

The Digital Divide: From Definitional Stances to Policy Initiatives

Leslie Regan Shade
University of Ottawa, Department of Communication
554 King Edward Ave., Ottawa ON K1N 6N5
Tel: 613-562-5800 x3827; shade@aix1.uottawa.ca

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Introduction

The term ‘digital divide’ reached popularity in the mid-1990s as a way to describe the disparity between those who have access to the Internet, and those that don’t. Initially, use of the term took on a simplistic definition, with access defined solely as technical access, for instance, to computers and telecommunication services. Later, definitions of the digital divide encompassed more complex measures of access—not just access to the technical infrastructure—but access to the social infrastructure, such as access to education (measures include literacy rates) and content (the ability to produce as well as to consume information). A variety of socio-demographic characteristics have also been recognized as increasing (or inhibiting) access, including income, education, gender, race, ethnicity, age, linguistic background, and geographic location (rural vs. urban).

This paper will first examine what is meant by access to the Internet, utilizing the “access rainbow”, a socio-technical model developed by Clement and Shade (2000). Then, the paper will examine the multiple dimensions of the digital divide, including the social, global, and the democratic divide. Some recent studies that have measured the digital divide will be examined, as well as various policies and programs that have attempted to bridge the digital divide, with particular emphasis on Canadian initiatives. The paper will conclude by suggesting policy initiatives within the Canadian context for strengthening our understanding of the digital divide.

What do we mean by access?

Access to the Internet is multifaceted, encompassing an overlapping mixture of technical, economic, and social infrastructures. An integrated model, the “Access Rainbow”, developed by Clement and Shade (2000) provides a socio-technical architecture for analyzing and discussing access to network services. Table 1 provides an overview of the layers that encompass a holistic view of access.

Technical factors include the carriage facilities (those that store, serve, or carry information, such as telephone, cable Internet, satellite, and wireless transmission); physical devices (telephone terminal equipment, modems, cable modems, personal digital assistants, Net PCs and Web TVs); and software tools (browsers, e-mailers, search engines, authoring and editing tools, groupware). Also key is the content and services that people find useful, such as telephone enhancements, the Web, and e-mail. Content and services need to be affordable, reliable, usable, diverse, secure, and privacy enhancing.

Aspects of the social infrastructure include services and access provision—the organizations that provide network services and access to users, including employers, educational institutions, Internet Service Providers (ISPs), telcos, community networks, and other community organizations. Literacy and social facilitation—the skills people need to take full advantage of information and

communication technologies (ICTs)–is crucial. Acquiring these skills is largely a social process involving a combination of formal and informal methods within the context of supportive learning environments. The means for acquiring network skills need to be affordable, readily available, attuned to the learners’ varied life situations, and sensitive to language, cultural, and gender differences.

And finally, the central challenge of governance–how decisions are made concerning the development and operation of the information infrastructure–is to foster a democratic process that allows all ICT stakeholders to participate equitably in policymaking.

TABLE 1: ACCESS RAINBOW SUMMARY (adapted from Clement and Shade, 2000).

LAYER	DESCRIPTION	ESSENTIAL ASPECTS	GAPS	KEY POLICY QUESTIONS
7. Governance How decisions are made concerning the development and operation of the infrastructure.	ICT development implicates a wide range of stakeholders who are differently placed in terms of their ability to contribute effectively to the decision-making process. The central challenge of governance is to foster a democratic process that allows all stakeholders to become informed of the issues and participate equitably in choosing among alternatives.	<ul style="list-style-type: none"> * Public consultation process * Research & social impact assessment * New institutions (e.g., National and Regional Access Councils) * Conception of the electronic commons 	Almost everyone is left out except those with a large financial stake in the industry	<ul style="list-style-type: none"> * How to involve the public meaningful in the decision making? * How to better inform decision making through research? (e.g., impact assessments) * What role for the current regulatory bodies? (e.g., CRTC & FCC) * What new institutions should be created? * How to deal with the pressures of globalization?
6. Literacy/ Social Facilitation The skills people need to take full advantage of ICTs, together with the learning facilitation and resources to acquire these skills.	ICTs are complex and still immature technologies requiring a range of skills to use effectively, especially when creating new content. Acquiring these skills is largely a social process involving a combination of formal and informal methods within the context of supportive learning environments.	<ul style="list-style-type: none"> * Basic literacy, numeracy, media savvy * Computer literacy (keyboarding, web navigation) * “Local experts” in workplace or neighbourhood 	<ul style="list-style-type: none"> * Unemployed * Lower-income * Non-English speakers * Cultural minorities, women * Socially isolated 	<ul style="list-style-type: none"> * How to fund training & education? * What is the role of local community organizations in providing training & support?
5. Service Providers The organizations that provide network services and access to users.	Most users gain access through employers or educational institutions providing a range of access services. Individual subscribers also need affordable, ongoing relations with network service organizations.	Local public access point (e.g., library, schools, hospitals, daycares, post office, community centres)	<ul style="list-style-type: none"> * Unemployed * Low-income * Rural/remote * Ethnic/linguistic minorities 	<ul style="list-style-type: none"> * How to sustain the host (public/nonprofit institution)? * How do they participate in the decision-making process?

