
Moving From Digital Divide to Digital Inclusion

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Abstract

Examinations of the so-called digital divide – commonly thought of as the divide in access and use of technology according to income – have been underway for the past decade. The notion of a digital divide, which is still very real as we will see in this article, has raised concerns about how to bridge the divide. Many analysts have advocated technology access programs; but are they the right direction or are they enough. Some are calling for policies that promote digital opportunity instead (Declaration of Principles, World Summit on the Information Society, 2003) and others advocate for digital inclusion. This article will review the multiple aspects of ICT in relation to the concept social inclusion. We argue that the concept of digital inclusion as opposed to the concept digital divide, more accurately captures the phenomenon of ICT gaps. We conclude that because of the narrow digital divide frame of reference (access and use behaviour) existing policy and programs do not address the broader issues implicated in the digital gap as the priorities of business and e-commerce supersede citizen rights and social inclusion.

Digital Divide and Digital Exclusion

Many fear that information and communication technology (ICT) is bypassing low-income communities. Some have called this a digital divide and look toward programs that promote digital opportunity instead (Declaration of Principles, World Summit on the Information Society, 2003). Granted the digital divide in Canada has eased considerably in the past few years with Internet access at home for the lowest income quartile, going from 22.6% of households in 2003 to 52.3% in 2006. Home access rates for the highest quartile have remained fairly constant going from 75.8% in 2003 to 77.7% in 2006 (Statistics Canada, 2006, CANSIM, tables 358-0123, 358-0124, 358-0125; Statistics Canada, 2004, CANSIM, table 358-0126). The digital divide still exists and most analysts agree that the divide involves more than just access, including factors such as technology literacy and skills to use the information.

Research has shown that it has exacerbated existing levels of poverty and disadvantage, creating a situation that some are calling digital exclusion (Warschauer, 2003; Wilhelm, 2004). The digital divide or digital exclusion is related to the spread of information and communication technology (ICT) and the gaps that exist between a variety of groups or strata in society. The dimensions of the gaps were first articulated as primarily gaps in physical access to computers and wires according to income. Increasingly researchers are moving beyond this definition, and are beginning to focus on social processes and behaviour once access had been achieved and are examining education, age, gender, race/ethnicity and disability as predictors.

The term digital divide was originally used by the National Telecommunications and Information Administration in the United States in its second falling through the net report entitled *Falling Through The Net II: New Data on the Digital Divide.* The report analyzed telephone and computer penetration rates for low-income groups, minorities, women and the elderly, among other groups in society. Today, the digital divide is defined as the gap between persons who have access to ICT and the tools to use it effectively and those who do not. In the twentieth century, innovations in technology not only enhanced the capacity and functions of computers but expanded communication through the advent of the Internet and World Wide Web. The emergence of wireless communication devices, instant messaging, blogs and voice-over Internet protocol (VOIP) have had a dramatic effect on how people communicate. People are now able to quickly communicate, distribute and access information. These factors paved the way for what many refer to as the information-based society.

The penetration and distribution of ICT like many other goods and services fail to reach the most vulnerable and disadvantaged groups. According to Persaud (2001) the knowledge gap is ten times the income gap. This digital disparity has widened the distances in privileges and opportunities between groups in society, creating the information rich and information haves and the poor who are defined as information poor and information have-nots. Although this distinction is important, defining the digital divide according to disparities in ownership and access between the haves or have-nots touches the tip of the iceberg in understanding all the factors that contribute to digital exclusion.

The extent of ICT usage, (frequency, skill and complexity) amongst individuals widens when other factors of the digital divide are taken into consideration. For example, Hawkins and Oblinger, (2006), articulate the existence of a second level digital divide caused by machine vintage; connectivity, online skills; autonomy and freedom of access and computer-use support. Accordingly, issues of the digital divide are cross

cutting and can be linked with what Bradbrook and Fisher, (2004), describe as the 5 Cs of digital inclusion; connectivity, capability, content, confidence and continuity.

