The Global Digital Divide: Focusing on Children

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The Global Digital Divide: Focusing on Children

by

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"Whereas mankind owes to the child the best it has to give,"
United Nations Declaration of the Rights of the Child (1959)1

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Introduction

Good afternoon, everyone. I am delighted to be participating in this fascinating conference even though I have been asked to take on a rather daunting task. When Senior Symposium Editor John Lien invited me to speak, he asked me to assess the global aspect of the digital divide in twenty minutes. However, there are around 192 countries in the world. Just do the math; you will have to agree that this is a very challenging enterprise. In preparing my presentation, it quickly became obvious that unless I was to irritate my audience by speeding up my voice like the most manic of cartoon characters, I would have to narrow the scope of my subject matter.

I have chosen to do so in two ways. First, I will focus primarily on the issue of school-aged children’s access to information and communications technologies (ICT) globally. My focus is on children for the simple reason that children embody the future. Second, I will limit my assessment of this issue to a comparison of children’s access to ICT in six countries around the world. Located on five continents, these six countries range from highly developed OECD countries to lesser developed countries. They are the United States, the United Kingdom, France, Australia, Mongolia, and Tanzania.

Of course, a study of only six countries cannot pretend to provide

2. See Press Release, United Nations, List of Member States at <http://www.un.org/Overview/unmember.html> (last updated Sept. 27, 2002) (copy on file with author). The number of countries is not universally agreed. One commonly used measure is the number of United Nations members (191) but that omits the Holy See. Another measure commonly employed is the number of countries recognized as independent states by the United States Department of State (192). See U.S. Dep’t of State Bureau of Intelligence and Research, Fact Sheet, Independent States in the World <http://www.state.gov/s/inr/rls/4250.htm> (Nov. 13, 2002) (copy on file with author). Both measures omit Taiwan.

3. If ICT can be a weapon to combat the development divide by helping to increase knowledge and opportunity, then, in a world of limited resources, the primary focus of ICT initiatives should be on increasing children’s access to ICT. Investing in children makes sense in the long term, since children are the world’s future citizens. Moreover, children generally take readily to the use of ICT, because they are less frightened by technologies than many adults. Many entertaining examples of the willingness and ease with which children embrace new technologies can be found in Michael Lewis’ new book on the social impact of the Internet, Next: The Future Just Happened (2001). Lewis writes:

It does seem to me that when capitalism encourages ever more rapid change, children enjoy one big advantage over adults: they haven’t decided who they are. They haven’t sunk a lot of psychological capital into a particular self. When a technology comes along that rewards people who are willing to chuck overboard their old selves for new ones—and it isn’t just the Internet that does this: biotechnology offers many promising self-altering possibilities—the people who aren’t much invested in their old selves have an edge. The things that get tossed overboard with a twelve-year-old self don’t seem like much to give up at the time.
a comprehensive picture of the global digital divide. But examining six countries in relative depth does have the advantage of presenting information at a more human level than the more common approach of portraying the digital divide through broader regional statistics. My comparative look at the six countries indicates that the level of children's access to ICT is strongly linked to the wider problem of a global development divide.4

With regard to children's access to ICT, the countries fall into two main groups. Countries in the first group, all highly developed OECD members, have attained very high ICT access rates for their children, primarily through the widespread provision of Internet access in schools. However, home Internet access in these countries remains significantly divided along race and income lines, but not along gender lines. The second group of lesser developed countries have not yet provided widespread ICT access to their children in school or through other means.

Part II assesses the extent of this global development divide, contending that it poses a serious and unacceptable threat to the fundamental value of human dignity. Since a very high percentage of the world's children are increasingly being born into less developed countries, their future looks increasingly bleak unless the development divide can be eradicated. Doing so is a moral imperative. But how to do so is a challenging question.

Some commentators contend that increasing access to ICT can bridge the development divide. But this contention is hotly debated. Part III briefly overviews this debate, showing how the participants' arguments fall into three main categories. These arguments (i) advocate policies or programs to increase access to ICT as a means to promote development; (ii) contend that such policies are not necessary because the market will eradicate the development divide; and (iii) warn that the proponents of increased access to ICT overlook other more important priorities in global development.