<p>4. Content/ Services The actual information and communication services people find useful.</p>	<p>The central role of ICTs is to facilitate access to a wide range of information & communication services that people find valuable in their daily lives as citizens, producers, consumers, and caregivers.</p>	<ul style="list-style-type: none"> * Electronic mail * Newsgroups * E-Cash * World Wide Web (e.g, weather, job banks, government information, civic/local events) 	<ul style="list-style-type: none"> * Low-income * Non-English speakers * Disabled * Children/elderly * Non-U.S. and other cultural minorities 	<p>Are the content and services: reliable, usable, diverse (culturally/linguistically/politically), secure, privacy-enhancing, text-only compatible, individually filterable, censorship free?</p>
<p>3. Software Tools The programs that operate the devices and make connections to services.</p>	<p>Software is the critical ingredient that extends ICTs . These tools, undergoing rapid development, are being embedded in a growing range of devices.</p>	<ul style="list-style-type: none"> * Web browser * E-mailer * Authoring tool * Encryption and other privacy enablers 	<ul style="list-style-type: none"> * Disabled * Non-English speakers * Low income 	<ul style="list-style-type: none"> * Are major software tools easy for everyone to learn and use? * Are they affordable and interoperable * Privacy enabling? * Available in languages other than English?
<p>2. Devices The actual physical devices that people operate.</p>	<p>Contrary to the general trend of 'convergence' seen in carriage media, we are witnessing a proliferation of devices, with a widening mix of capabilities, prices, and sizes, and increasingly wireless.</p>	<ul style="list-style-type: none"> * Workstation * Net PC * Public kiosk * Universal design 	<ul style="list-style-type: none"> * Low-income * Disabled * Handicapped * Rural 	<ul style="list-style-type: none"> * Are the devices affordable? * Avoid rapid obsolescence? * Are they easy to use, esp. for people with disabilities? * Are the ICTs close at hand to where people need them?
<p>1. Carriage The facilities that store, serve, or carry information.</p>	<p>The Internet is the most prominent of digital information infrastructures, with previous analogue devices being converted to digital.</p>	<ul style="list-style-type: none"> * Telephone (affordable, single-party service, digital dial tone, ADSL, ISDN, phone number portability) * Cable with modem * Internet connection locally 	<ul style="list-style-type: none"> * Low income * Rural/remote (e.g, "high cost areas") 	<ul style="list-style-type: none"> * New support mechanisms to supplement or replace internal cross subsidization? * Is penetration rates suitable measure of access? * How can one ensure the interoperability of the networks? * What is the minimal 'essential bandwidth'?

Universal service has been the goal of North American telecommunication policy. A commonly used measure in achieving universal service is telephone penetration – the percentage of all households that have a telephone on the premise (Schement and Forbes, 2000). In the U.S., the universal service concept dates back to 1907 when Theodore Vail, President of AT&T, used the term in reference to his desire to interconnect the fragmented local telephone companies into a unified and interconnected national system. The *Communications Act of 1934* directed the Federal Communication Commission (FCC) to make available an efficient and nationwide wire and radio network. Universal service has been achieved through application of cross-subsidies made possible through the regulated monopoly scheme of the telephone industry. The *Telecommunications Act of*

1996 expanded the concept of universal service beyond dial tone to consider advanced services, such as the Internet (Cooper and Kimmelman, 2001).

In Canada the concept of universality has been widely accepted as an intrinsic facet of the Canadian identity. However, as Buchwald (1997) has observed, with the development of Canada's 'information highway', Canadian policymakers became influenced by the pro-market mantra of the United States, and neoliberal policies touting deregulation won over the calls of public interest groups to preserve a viable and vibrant public space.