This article will review the multiple aspects of ICT in relation to the concept social inclusion. We argue that the concept of digital inclusion as opposed to the concept digital divide, more accurately captures the phenomenon of ICT gaps. We conclude that because of the narrow digital divide frame of reference (access and use behaviour) existing policy and programs do not address the broader issues implicated in the digital gap as the priorities of business and e-commerce supersede citizen rights and social inclusion.

There are many aspects of the digital divide that are of concern to social researchers. Moore (1998) highlights three main characteristics underlying these concerns. First, information is increasingly being used to stimulate innovation, increase efficiency and improve the quality of goods and services. At the same time, society has moved towards economic globalization. Consequently, participation and engagement in public and private sectors has extended beyond local communities to national and international levels. Secondly, citizens are increasingly using information to compare differences between products, to explore entitlements to public services, exercise civil rights, increase education and gain more control over their lives. Third, these developments have led to an information sector within the economy (Moore, 1998) and altered the demands in the labour market.

Employers are now seeking employees who have advanced technological skills and knowledge. Based on the findings of the International Adult Literacy and Skills Survey (IALS) reported in the Daily, Statistic Canada, about nine million (42%) of working age adults between the ages of 16 to 65 do not have the desired threshold of literacy skills for coping with increasing skill demands of the knowledge based society (The Daily, 2005). The digital divide is accentuating existing gaps of already disenfranchised groups including immigrants, Aboriginals, older workers and the less educated. The disparity is more alarming given the precedence placed on ICT use in all domains of society. Bradbrook and Fisher (2004) report ICT use is now acknowledged as the third basic life skill after literacy and numeracy. According to Veenhof, Clermont and Sciadas, (2005) adults who have average or higher literacy skills and who are intensive computer users are three to six times more likely to be in the top quartile of personal income compared with individuals with below average literacy and less intensive computer use.

From an economic perspective economists are making strong links between ICT use and innovation and increased productivity and

competition. Given the ubiquitous use of technology by all sectors of the economy, ICT has become a prerequisite to economic stability of the Canadian economy. From a human capital perspective, one of the best ways to boost productivity is by increasing everyone's opportunity, knowledge and skills especially their use of technology regardless of individual character or differences. Investments in this area are critical to improving labour quality and quantity and to increasing economic efficiency in the labour market.

The promises for a better world are abundant. For example, Epodoi (2003) states that ICT in education, government, environmental management, health, financial and private sectors has the potential to increase delivery of services and productivity in addition to raising living standards and transforming economies through development opportunities. As a result, many now believe that connectivity to the Internet and the knowledge concerning its use is the most cost effective and efficient means for accessing opportunities and increasing prosperity.

ICT is presented to the world as the panacea for numerous problems by increasing access to economic strategies, increasing citizen's participation and enhancing individual well-being. But, are these goals being actualized and does ICT bring the potential for a better future for all. While wealthier individuals take access to technology for granted, exclusion, lack of up to date technology and the inability to afford Internet services increasingly threatens the chances of many people to find good jobs and participate in the affairs of the broader society (Goslee, 1998).

The Internet was first invented and developed by governments. During the mid-1990s and as more people became connected to the Internet, private corporations convinced the government to relinquish governance of the ICT industry and open it to the free market. Placing ICT in the private market as opposed to public markets enabled multinational corporations to increase control of production, distribution and pricing. This liberalization of ICT has transformed the sector into a competitive market that places emphasis on increasing revenues and maximizing profits rather than its potential as a common good in which social and economic benefits reach all citizens. Some have argued that the existence of ICT in a borderless and global economy facilitates a flood of new monopolies and imposes losses particularly in low-income communities and geographically diffused constituencies in rural and remote areas (Schultz & Rich, as cited in Pal & Weaver, 2003). These losses are of most concern to social researchers because the existence of ICT not only diminishes the powers and authorities of state regulators but also threatens the well-being of already marginalized and oppressed groups.