No clear answer to this debate is provided by this paper's comparative examination of the state of children's access to ICT,

4. This moniker ("development divide") did not originate with me. See e.g., Cynthia Hewitt de Alcántara, The Development Divide in a Digital Age: An Issues Paper, United Nations Research Institute for Social Development Technology, Business and Society Programme Paper No. 4, at 30 (2001) <http://www.virtualactivism.org/outsidefolders/hewitt.pdf> (stating that "the digital divide is part of an even broader and more intractable development divide, constantly limiting possibilities for progress among most inhabitants of the planet" and arguing that this development divide must be borne in mind when considering how to overcome the digital divide).
though it does reveal significant ICT access gaps both between highly industrialized countries and lesser developed countries, as well as within developed countries. Part IV concludes that policymakers confronting these ICT access divides should focus their attention not simply on closing access divides but on how closing access divides can promote development. In increasing children's access to ICT, the question should always be how a child can actually use that ICT to enhance and improve his or her life.

I. Comparing Children's Access to ICT In Six Countries Across the Globe: A Clear Link to the Development Divide

Most assessments of the digital divide rely heavily on statistics. Although statistics are vital to getting a sense of the scale of the divide, focusing on numbers often has the unfortunate consequence of distracting readers from the human impact of the divide. To attempt to give this study of children's access to ICT a more human focus, I will use as examples some of the children featured in a picture book that was published to commemorate the 50th anniversary of UNICEF in 1995.

Written by Barnabas and Anabel Kindersley in association with UNICEF, this book is called *Children Just Like Me.* The book's publisher is Dorling Kindersley, a publishing house whose hallmark is the extensive and creative use of photography. *Children Just Like Me* introduces cultural differences to primary school aged children by employing extensive photographs and interviews with real children around the globe. The book is a wonderful tool to prepare children for life in a global village. I will use some of the children described in the book as examples to illustrate the wide variety of children's access to ICT across the globe. Although the book was published in 1995, for the purposes of example, I assume that all the children's profiles remain the same as of the time of writing this article.

The six children that I will discuss are Nicole (United States), Sophie (United Kingdom), Rachel (France), Rosita (Australia), Erdene (Mongolia), and Esta (Tanzania). For each, I assess their likelihood of having access to ICT. The available statistical information for some countries is more comprehensive than others, and it is not always possible to draw exact comparisons for all aspects

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6. This assumption means, for example, that if a child is described in the book as being eight years old, I assume that they are still eight as of the time of writing this article (June 1, 2002).
of access to ICT across these countries. Increasingly, national government statistics offices are providing more detailed information about the extent of the digital divide in particular countries; these often include information about children’s access to ICT. There are also an increasing number of private surveys of the digital divide, which also often include information on children. It is true that comparing information from different surveys, taken over different periods, from differently sized samples, measuring different age groups, and also comparing different factors (such as race, income, or gender), is inherently imperfect. It is to be hoped that in the future more consistent and regular surveys will be carried out on the extent of children’s access to ICT across countries. But the available evidence for the six countries strongly suggests that children’s access to ICT is directly related to development in two important ways.

First, the more developed OECD member countries in the six-country sample (the United States, the United Kingdom, France, Australia) have far greater general rates of ICT access for children than the lesser developed countries (Mongolia, Tanzania). Second, even the developed OECD countries show internal variations in children’s access to ICT that appear to correlate with development divides within the country, in particular income and race. Gender, however, does not appear to be a significant factor affecting ICT access for children. Below, I consider the extent of children’s access to ICT for each of the six countries in turn, starting with the United States.

1. The United States: Despite a Race/Income Divide, Significant General Integration of ICT Into Children’s Lives

In Children Just Like Me, Nicole, an American girl aged 8, is pictured clowning with her best friend Holland. She likes math and soccer, and has a pet dog named Boomer. Her favorite food is pizza. As will be documented in more detail below, American children like Nicole are extremely likely to use computers. Nicole is also extremely likely to have Internet access at school. She has a reduced chance of actually using the Internet, but she is still more likely than not to do so. However, if Nicole is Black or Hispanic, her chances of actually using the Internet

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7. Kindersley, Children Just Like Me, supra note 4, at 19.
8. Id.
9. Id.
10. Id.
are considerably reduced, even though she is still extremely likely to use a computer at school. If Nicole’s family income is low, she is also far less likely to use the Internet, though low family income is not likely to have a significantly adverse impact on her computer use.