Various stakeholders and different sectors conceptualize universal access issues differently. Generally, industry representatives define access as elimination of barriers, so that they can deliver services to provide profits and market share. Government representatives see themselves as facilitators rather than as members of an official body, which could and should set universal access goals. As well, government is concerned with individual programs (such as various community access grants), which will provide examples to the private sector and perhaps lead to the further commodification of government services. In contrast, the public interest sector has been attempting to provide a broader vision of society and democracy, through the promotion of universal access as a public good that will achieve positive externalities. Public access has also been championed, with advocates contending that the information infrastructure maintain a vital public sphere, with a vision of universal access to basic network services seen as an elemental component of citizen's rights in an information society, where effective citizenship depends on assuring that all citizens can create, and have access to, the content they need for active participation in their local communities and in their more global communities of interest (Kahin, 1995; *Key Elements of a National Access Strategy*, 1998; Clement, Moll, and Shade, 2001).

Achieving consensus on the fundamental values surrounding universal access among the different stakeholders of national and global information infrastructures is one of the biggest policy challenges. Although it is generally agreed that access to networks and services should be equitable, affordable and ubiquitous, it is also recognized that access will depend on many different physical, technical, and economic factors. As well, communities will define access in different ways. For instance, schoolchildren will probably not need the same high bandwidth as that required by researchers in medical imaging. The disabled community will need special features to aid in accessing information that the able-bodied community takes for granted. And, different individuals and groups will demand access to, and creation of, their own idiosyncratic information content.

Descriptions of the digital divide

Access to ICTs has been found to be inequitable for different communities. Inequities have been found based upon differential education, class, and income; and among the disabled, visible minorities, and those residing in inner city and rural communities. These various digital divides have been the focus of much recent policy attention, which will be discussed in the next section.

Norris (2001) delineates several dimensions to the digital divide: the social divide (the gap between the information 'rich' and information 'poor' in nations); the global divide (the gap between industrialized and developing countries); and the democratic divide (those who use the Internet for civic participation versus those that are passive consumers of Internet resources).

The Social Divide: Why should we care about the digital divide? Given recent rhetoric about the need for increased computer and digital skills as a prerequisite for adequate participation in our knowledge-based economy/society, those that can't partake are, as many economists, pundits, and politicians claim, at risk of not attaining economic success and personal advancement. Emanating from information highway discourse in the mid-1990s, it was claimed that access to the Internet would enhance and improve the lives of individuals, create lifelong learning opportunities, improve job skills and career advancement, improve democratic participation, enhance cultural and creative opportunities, improve access and communications for individuals with disabilities, and create more efficient markets and increase business productivity.

In the last two years, a plethora of research has been conducted looking at various facets of the social digital divide. Most of this research, however, has been conducted within the U.S. context. Research has focused on ameliorating the digital divide in order to provide economic and social opportunities for disadvantaged groups (children, low-income families, women) and communities (rural, remote, and in the inner-city).

Access to the Internet for children through schools has been the focus of much research. Schofield and Davidson (2002) have detailed the results of a National Science Foundation program integrating the Internet into urban classrooms; Zardoya (2001) has looked at the effects of a laptop leasing program; while Hess and Leal (2001) have examined the impact on Internet access in urban schools.

The development of community technology centres and community networking has been the focus of another body of research. Bishop (2000) has examined the use of community networks to encourage affordable use of the Internet by groups that would otherwise not have access; Bransford (2001) at community technology centres for lower socio-economic and underserved communities; and Servon and Nelson (2001) on low-income community technology centres.

Reinvigorating rural and urban centres through the deployment of ICTs has been another aspect of research. Lentz and Oden (2001) have looked at the links between the telecommunications manufacturing industry and users in the US Mississippi Delta region; Parker (2000) on rural America; Strover (2001) on rural communities in Texas, Iowa, West Virginia, and Louisiana; while Ramirez (2001) has focused on rural Ontario, Canada.

Although statistics on women online have not reached parity with men, gender differences in access and use has been the focus of research, including that conducted by Bimber (2000), Shade (2002a), and Warnick (2002).

What many of these studies acknowledge is that the focus on the technological infrastructure is secondary; the primary factor in reducing the digital divide resides in the social infrastructure, what Clement and Shade (2000) describe in the Access Rainbow model as Level 6, Literacy and Social Facilitation. Hargittai (2002) adds to this in her recent study of people's online skills, where she calls attention to a second-level digital divide that will require a considerable investment in education and skills training to ensure that those with access understand how to use it. By skill, Hargittai refers to "the ability to efficiently and effectively find information on the Web", which has important implications for use of the Internet for participation in civic and cultural life.

