating in community technology programs. Altogether, over a period of six years I interviewed more than 200 people and wrote up some 500 pages of observation field notes.

In addition, I bring to this extensive data set an analysis of secondary data published in a variety of print and online sources. These include newspaper and magazine articles, books, academic journals, governmental and nongovernmental reports, and online essays and discussions. Some of my most important ongoing sources have included periodicals such as the *New York Times*, the *Los Angeles Times*, and the *Economist*; online forums such as the Digital Divide discussion list, the Global Knowledge for Development discussion list, the Association for Internet Researchers discussion list, and Red Rocker Eater News;[7] and reports from the World Bank, the United Nations Development Programme, and the National Telecommunications and Information Administration.

Organization

The first two chapters of this book provide a historical and theoretical framework to issues of technology and social inclusion. Chapter 1 provides the overall contextual background for the book by analyzing the transformation occurring in global economics, society, and technology. Chapter 2 looks back to other historical divides, such as those related to electrification, universal telephone service, and literacy, to analyze models of access to technology and media. This second chapter identifies four types of technology-associated resources that are essential to access and inclusion: physical, digital, human, and social. Subsequently, chapters 3 to 6 analyze these four resources in more depth. Chapter 3 examines physical resources: computers and connectivity. Chapter 4 examines digital resources: content and language. Chapters 5 examines human resources: literacy and education; and chapter 6 examines social resources: communities and institutions. Each of these chapters attempts to provide both a conceptual framework, drawing on relevant social theory, and empirical evidence and examples from both developing and developed countries. Finally, chapter 7 draws together the main arguments of the book by examining theories of the social embeddedness of technology.

First MIT Press paperback edition, 2004

This book was set in Sabon by SNP Best-set Typesetter Ltd., Hong Kong
Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Warschauer, Mark.
Technology and social inclusion : rethinking the digital divide /
Mark Warschauer.
p. cm.
Includes bibliographical references and index.
ISBN 0-262-23224-3 (hc. : alk. paper), 0-262-73173-8 (pb.)
1. Digital divide. 2. Marginality, Social. I. Title.

HN49.I56 W37 2003
303.48′33—dc21 2002075130

10 9 8 7 6 5 4 3 2