A large and increasing percentage of Americans have Internet access. A recent U.S. Department of Commerce study based on September 2001 Census data found that 53.9% of the American population (143 million people) used the Internet in September 2001. This was 26.5 million more (44.5%) than had used the Internet 13 months earlier.

As an eight-year old child, Nicole is extremely likely to use a computer. In September 2001, almost 90% of American children aged between 5 and 17 were computer users. As a school-aged child, Nicole is also far more likely to access the Internet than many older Americans: by the fall of 2000, 98% of American public schools had Internet access (97% of elementary schools and 100% of secondary schools). By September 2001, almost 60% (58.5%) of all school-aged American kids used the Internet. Of children in Nicole’s age group (5-9 year olds), three out of eight, or nearly 40% (37.6%), use the Internet at home or at school. Among children just a few years older than Nicole, Internet usage is even more widespread. Slightly over 65% of American 10-13 year olds use the Internet. If Nicole has an older brother and sister, he or she is even more likely to access the Internet: over 75% of American high school students do. Nicole is more likely than not to have Internet access at home: 62.2% of households with children under 18 have home Internet access, compared to 53.2% of other American homes.

Nicole’s gender is unlikely to have any real impact on her likelihood of using a computer or accessing the Internet. The Department of Commerce study found that there was virtually no

12. Id.
13. Id. at 43.
15. A Nation Online, supra note 10, at 43.
16. Id. at 45.
17. Id. at 43.
18. Id.
19. Id. at 42-3.
difference in computer use or Internet access between girls and boys aged under 15.\textsuperscript{20}

Despite these relatively high levels of ICT use, there remains concern, as many other presenters at this Symposium have noted, that certain groups of Americans are not sharing equally in ICT. If Nicole is Hispanic, she is slightly less likely to use a computer and much more likely not to use the Internet. Although the availability of school computers has raised levels of computer usage to very high levels across all racial groups in America, Hispanic and Black children aged 10 to 17 are still experiencing slightly lower rates of computer usage. As of September 2001, rates of computer usage in this age group were 84.2\% for Hispanics and 88.8\% for Blacks, as compared with 95.4\% for Whites and 94\% for Asian Americans.\textsuperscript{21} The racial gap for Internet usage for similarly aged children is greater: in September 2001, rates of Internet usage were only 47.8\% for Hispanics and 52.3\% for Blacks as compared with 79.4 \% for Asian-Americans and 79.7\% for Whites.\textsuperscript{22}

Nicole's family income apparently makes little difference to her likelihood of using a computer, due to the widespread availability of computers in American schools. 80.7\% of children living in households in the lowest income bracket (under $15,000 per annum) used computers in September 2001 as compared with 88.7\% of children from households in the highest income bracket (over $75,000).\textsuperscript{23} There are greater income disparities for Internet use, however. In September 2001, Internet use by children living in households in the lowest income bracket was only slightly more than half the Internet use by children in households in the highest income bracket.\textsuperscript{24}

Notwithstanding very real concerns about lower Internet usage rates for minority and low-income children, overall ICT penetration rates are very high for American children. These children are using ICT for a wide variety of activities. The recent Department of

\textsuperscript{20} Id. at 16, Fig. 2.7.
\textsuperscript{21} Id. at 47. The Department of Commerce study did not report racial statistics for Internet use for children of Nicole's age, but it seems unlikely that the figures would be substantially different for 8 year olds than 10 year olds.
\textsuperscript{22} Id. at 50.
\textsuperscript{23} Id. at 46.
\textsuperscript{24} Id. at 49 (showing that 45.7\% of children in the lowest income bracket used the Internet as compared with 87.5\% of children in the highest income bracket). Income differences are even more pronounced for home Internet use: 82.5\% of children in families in the highest income bracket used the Internet at home as compared with only 21.4\% of children in households in the lowest income bracket.
Commerce study describes Internet use as “integrated into children’s daily routines, which involve school, entertainment, communication, and play.”\(^\text{25}\)

2. **United Kingdom: Very High Internet Penetration and a Focus on Improving Learning Through ICT**

Sophie, aged 8, is a little English girl.\(^\text{26}\) She lives in a small Suffolk village and enjoys folk dancing to celebrate May Day.\(^\text{27}\) Like the American Nicole, Sophie has an excellent chance of access to ICT. She will probably have Internet access at school. She is also far more likely to actually use the Internet than her American counterpart Nicole.