The Global Divide: Global imbalances in access to information and communication technologies (ICTs) must be viewed within the context of overall socio-economic imbalances, which have been an ongoing and persistent issue since the 1970s and the New World Information and Communication Order (NWICO) debates (Thussu, 2000). Although digital divide studies were initially conducted in the North American context, the international promotion of electronic commerce and a liberalized telecommunication sector has led to the recognition that the digital divide is between and amongst countries. So, although the 1990s witnessed a fantastic penetration rate of the Internet in most regions of the world, other countries, such as Central and South America, have lagged behind. According to the Organization for Economic Cooperation and Development (OECD, 2001), Internet growth in Africa has been negligible, with 0.25% Internet hosts, compared to 88% in North America and Europe.

For the OECD, the fundamental barrier is access to basic telecommunications services, and trade liberalisation and increased market competition for telecommunications services are the mechanisms to overcome the digital divide. Trade liberalisation has increased the demand for communication services, and has led to an increase in the growth of access lines (fixed and mobile), alternative access technologies, Internet access and use, and lower bandwidth prices.

Bridging the global digital divide between industrialized countries and developing countries is another trend. The Okinawa Charter on the Global Information Society was unleashed with much fanfare at the annual G8 summit held in Japan in Summer 2000. There, the G8 leaders formed the Digital Opportunities Task (DOT) Force, and extended the invitation to 32 members of organizations, private industry, and nonprofits, to join the DOT Force in an international effort to bridge the “international information and knowledge divide”.

Based on based on findings from the ILO's *World Employment Report 2001: Life at work in the information economy*, Campbell (2001) reports that “the disparities between industrialized and developing countries in the availability of ICT products, access to the Internet, and the inputs critical to further technological change and innovation are already wide -- and growing wider. The extent of this gulf is starkly conveyed by the fact that half the world population has yet to make its first telephone call, or that the density of telephone lines in Tokyo exceeds that of the entire continent of Africa.” Although socio-economics circumstances are a good indicator of what countries and what population within those countries are online, other variables need to be factored in, including “the extent of political and civil liberties, the level of education, and the extent and affordability of the telecommunications infrastructure” (ibid).

Whether or not ICTs are an appropriate tool for development is a controversial topic. The arguments are fractured and splintered between “cyber-enthusiasts,” who firmly believe that ICTs are necessary to implement, and “cyber-skeptics,” that question the role of ICTs as an effective development device (see Shade, 2002b for more discussion of this). There have, however, been some innovative programs established. For instance, Koss (2001) describes the Inter-American Development Bank's Youth Development and Outreach Program, which formed a partnership with the Committee to Democratize Information Technology. They created a ‘social franchise’ model, which created 220 ‘Computer and Citizenship Schools’ in 18 Brazilian states. Students include the homeless, young psychiatric patients, prostitutes, and prisoners.

The Democratic Divide: Norris describes this divide as the most challenging, as it “concerns the potential impact of the digital world on the distribution of power and influence in political systems...there is growing awareness that a substantial *democratic divide* may still exist between those who do and do not use the multiple political resources available on the Internet for civic engagement” (2001, 12).

Some research has looked into the democratic divide. Katz, et.al's (2001) study used national random telephone surveys, and concluded that Internet usage is becoming more equitably accessible and widely used, including for increased political and civic involvement. Public policy, however, needs to focus on the elderly, African Americans, and low-income families, as these groups are more likely not to have access to the Internet. In Hargittai's (2002) study, she asked participants to find a Web site that compared different presidential candidates' views on abortion, and found that a significant proportion of users were not able to complete this task. According to Hargittai, “this finding has important implications when considering the potential effects of the Internet on political participation and its ability to inform citizens on political issues. A large percentage of users were unable to find a political comparison Web site even in a situation where they are not constrained by time and are not being distracted by other obligations and activities. This suggests that people have a very hard time finding political information that may be helpful to further their understandings of candidates' views in a political campaign. Although there are numerous resources on the Web that showcase this type of information, the mere presence of such content will be of little use to advancing political participation if people are not capable of finding their way to such sites.”