Although efforts to modernize telecommunication policies exist, they continue to focus on competition and regulatory criteria. For example, in 2005, the Minister of Industry appointed the Telecommunication Policy Review Panel to examine Canada's telecommunication policy and make recommendations on how best to modernize it. The objective of the study aimed to ensure that the ICT industry delivered world class services for the economic benefit of all Canadians and to protect Canadian social values. Generally the report falls short in addressing the digital divide with the exception of broad references to promoting affordable access and enhancing the social well being of Canadians and the inclusiveness of Canadian society by meeting the needs of persons with disabilities. Emphasis on reforming telecommunication systems continue to favour regulatory changes that will accelerate the deregulation of competitive telecommunications markets calling on government interventions only when market forces are unlikely to achieve policy objectives with reasonable time limits and when costs do not outweigh benefits (Sinclair, Intven, & Trembley, 2006).

Concerns underlying the digital gap must extend beyond economics towards broader concerns for social cohesion. Ferlander and Timms (1999) state that the convergence of communications and information technology brings threats to existing forms of community and creates new forms of social exclusion that threaten integration of the poor. The same authors emphasize that communities are associated with cooperation and collective contribution to the common good (1999). The existing ICT infrastructure prevents an equal flow of communication between people and social structures. This factor alone severs the social fabric that holds communities together. Unlike wealthier groups, the poor do not share benefits associated with previous goods in the market let alone newer developments. Many people in marginalized communities have yet to have access to telephone lines let alone ICT. As Koss states, one third of the world's population has yet to make a phone call let alone see a computer (2001).

ICT like any other product or resource has the tendency to adopted practices that serve to maintain a hierarchy in social order and perpetuate divisions between different social groups. Historically, patterns of inequality are observed when new products, inventions and discoveries are placed in the market. As new products replaced or enhanced older communicative mediums, consumers living in poverty and or of visible minority status lagged further behind wealthier individuals. Education, knowledge, ownership and access are key factors that determine the levels of exclusion or inclusion in accessing and adopting new technology. The rapid advancement in electronic communication tools, resources, programs and capacities requires individuals to own or have

access to the use of a computer, software and connection to Internet services. Without continuous access and frequent use, transferring and acquiring knowledge and advanced skills are limited or lead to skills atrophy.

Many groups that comprise the populations living in poverty are unable to afford quality education, own a computer, and purchase the programs and tools to use it effectively, let alone have access to disposable income to connect to the Internet. Alexander (2001) states that persons living in poverty can barely survive let alone thrive in the digital economy. Persons living on incomes that barely meet their basic needs are therefore becoming less and less competitive in the labour market. They lack knowledge, skills and experience in information communication technology. Consequently many low skilled workers occupy precarious employment situations where employers are least likely to invest in skills development or training. Furthermore, Goldenberg (2006) reports that workplace training in general is not evenly distributed. Low skilled workers are less likely to participate in training than highly qualified and educated workers. The inequities resulting from the digital divide have grave implications on the labour market. Most notably in Canada where a survey by the Canadian Federation of Independent Business (CFIB) reported in late 2000 that 300,000 jobs were vacant in Canada because of a lack of suitable skilled workers (Goldenberg, 2006). At the same time, the Conference Board of Canada projected a shortfall of nearly one million workers within 20 years (Goldenberg, 2006). The impact results in a miss-match in supply and demand which aggravates existing productivity gaps in Canada compared with other trading partners and lowers Canada's ability to attract and retain talent.

In addition, low-income persons fail to achieve life-long learning that enhances human capacity and development. These aspects are prerequisites for participating in the existing knowledge based society. Since information communication technology offers opportunities and risks, it is critical that people from all socio-economics strata have an active role. If we compare the initial exclusivity of previous products and services that are introduced to consumers to technology and the tools required to effectively use it, there are commonalities. The effects and outcomes can be either positive or negative depending on the level of involvement and support of communities and governments. The positive aspects of connectivity are believed to be in the form of social, human and economic capital. The consequences of exclusion are costly and are observed in academic failure, social isolation, increased unemployment, lower productivity and competitiveness and exclusion from social and political spheres. In the information society, exclusion increases the

likelihood of lower wages from employment and lower level of labour force participation. Employers are increasing relying on employees with advanced technology skills and knowledge. The digitally excluded will not be able to compete with others whose privileges provide access to ICT tools and training. As previously noted, the implications of this are far-reaching. Poorer income households will remain in situations where they are forced to sell their labour for lower wages. If the intent of technology is to help people work together more effectively, affordably and creatively, and if governments are to achieve the presumed objectives of the information based society, then access is essential for all people regardless of race, class, culture, gender, age, abilities and social locations. Schuler (1986) believes that not only should there be concern for what technology can do and is doing, but that consideration be applied to who uses, who gains and who looses in the process.