According to a recent European Union Commission report based on surveys carried out between February and May 2001, there is pupil Internet access in 93% of British schools and 90% of British primary schools.\(^\text{28}\) Sophie is also very likely to use the Internet: a NOP Family survey found that in August, 2001, 75% of British schoolchildren aged 7 to 16 used the Internet.\(^\text{29}\) The fact that Sophie is female makes little difference to her chances of using the Internet; in the six-month period between October 2000 and April 2002 almost equal numbers of British boys and girls between the ages of 7 and 16 used the Internet.\(^\text{30}\) Sophie is likely to find ICT access to help with her education: nine out of ten British children surveyed by NOP Family said that the Internet helped them to learn.\(^\text{31}\)

Although Sophie is less likely to have Internet access via a home computer, she still has a very good chance of this. For the period

\(^{25}\) Id. at 53.

\(^{26}\) Sophie is featured in Barnabas & Anabel Kindersley, *Children JUST Like Me: Celebrations* 24-5, a sequel to *Children Just Like Me*.

\(^{27}\) Id.


\(^{30}\) Id. See also NetValue France, *Les Adolescents en Europe* [hereinafter Les Adolescents en Europe] <http://www.netvalue.fr/fr/presse/index_frame.htm?fichier=cp0093.htm> (March 20, 2002) (reporting that 53.8 percent of British web surfers aged 13-19 were male and 46.2 were female).

\(^{31}\) Id.
between April and June 2002, 45% of United Kingdom households had Internet access from a home PC. However, if Sophie’s family income is low, she is considerably less likely to have home Internet access.

An Oftel consumer survey carried out in August, 2002, found higher Internet access rates for consumers in rural areas (53%) than urban areas (40%), most likely due to higher income or social class. The Oftel survey also found that household income had a significant effect on both computer ownership and Internet access. Low income households (with incomes up to £17,500) had computer ownership rates of 22% and home Internet access rates of 30%, as compared with computer ownership rates of 74% and home Internet access rates of 84% for high-income homes (with incomes over £30,000). Medium-income homes had computer ownership rates of 55% and Internet access rates of 69%.

It is unclear whether Sophie’s membership in a racial or ethnic minority group would affect her likelihood of having home Internet access. There is a dearth of statistical information on this issue. Surprisingly, the British government does not compile statistics on rates of Internet access for racial and ethnic groups, and I was unable to locate any other recent studies on this issue.

Despite these income inequalities in computer ownership and home Internet access, the British government has achieved high Internet penetration rates through the provision of Internet access in schools. As a result, the British government is now focusing less on expanding Internet access in more schools, but more on how ICT can best be used to further education, improve teaching, and foster more individualized learning. In December 2001 Prime Minister Tony Blair launched an £50 million initiative called Curriculum Online to increase classroom use of digital technologies. Curriculum Online is designed to provide accessible online curriculum materials for every


34. Id. at 8.

35. Id.


37. See United Kingdom Dep’t for Education & Skills, Curriculum Online <http://www.dfes.gov.uk/curriculumonline/> (last accessed Nov. 29, 2002).
subject taught in schools to 11-14 year olds. The government will partner with public and private broadcasters, such as the BBC and Granada, and software companies.

3. France: Rapidly Expanding Access to ICT

Until recently, Rachel Hubert, a nine-year old French girl featured in Children Just Like Me, was significantly less likely to use the Internet than either the British Sophie or the American Nicole. This is not just because Rachel dislikes her science and technology classes on the basis that they are too noisy. France was slow to adopt the Internet in comparison to either the United Kingdom or the United States, but is rapidly gaining ground. However, Rachel is still less likely to have Internet access in her school than either Sophie or Nicole. She is also more likely to have a much higher pupil/computer ratio than her British or American counterparts.

Many commentators attribute the French delay in adopting the Internet to the widespread use in France of the Minitel videotext system, which French people have been slow to abandon. French fears of American culture dominance may also have played a significant role.

Yet Internet access has been rapidly growing in France. In October 2002 33.9% of the French population accessed the Internet; this was a huge increase from 1998, when only 2% of the French population used the Internet. In the third trimester of 2002, 38.7% of French homes had a computer, and 24.5% had home Internet access.