Measuring the Digital Divide

Various studies, by governments, industry groups, and NGOs, have attempted to measure the digital divide. The U.S. National Telecommunications and Information Administration (NTIA) produced the first high-profile study in 1995, with the release of *Falling Through the Net*. Measuring household telephone, computer, and Internet penetration rates to determine who owned telephones and personal computers and who accessed the Internet at home, the study revealed that access was related to socio-economic and geographic factors, with the information have-nots disproportionately found in rural and central cities. NTIA's 1999 study, *Falling Through the Net: Defining the Digital Divide*, revealed that while more Americans are accessing the Internet, significant discrepancies in access exist, and in some instances, have widened considerably. Race is a factor, as more Blacks and Hispanics are less likely to be connected anywhere compared to Whites at home. Education is also a factor, as those with a college degree are more than sixteen times likely to have home Internet access as those with an elementary school degree. Income is a factor, as high-income urban households are more than twenty times as likely as a rural, low-income household to have Internet access. Marital status is a factor, as children in dual-parent White households are nearly twice as likely to have the Internet at home as children in White single-parent households. NTIA's 2000 report, *Toward Digital Inclusion*, looked at individual access, household access to high-speed services (such as DSL-digital subscriber lines), and access for people with disabilities. Overall, NTIA concluded, digital inclusion is advancing rapidly amongst most groups of Americans, regardless of income, education, race/ethnicity, location, age, or gender. Furthermore, those that were previously not connected are now making significant gains, particularly across education and gender lines. However, even though computer ownership and Internet access are rising rapidly for most groups, in some case the digital divide remains the same—or has expanded slightly. This is especially the case for people with disabilities, single-parent households, and for Blacks and Hispanics. Howard, Rainie, Jones (2001)

reporting for the Pew Internet and American Life Project, reiterate these studies, describing how Americans are “incorporating Internet tools into their daily lives” (18) with many reporting “substantial benefits from being connected” (ibid).

As with the United States, a variety of studies conducted by Statistics Canada on the digital divide in Canada have come to the same conclusions: access is determined by socio-economics: on income, education, geography, gender, and age (Dickison, 1999a and b). In his report, *The Dual Digital Divide*, conducted for HRDC, Reddick (2000) examines the digital divide and concludes that it is a complex phenomena which involves not only users and non-users, but two groups of non-users: those that are not able to connect because of socio-economic particularities, and those that have opted not to connect, because they are simply not interested. In his follow-up report, Reddick reiterates the necessity to reconceptualize the digital divide as a *social* divide, and to “incorporate the importance of the integration of information and communication technologies with other skills and activities in people’s daily lives” (2001, 14).

How easy is it to measure the digital divide? The International Telecommunication Union’s *“Trends in Telecommunication Reform 2002: Effective Regulation”* shows that access to the Internet is harder to measure: “The new digital divide is not just about the number of access lines, but also about the quality of the experience, as evidenced, for example, by the availability of IP connectivity” (ITU, 2002). Joo-Young, Qui, and Kim (2001) designed an Internet Connectedness Index (ICI), a measure that monitors long-term inequities in the quality of Internet connections to ascertain how and if Internet connections will improve the upward mobility of citizens.

However, this reliance on measuring the digital divide in terms of its technical infrastructure, and in using quantitative measure for assessing quality of services and social benefits is flawed, as basic social issues need to be considered and faults or lacks thereof rectified in order to ensure that digital divide issues can be addressed. Mansell emphasises this point when she calls on us to consider and adopt a social capabilities approach: “these capabilities include general education and technical competencies, the institutions that influence abilities to finance and operate modern organizations, and the political and social factors that influence risks, incentives, and personal rewards including social esteem” (2001, 56).

According to Adams (2001, 7), we need to move “beyond numbers” and strive for richer analyses, ones that add “the sociocultural perspective and what is termed the ‘experience-near’ understanding of divide manifestations...by looking beyond numbers and even beyond rhetoric surrounding these technologies, experience-near investigations reveal the realities of human-computer and human-Internet interactions. These realities are far from the neat, monolithic *categories* that divide demographics have creates”. The concluding part of this paper will outline some recent qualitative research that is looking at how people use the Internet.

Digital Divide Programs and Policies

In the North American context, efforts to ameliorate the digital divide have concentrated on setting up community access points for public spaces, such as schools and libraries. International organizations are also making efforts to decrease the digital gap in developing countries. A variety of public sector and nonprofit policy initiatives have been initiated to fix the digital divide, through technology acquisition, education, training, and lifelong learning. In the U.S., the

Telecommunications Act of 1996 directs the Federal Communication Commission (FCC) to implement a funding mechanism—the E-rate—to bring Internet technology to public schools and libraries. Canada has several funding programs to create Internet access in public spaces, such as schools and libraries, and community access points—particularly in rural and remote areas. Corporations (including Microsoft, AT&T, Intel, and Hewlett-Packard, AOL/Time-Warner) have established foundations that help provide Internet access to local communities, typically through donations of used equipment and training. But, as Selwyn (2002) argues, in examining the UK government's ICT-based social policy, scant critical consideration has been given to how technology is being used by governments to achieve socially inclusive aims.