The impact of an exclusive social policy for ICT will have short and long-term effects on the psychological, social, economic, political and cultural spheres of society. Although governments promised that all citizens would have equal access to the information highway and benefit from the opportunities in the new economy, this promise has not been realized and socially inclusive principles for accessing the information highway are not well defined.

Characteristics of the Digital Divide

There is a general consensus in the literature that there is a significant digital gap. According to Castell (1999) information based cities deepen spatial segregation and exacerbate the gaps between the rich and the poor. These gaps are apparent not only according to income, but also race, age, disability and education.

The research substantiates the view that income and education are key factors in the digital divide (Becker, 2000; Ferlander & Timms, 1999; Koss, 2001; Novak & Hoffman, 1998; McConnaughery & Lader, 1998; Shapiro & Rhode, 2002; Wilhelm, 2002). Sciadas states the digital divide is significant in Canada and that penetration rates increase as income increases (2002). In the United States higher educated and higher earning households are five times more likely to have access to technology and the information highway (Shapiro & Rhode, 2002). According to a Canadian study completed by EKOS (2002), the income-based gap in access to computers and the Internet from home is persisting and widening. The same study found that the gap in Internet access from home has widened from a 39-point gap in 1997 to a 48-point gap in 2001. It is not surprising that participants in the EKOS study with income below $20k per year indicated that cost was the main barrier to home access

(EKOS, 2002, p.29). Dickinsonet and Sciadas (1996) noted similar concerns for income disparities and access to the Internet.

Statistics Canada (2004) collects data in the Household Internet Use Survey (HIUS) on both age and education (in addition to income) according to place of Internet access in Canada. Digital gaps exist according to both criteria. Individuals less than age 35 have a home Internet access rate of 60.8% compared to 22.7% for those age 65 and over (Statistics Canada, 2006b). The data on education levels and Internet access from shows that those with a university education have a home access rate of 78.7% where as those with less than high school have a rate of 25.5% (Statistics Canada, 2006c).

With respect to children, at the end of 2001, only 14 percent of low-income children living in the United States had access to the Internet at home as compared with 63 percent of children in families earning more than $75,000 per year (Wilhelm, 2002). Becker's findings closely resemble Wilhelm's although Becker indicates that low-income children's use of computers is less than higher income households because they do not have access to the Internet (Becker, 2000). The impact of the digital divide on young children also contributes to developmental lags in terms of skills (i.e. motor) and schemas (cognitive) within a classroom (De Craene & Cuthell, 2006).

But the digital gap may be connected to more variables other than income and education. Studies in the US (Alvarez, 2003) found an unexplained racialized digital gap. Research by Alvarez's (2003) found that half of the lower IT access rates of African American's reflect lower incomes and levels of education, but that about half of the 20-point lower access by African American's still remains after these status and other demographic characteristics are taken into account. This racialized digital gap has not been adequately investigated - therefore little is know about the processes and barriers involved.

Clearly the dynamic of digital gaps are complex. Access is probably more related to income, although other studies have found significant barriers for visible minorities and persons with disabilities that cannot be explained by income or education differentials.

The Digital Divide and Inequality

The links between non-access, non-use and poverty are complex - technology and society are intertwined and co-constitutive. For a topic that commands significant media attention it is perhaps surprising that there is a lack of comprehensive and integrated research. Statistics Canada collected data on income, education and age since 1996, but discontinued the collection of household base data in 2004.

Recent studies have explored the concept of the digital divide as a 'gloss' for long-standing societal inequalities (Seedco, 2002). On its own, the digital divide frame often results in digital solutions that overemphasize the importance of the physical presence of computers and connectivity to the exclusion of other factors. To scrutinize the digital divide we must move beyond an examination of physical access to ICT. DiMaggio, Hargittai, Neumann and Robinson describe the digital divide as formal and effective access barriers (2001). Formal access refers to the physical availability of the tools and resources to access the information highway and participate in the new economy. In contrast, effective access includes having disposable income to afford connectivity to the Internet and the means to acquire the skills and abilities necessary to fully participate in the information society. Recognizing these effective access questions bring us to broader set of socio-economic issues.