38. See £50 million for online school resources, Guardian Online <http://www.guardian.co.uk/internetnews/story/0,7369,616455,00.html> (Dec. 10, 2001) (copy on file with author).
39. Id.
40. Kindersley, Children Just Like Me, supra note 4, at 32.
access. The number of homes with a computer had just about doubled since 1997, and the number of homes with Internet access had risen by more than 50% since 2000.

Although the Minitel was undoubtedly an initial barrier to Internet use in France, its popularity may well have helped Internet penetration spread quickly, due to what President Jacques Chirac has dubbed the French "keyboard culture." Falling PC prices have also helped, as have government efforts to increase Internet use. In June 2001, the French government announced the goal of nationwide access to high-speed Internet within 5 years, providing local communities with low interest loans to build these connections.

Rachel is now more likely than not to have Internet access at school. Overall, school Internet access is now quite high in France. The European Commission has reported that in 2001 slightly under 80% of French schoolchildren had Internet access at school. However, as a primary school pupil, Rachel is much less likely to have Internet access at school than Sophie across the English Channel. The percentage of primary schools in which pupils have access to the Internet in France was only 56% in 2001, as compared to 90% in the United Kingdom.

Rates of Internet access or connection are not the same as Internet usage rates. A study of French web surfers for the month of January, 2002, found that 1,584,000 surfers were between 13 and 19 years old. These adolescent surfers amounted to 14.5% of all French web surfers were between 13 and 19 years of age. This was a slightly lower percentage than for British web surfers (17.7%). But rates of Internet usage in France for the general population are relatively high. In September 2001, 73% of French people with Internet access actually used the Internet, a significantly higher rate

48. See European Commission Working Paper: European Youth, supra n. 48, at 8, 24 (reporting that pupils have Internet access in 78% of French schools at all levels).
49. Id. at 24.
50. Les Adolescents en Europe, supra note 30.
51. Id.
52. Id.
than in the United States (64%) or the United Kingdom (43%).

However, even if Rachel is accessing the Internet from school, it is also likely that she will have to share school computers connected to the Internet with significantly more pupils than her British counterpart Sophie: the European Commission reported in 2001 that the number of pupils per computer in French primary schools was 49, while the number in the United Kingdom was less than half that (at 23). In the United States, the number of elementary school students per instructional computer connected to the Internet in 2000 was 8.

Although Rachel will be more likely to access the Internet if she comes from a high-income family, it is unlikely to make much difference to Rachel's chances of accessing the Internet that she is female. In September 2001, 59.5% of French Internet users had high incomes. A Netvalue study for January 2002 found only a slight gender gap between female and male web surfers between the ages of 13 and 19: 47.3% of these were female and 52.7% were male. This is slightly more equal, but not significantly different from, the gender gap for similarly aged web surfers in Britain (46.2% female versus 53.8% male).

Some regions of France are more wired than others. If Rachel lives in Issy-Les-Molineux, a town just outside of Paris, she is very likely to have home Internet access. The Mayor of Issy, André Santini, is a staunch Internet fan, though a rather idiosyncratic politician; Santini authored a book entitled Ces Imbéciles Qui Nous Gouvernent ("These Imbeciles Who Govern Us"). Santini has been so successful at persuading technology companies to relocate in Issy that 60% of the city's businesses are now high-tech. The percentage of Issy households with home Internet access is more than 10% higher than French families generally. Even toddlers in Issy are


55. Internet Access in U.S. Public Schools, supra n. 14, at 5, Table 3.


57. Les Adolescents en Europe, supra note 30.

58. Id.


60. Id.

61. Id.
wired. The city has two “cyber-crèches” (cyber nursery schools), each with their own web page, specially designed computer keyboards for toddlers who are not yet able to read, and secure webcams so parents (and only parents) can monitor their children’s activities during the day.  

Although the high Internet penetration rate for French schools is not yet as high as for United Kingdom schools, most French pupils have Internet access. Therefore, like the British government, the French government’s focus for the Internet in education has shifted away from increasing access to ICT toward training, content creation, and using ICT more effectively to further teaching and learning.  

4. Australia: Significantly Reduced Access to ICT For Minority and Low-Income Children

*Children Like Me* includes a profile of a little Aboriginal girl living in Australia, who is called Rosita. Rosita is eight years old. She enjoys playing hide-and-seek and basketball with her friends Jessica and Carla. Although most Australian children have a reasonably good chance to access the Internet, as a member of a minority group who likely comes from a low-income household, Rosita’s chances are significantly reduced.