Connecting Canada

The federal 'Connecting Canadians' agenda has as its goal the creation of Canada as the most 'connected nation on earth'. Led by Industry Canada, the agenda consists of the School Net, Community Access Program (CAP, Urban CAP), VolNet, and LibraryNet programs. More recent federal and provincial programs have also pursued related goals (for instance, Community Learning Networks (CLN) in the Office of Learning Technologies, HRDC) (see <http://www.connect.gc.ca/> and http://209.217.94.145/ourprogram/cln_e.html)

But, as Rideout (2002) points out, important questions need to be asked about the CAP and CLN programs: "What happens if sustainability funding is impossible to achieve at the community level? What will happen to the connected communities if long term sustainable government funding does not occur? What will happen to communities that have to unplug?" Rideout further says that focus on looking at individual household access detracts from understanding what really happens in communities: "It will require a research approach that takes into consideration the political, economic, and social relations of the region as well as the community. Research questions need to identify partners and community organizations, the government programs, the community social needs...Community specific digital divide problems need to be identified. And government access programs need to be scrutinized to see if they do help overcome digital divide problems in the short as well as the long term" (ibid).

Controversies

"I think there is a Mercedes divide. I'd like to have one; I can't afford one. I'm not meaning to be completely flip about this. I think it's an important social issue. But it shouldn't be used to justify the notion of essentially the socialization of the deployment of the infrastructure."
- Michael Powell, FCC Chairman, quoted in Koerner, 2001).

Whether or not these policy fixes will eliminate the digital divide will be the basis of future research. Will the digital divide be transitory or persistent? Some contend that as the cost of computers and online access decreases, and as more schools and public institutions become wired, concern about a digital divide will be a moot point. After all, there will always be areas of social stratification that no amount of public subsidy can fix. "Declare the war won", says Compaine (2001). But, others insist that if the assumption remains that basic computer skills are essential for economic success, and that the Internet is essential for participation in civic and cultural life, then we need to be concerned and diligent so that the information poor will not become further marginalized (Schement, 2001).

The current Republican consensus in the United States is not to sustain and create new public subsidy programs for Internet access: According to Crandall (2001) writing in the conservative *Brookings Review*, “government policymakers should relax and let the booming economy close the digital divide. To do otherwise risks committing a great deal of taxpayer money to technologies that could well be obsolete in a few years or that many households simply do not want.” The recent elimination of two critical programs from the 2003 budget by the Bush administration, the U.S. Department of Education's Community Technology Centers (CTC) program and the U.S. Department of Commerce's Technology Opportunities Program (TOP) signals their retreat from funding programs for the digital divide, despite research that reveals that community technology investments are paying off, and that the digital divide is not dissipating (Dickard, 2002).

However, support for developing countries to ameliorate the digital divide is continuing. The ITU recently adopted the Istanbul Action Plan which “seeks to empower all stakeholders in telecom development to enable them to bring services for the benefit of all through capacity building, regulation, technology and ICT solutions, human resource development, and financing schemes” (see http://www.itu.int/newsroom/press_releases/2002/11.htm). And, the G8 will further discuss their Genoa Plan of Action at Kananaskis Summit in the summer of 2002.

So far, Canada has resisted trends in the U.S., and there has been little public debate on the digital divide or the Connecting Canadians agenda. However, given the downturn in the economy, particularly with Ottawa's high-tech sector, the lack of funding for the broadband initiative, and the prevailing discourse focusing on security enhancements in wake of September 11, Canada may well follow the U.S. example.

What Now for Policy?

In the last decade, Canadian public policy on ICTs has shifted from a sense of citizen-based universality to a regime of market-generated rules (Moll and Shade, 2001). As Birsdall (2000) comments, “This shift in public philosophy has generated a market driven concept of universal access in telecommunications that shapes how the digital divide is conceived and addressed in Canada” (Birsdall, 2000). The emphasis has been developing programs and policies that fixate on the technical, rather than the social infrastructure. Three recommendations will be made here: 1) reconceptualize ICT policy towards social policy; 2) pay attention to Internet access in light of heightened media concentration in Canada; and 3) provide more support for qualitative based research that examines how people are using the Internet in their everyday lives.