Understanding the complexities of the digital divide requires close examination of broader issues across multiple dimensions. The roots of disparities between the rich and the poor are extensive, including discrimination based on income, education, race and culture, age, gender and disability and economic shifts due to economic globalization. Many academics, for example, associate the digital divide with increased competition and globalization (Alexander, 2001; EKOS, 2002; Ferlander & Timms, 1999; Nelson & Servon, 2001; Novak & Hoffman, 1998; Schon, Sanyal, & Mitchell, 1999; Sciadas, 2002).

The hierarchical diffusion of production, management and distribution of global systems eliminate and bypass devalued spaces of inner city and therefore accentuate inequality. Wolpert (1999) argues that information technology will do nothing for low-income communities other than drive the working poor out of the mainstream economy and deprive more people of its benefits. One of the main conclusions from the influential book by Schon, Sanyall and Mitchell (1999) concerns the need to address social inequities in order to capture the benefits of information technology. Unless the broader barriers to human and social capital that hinge on educational levels, computer related training, employment and economical opportunities are addressed, they believe that the gaps between the rich and the poor will remain high (Schon, Sanyal, & Mitchell, 1999). Poverty will continue to be the impetus of inequities in the information society and systemic discrimination will prolong the distance between the rich and the poor unless socially inclusive principles are adopted and implemented in telecommunication policies and practices.

Social Inclusion: A Wider Lens

Historically, societies have been divided into distinct social classes or stratums that differentiate rights and benefits based on a number of variables including class, race, gender, age and disability. In the information-based era, these same distinctions play a significant role. Mayes, Berghman and Salais (2001) define social exclusion as a manifestation of recurrent patterns of social relationships in which groups are denied access to goods, services and resources that are associated with citizenship. Others define it as a rupture of social relations conceived of as a progressive dissociation from social milieus resulting in social isolation. These factors reinforce what is commonly referred to as social differentiation. Social differentiation is a process that leads to exclusion especially when differences are constructed through uneven access to social, political, economical and cultural resources. Differences in character and opportunity are common threads emerging in the social inclusion literature. For centuries, these differences have polarized society and created distinct and dominate social classes in which some have more access to goods and privileges than others. In the information era these conditions are amplified if particular groups do not have access to and knowledge about ICT.

In Canada, the political promise is to ensure that all Canadians have low cost, high quality and equal access to employment, educational, investment, entertainment, health care and wealth creating opportunities of the information age (Rosenberg, 1997). However, traditional marketing tactics focus on groups whose incomes afford them greater purchasing power and where consumption patterns are most likely to boost production and revenues as opposed to supporting principles of common good. According to Alexander (2001) it is the discriminative practices and beliefs underlying ICT that block disadvantaged individuals from realizing socially, economically valued resources, capacities and credentials. These factors reflect society's devaluation of certain groups. Like other inequalities, the contingencies underlying the digital divide cannot be thought about in isolation but rather understood as complex interrelated determinants that reinforce or diminish exclusion.

The concept social inclusion emerged in France during a time marked by economic downturn and inadequate social protections. In the early 1980s, social inclusion emerged as an important social policy in Europe in response to the inadequacy of social protection to meet the needs of diverse populations (Levitas, 2003; Marmur, 2002; Sheehy, 2004). Since that time, social inclusion has become a popular concept in both academic and political circles. Discourse extends beyond attachment to the labour market to discussion about the exclusive nature of the information

society. There are weak versions and strong versions of social exclusion (Saloojee, 2003). In its weak manifestation, it is a concept used in studies with narrow labour market readiness standpoints. The strong version takes a broader perspective that examines economic, social, cultural and community factors that reinforce or diminish exclusion.