Australia has quite a high percentage of homes with Internet access or computers. As of September 2001, 67% of all Australian homes owned or leased a PC. In September 2001, 54% of Australians aged 2 and above had Internet access from a home PC. However, not all Australians who had Internet access actually used the Internet. Of the 72% of Australians aged 16 and above with Internet access from home or elsewhere, only 64% actually used the Internet in September 2001. This is a lower rate of “realization” than France (73%), but higher than the United Kingdom (43%).

The number of Australian schoolchildren in Rosita’s age bracket

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64. See Kindersley, supra n. 5 at 76-77.
65. Id.
66. Id.
68. Id. at 20.
69. Id. at 23.
70. Id.
who have accessed the Internet is reasonably high. A survey carried
out by the Australian Bureau of Statistics showed that 47 percent of
Australian schoolchildren aged 5-14 had accessed the Internet
between April 1999 and April 2000.\textsuperscript{71} If Rosita has accessed the
Internet, it is likely that, like her French, British, and American
contemporaries, she will have done so from school. Between 1999
and 2000, 31\% of Australian children aged 5-14 accessed the Internet
from school, 26\% from home, and 47\% from any access point.\textsuperscript{72} If
Rosita has access to the Internet from home, she is most likely to use
it for schoolwork or other educational activities.\textsuperscript{73}

Similarly to the United States, it makes little difference to
Rosita's chances of accessing the Internet that she is female.\textsuperscript{74}
However, as an Aboriginal Australian, she is likely to be from a low-
income household, and thus less likely to use ICT than other
Australian children. The 1996 Australian Census reported that
Aboriginal Australians had on average lower incomes and higher
unemployment rates than other Australians.\textsuperscript{75}

There is a significant income gap for Internet access in Australia:
in November of 2000, only 21\% of households with incomes below
A$50,000 had home computers with Internet access, as compared to
57\% of households with incomes of at least A$50,000.\textsuperscript{76} Children with
two employed parents were also more likely to access the Internet
than other children.\textsuperscript{77}

\begin{enumerate}
\item \textsuperscript{71} Australian National Office for the Information Economy, \textit{Current State of Play -
June 2001} 19 (hereinafter NOIE Current State of Play (2001))
\item \textsuperscript{72} \textit{Id.} at 21.
\item \textsuperscript{73} \textit{Id.} (showing that 83\% of Australian 5-14 year old children accessed the Internet
at home for educational purposes, while 51\% did so to use e-mail, 50\% for leisure surfing,
and 40\% to play games).
\item \textsuperscript{74} \textit{See id.} at 19 (showing that the percentages of Australian children 5-14 accessing
the Internet varied little as to gender: 47\% of boys and 46\% of girls).
\item \textsuperscript{75} \textit{See Australian Bureau of Statistics, 4704.0, \textit{The Health and Welfare of Australia's
Aboriginal and Torres Strait Islander Peoples} \texttt{<http://www.abs.gov.au/>} (click on
publications) (Aug. 30, 2001) (reporting that the unemployment rate for Aboriginais in
1996 was 22.7\% as compared to 9.2\% for the geneal population of Australia); Australian
Bureau of Statistics, 2034.0, Census of Population and Housing: Aboriginal and Torres
Strait Islander People \texttt{<http://www.abs.gov.au/>} (click on publications) (Sept. 24, 1998)
(reporting, based on 1996 data, that median weekly income was lower for for Aboriginal
peoples across Australia than for the general Australian population; Aboriginal median
weekly income ranged from A$185 lower in the Northern Territories to A$32 lower in
Tasmania).
\item \textsuperscript{76} NOIE Current State of Play (2001), \textit{supra} n. 71, at 18.
\item \textsuperscript{77} \textit{See id.} at 20 (53\% of Australian children with two employed parents had accessed
the Internet from April 1999-April 2000, whereas less than 40\% of children of one or two


Australia’s internal digital divide tracks the other three OECD countries discussed above. Although all four countries have generally high rates of access to ICT, there is evidence that each has its own internal digital divide, with lower rates of access for those with low-income and/or belonging to ethnic or racial minorities. The remaining two countries, Mongolia and Tanzania, both lesser developed countries, have significantly lower general rates of access to ICT.