1) Reconceptualize ICT policy towards social policy

Burgelman (2000), in examining the Western European context, advocates that media policy shift to social policy. This echoes what both Mansell (2001) and Reddick (2001) recommend, when they urge the adoption of a social capabilities approach. According to Reddick, we need to move beyond conceptualizing the Internet as the primary means of achieving access, as the Internet is “linked to a broader complexity of human capabilities. Individuals need to be literate on several levels, including numeracy, prose, interpersonal communications, and technology, to function and be able to participate in the workplace and broader society, and to have the flexibility to continually adapt to change. In short, these skills are key components of social literacy” (Ibid, 84).

Alexander, in examining the Connecting Aboriginal Canadians program, writes that “At issue is not merely technological capacity and accessibility, but a need for the political commitment and resources to reduce the same inequalities that confronted Aboriginal peoples in the pre-Internet world. Unless there is a sea-change in the values that anchor Canadian society and steer policy priorities, these gaps will persist, even in the midst of the most comprehensive, publicly accessible, nation-wide network of computer hardware and software imaginable” (2001, 279).

The sustenance of community social infrastructures is key for successful implementation of ICT programs. Ramirez (2001), in analyzing the rollout of three ICT programs in rural Ontario, was interested in whether or not ICTs can enhance rural and remote communities and aid in their transformation, or accelerate their demise. He offers a model for looking at the interrelationships amongst policy, community, organizational, and technological dimensions, and asks whether policy programs can stimulate local ingenuity. His conclusion: yes they can, but social factors are instrumental, for instance a community champion can sustain and invigorate programs.

Policy programs must provide a continued investment and support for ICT training. As Hargittai (2002) says, “Like education in general, it is not enough to give people a book, we also have to teach them how to read in order to make it useful. Similarly, it is not enough to wire all communities and declare that everyone now has equal access to the Internet. People may have technical access, but they may still continue to lack effective access in that they may not know how to extract information for their needs from the Web.”

2) Pay attention to Internet access in light of heightened media concentration in Canada

The recent controversy over CanWest Global’s editorial policy raised red flags in newsrooms, escalating an international debate over the concentration of media ownership in Canada, corporate censorship, and journalistic autonomy (Grant, 2002). In December CanWest announced they would be running the same national editorial, issued from Winnipeg company headquarters, in all of the fourteen major city newspapers they owned. Unsigned local editorials, CanWest said, should not contradict the national editorials. Amidst intense media debate and protest from journalists, CanWest has since revamped their policy, announcing that they will only print one nationally written editorial per week (Damsell, 2002).

Critics contend that the CanWest case exemplifies the danger of such intense corporate concentration of the media, particularly related to journalistic freedom and integrity. The International Federation of Journalists (the largest journalist group comprising 500,000 members in 106 countries) has lent support to its Canadian affiliate TNG Canada-CWA in their campaign, writing that “corporate control of editorial policy proves how dangerous concentration of ownership is to media pluralism” (IFJ, 2001). The Newspaper Guild. CWA has also called on CanWest to uphold principles of journalistic integrity through “The Public Trust”, signed by 200 delegates representing more than 36,000 newspaper and other media workers across North America.

Despite Leonard Asper’s quip that “Canadian media are more fragmented and less concentrated than ever before...I submit that people who believe otherwise are not looking at the facts and they also probably believe Elvis is still alive” (quoted in Foss, 2002), media concentration in Canada is a big deal. Winseck (2002, 327) writes “As a result of convergence, Canada now has one of the most consolidated media systems in the world and an unrivalled degree of cross-media ownership”. Even

though we are talking about traditional broadcasting and print media, there are fears that the Internet will not be immune to such waves of conglomerization and hyper-commercialization. Traditional media behemoths are becoming an increasingly dominant presence on the Internet, and governments are reluctant to institute any controls on governance. Media firms are leveraging their brands on the Internet, creating new content that mimics and extends that of their traditional media brands, through the creation of portals, e-commerce products, and advertiser-based new content. (McChesney, 2000, 119-185).

3) Provide more support for qualitative based research that examines how people are using the Internet in their everyday lives

Several hundred million dollars have been spent in the Connecting Canadians agenda and programs in support of some 10,000 community ICT initiatives. This represents a wealth of valuable experience in an important area of social innovation, but so far there has been remarkably little evaluation of these programs to determine what has been achieved, what difficulties have been encountered, what effect these programs have had on community networking practices, and what policies/programs are now appropriate in light of contemporary internet developments. How have these Canadian government programs interacted with community-based ICT initiatives to address social cohesion concerns? In short, has providing technical 'connectedness' via public access to the internet promoted social 'connectedness'?