Mitchell and Shillington (2002) define social inclusion as a process of investments and actions that will ensure that all children and families are able to participate as valued, respected and contributing members of society by closing physical, social, economic distances that separate people. Poverty, racism, class status, gender differences and unequal distribution of power are sources of exclusion that impose on the process and implementation of socially inclusive policies. These issues continue to hold true for the emerging information superhighway and the knowledge-based economy. The severity of digital exclusion on employment and academic achievements leads to further disenfranchising of certain populations (Ferlander & Timms, 1999).

Mitchell and Shillington indicate that inclusion in various dimensions of well-being requires resources, rights and capacity to participate within a society in which one lives (2002). Bach (2002), Kunz (2003), Luxton (2002), Marmur (2002), Mitchell and Shillington (2002), Omidvar and Richmond (2003), and Saloojee (2003), argue that social inclusion is a complex and challenging concept that cannot be reduced to a single dimension. Rather, the authors share the view that social inclusion is a normative concept that is valued based. The underlying values of social inclusion are based on the belief that all children and adults are entitled to participate as valued, respected and contributing members of society and who are equally entitled to develop their capacities and capabilities.

EKOS (1998) reported that young people, men, more educated and more affluent sectors of society will be more prone to take advantage of the information highway. Lack of access to online health, education and social services does not promote human development, involvement and engagement let alone increase opportunities for the poor or visible minorities to increase material wealth. Bach (2002) indicates that social exclusion is a major threat to social cohesion and economic prosperity. Bach (2002, p.3) describes social inclusion as "an ideal that arrangements not disadvantage certain 'others' because they are different from the dominant norms: that arrangements not allocate benefits, status and advantages in ways that misrecognize, devalue or stereotype certain groups in relation to others. It means that arrangements not foster or fund forms of recognition that deepen and entrench the social distance between certain groups". The reality is that ICT will become more expensive and more complex and the barriers between the rich and the poor will widen (Morino Institute, 2001).

In analyzing the relationship between ICT and social inclusion recent studies (Warschauer, 2003; Wilhelm, 2004) have found that the ability and opportunity to access, adapt and create new knowledge using ICT is key in the contemporary information society. The concept social inclusion involves a re-focusing of ICT away from the concept of the digital divide whereby equipment is seen as the solution (also known as the 'click and mortar' solution) toward a focus on social and economic development and the effective integration of ICT into communities, institutions and society (Warschauer, 2003). The shift in focus in not minor. The policy challenge is not to determine the optimum methods of deploying equipment and cables. Instead, the policy challenge becomes one of developing a program mix that addresses specific issues within a local/global context. Each community will have different needs, but these needs can be framed within a similar national and global context. The research challenges the shift from an emphasis on measuring the physical access to ICT to a broader agenda, which includes the analysis of the processes of ICT use and the role of ICT in social and economic development. The agenda becomes one of analyzing digital exclusion and the methods by which policies and program can enhance digital inclusion.

Conclusion

There is a consensus amongst academics, non-profit groups and advocates for the poor that digital exclusion (although not often framed in this way) is further marginalizing already oppressed and disenfranchised individuals and communities. Inequities in income, education, and differences in race, culture, age; gender and disability are not only being transferred into the information society, but are reinforcing social differentiation and polarization of groups.

In order to alter the existing infrastructure and processes of ICT and move towards socially inclusive policies and programs, policy analysts must call attention to the institutions and processes of exclusion. Policy makers need to think differently about ICT by moving beyond dualistic interpretations of the digital divide, towards a multi-faceted understanding of digital inclusion that takes into consideration the intersections of class, race, ethnicity, age, gender and disability.

The phenomenon of ICT gaps can more effectively be addressed be being with a digital exclusion frame of reference. This frame enables us to address the broader issues implicated in the digital gap and avoid emphasizing only the priorities of business and e-commerce over citizen rights and social inclusion. The shift is away from only addressing access to equipment and wires for people that lack such access due to low

income to a more sophisticated analysis that considers social and economic development and the effective integration of ICT into communities, institutions and society. Such development would look at the multi-dimensional context that takes into consideration issues of race, gender, disability, education and age. It is a move away from 'click and mortar' solutions to 'knowledge and opportunity' solutions.

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