Research that looks qualitatively at how diverse groups are using the Internet, through ethnographic 'thick descriptions' and 'experience-near' analyses can inform public policy. In Canada, several ongoing research projects are underway which have these aims. Maria Bakardjieva at the University of Calgary has been looking at how families use the Internet in their daily lives (Bakardjieva and Smith, 2000). Leslie Shade at the University of Ottawa is looking at how children and youth are using the Internet and other new media services in their home, through a SSHRC funded project, *Children, Youth and New Media in the Home*. Research questions include the following:

Access: Which children and young people have access to the media, and how is this shaped by socio-economics? How do inequalities in media access and use affect opportunities for social participation?

Lifestyle: How do children and young people relate to the variety of new media now available to them? What influences their media choices? How are new media situated in their everyday lives-in both the social and educational realm? How do the experiences of children and young people with the new media relate to the views of their parents and teachers?

Competition: What new media forms are being created and marketed to children and young people for both educational and leisure/entertainment? What social factors influence the content of new media for children and young people? Does increased diversity in media choice indicate more media use?

Uses of New Media: How are children and young people using the new media in their homes and schools, for educational and leisure purposes? Are they forming new communities based on using new media? How does new media impact upon their social lives and relationships with peers and their family? Are there gender differences in use and participation of new media?

Social Change: Are new media transforming the way children and young people socialize, learn, and participate in society? What new opportunities do the new media provide for children and young people? Are these benefits that will translate into future economic betterment? What are the

perils of new media for children and young people? Do children and young people react differently to new media than their parents?

The commercialization of children and young people's culture and privacy issues: What do children and young people think about the pervasiveness of commercial content in new media? Do they uncritically accept it? What do children and young people know about privacy issues?

Andrew Clement at the University of Toronto is engaged in a SSHRC-funded project, *Everyday Uses of Networked Services* (<http://www.fis.utoronto.ca/research/iprp/ee/index.html>) whose purpose is to investigate everyday usage of Internet services in the light of three longstanding policy and design concerns, which in turn drive the key research questions: 1. Universal Access and the "Digital Divide"; 2. Privacy, Identity and Trust; and 3. (De-)Personalization. Does access to Internet based services actually enable people to participate more fully in society and under what circumstances? What services are most useful in such participating? What obstacles do users experience in making use of these services and how do they deal with them? (see project description at <http://www.fis.utoronto.ca/research/iprp/ee/Proposal2000.pdf>).

Another project submitted to SHHRC by Clement and colleagues (which was not funded under the Social Cohesion theme) aimed to look at how community networks and Community Access programs in Canada are contributing to social cohesion. The central issues to be examined include amelioration of various digital divides, the provision and use of locally oriented content and social services valued by community members; provision and use of community-oriented learning opportunities, especially for locally relevant skills; provision and use of electronic public spaces, particularly for engagement in civic activities; sustainability of community networking initiatives, especially for the provision of 'public goods; and governance structures and practices of community networking organizations and their local 'embeddedness' (see project description at http://www.fis.utoronto.ca/research/iprp/c3n/C3N_Proposal.PDF).

This project will be resubmitted to SSHRC under the INE (Initiative on the New Economy) rubric, and a research development grant has been submitted which looks at developing an evaluative framework for community learning networks (researchers include Andrew Clement, University of Toronto, Peter Trifonas, University of Toronto, and Leslie Shade, University of Ottawa). The objectives for the Development Grant are to begin preliminary conceptual research into the Social, Cultural and Environmental Dimensions of the New Economy and the perceptions, nature and effects of lifelong learning within CLNs. In partnership with St. Christopher's House, the researchers will begin by assessing the nature of lifelong learning within their CLN and examine how and whether members of this CLN have engaged in or plan to engage in lifelong learning programs. They will also assess the impact the New Economy has had on the communities utilizing community access centres. This research will help in understanding the nature and extent to which CLNs have enabled communities to engage meaningfully with the New Economy, i.e. find work in NE sectors, utilize technical skills in their everyday lives, and utilize government services online. The researchers thus will be able to gauge if/how CLNs have assisted in "wiring" Canadians for the Information Age. By measuring the relative development of economic benefits for members of the public through the use of ICTs, a better assessment of the implications of CLNs for community and economic development and sustainability can be made. How the voluntary and/or nonprofit sector are aiding communities in adjusting to the information age and NE issues, in particular how access to technology has affected the lives of members of the general public accessing technology through a CLN, will also be examined. Some of these findings will allow the researchers to formulate policy statements as to how best the government can provide lifelong learning opportunities through

CLNs, and determine the necessary measurement instruments and mechanisms for assessing and recognizing skills and competencies acquired through formal, non-formal and informal learning.

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