5. Mongolia: Significant Social Problems and Little Likelihood of Internet Access in Schools or Elsewhere

Erdene is a ten-year old Mongolian boy whose name means “something precious.” Mongolia, which threw off the Communist system in 1990, has a very small (2.4 million) and traditionally nomadic population. This population is spread over a vast land area, three times the size of France, with an extremely harsh winter climate. Like 50% of the Mongolian population, Erdene’s family is involved in the traditional Mongolian occupation of livestock herding, but unlike many other Mongolians, Erdene’s family is no longer nomadic. Erdene spends the week in a house in a village. At the weekend, he goes to a remote area where he lives in a traditional Mongolian ger (tent). Although Erdene is one of the rare Mongolian children to live in household with a television, he is very unlikely to have home Internet access or indeed access to ICT.

The country’s small and dispersed population, combined with an

78. See Kindersley, supra n. 5 at 50-51.
82. Kindersley, supra n. 5, at 50.
83. Id. at 50.
84. See id.
inadequate telecommunications infrastructure, poses a significant barrier for increasing access to the Internet.\footnote{85} Only a tiny fraction of Mongolia’s population has access to ICT when compared to the United States, France, the United Kingdom or Australia. As of 2001, only about 40,000 Mongolians (approximately 1.56% of the population) had Internet access.\footnote{86} Only about 35,000 Mongolians have PCs.\footnote{87}

The country’s antiquated and unreliable telephone infrastructure, not to mention the problem of erratic electrical power, makes it likely that if Erdene does manage to connect to the Internet, he will do so away from home. If he moved to the capital city, Ulanbaatar, he would have plenty of opportunity to connect to the Internet at a cyber café. One recent visitor estimated there to be more cyber cafes in Ulanbaatar than in Paris.\footnote{88} However, Erdene lives in a rural area, so his options are much more limited.

In rural Mongolia, Erdene might access the Internet through one of the public access walk-in centers that have been set up in Mongolia with the help of the Soros Foundation’s Open Society Institute, the United Nations Development Program, the Canadian public corporation International Development Research Centre (IDRC), the National Science Foundation, and DataCom Co., Ltd.\footnote{90} By 2000, there were six of these Citizens Information Centers in Mongolia.\footnote{90} Where these exist, they are often situated in regional libraries.

\footnote{85}{See Milner, supra n. 78; see also Interview by Oyunsaihan Dendevnorov with Ayzbai Nurjaimal, Teacher, Kazakh Primary School, Bayan-Ulgii, Mongolia <http://www.unicef.org/teachers/forum/0900.htm> (Sept. 2000) (copy on file with author) describing “poorly developed communication networks and limited access to information” in her remote Mongolian province).}


\footnote{87}{Id.}

\footnote{88}{Joe Buchman, Mongolia, Multimedia Memories, and Me, Technos Quarterly (Winter, 2001) <http://www.technos.net/tq_10/TQ_10_4_mongolia.htm>.


Patrons can surf the Internet, send e-mail, and obtain instruction on building web pages. These walk-in centers have been especially popular among younger Mongolians.

Work is being done to expand the numbers of these Community Information Centers as well as to increase Internet connectivity to schools. The Soros Foundation's Mongolian Foundation for Open Society ("MFOS") has an "Internet for Schools" program that, by June of 2002, had connected 35 schools in Ulanbaatar to the Internet, as well as 18 schools in rural Mongolia.  However, these rural schools are in provincial centers; there are almost no schools attached to the Internet at the soum or county level. Mr. Nyamkuu, MFOS Coordinator for the Internet/I*EARN programs, commented in June 2002 that the "ICT situation in rural Mongolia is still very weak." There is a great need for better Internet access in rural areas, as well as for more Mongolian language Web materials.

As well as low levels of Internet access, Mongolia has serious social problems for children. The transition from communism to a market economy has been very difficult for many Mongolians. Poverty and increased income inequality are grave problems for Mongolia. In 2000, about 1/5 of the population was unemployed and 36% were below the poverty line. Per capita gross national income is only $400. By the spring of 2002, Mongolia had suffered three unusually severe winters in a row; nomadic herdsmen have been forced into cities, where they have great difficulty finding employment and are straining the social services to the breaking point. A large number of homeless children live on the streets of

91. E-mail from Mr. Nyamkuu, Coordinator, Mongolian Foundation for Open Society Internet and I*EARN Program, Ulaanbaatar, Mongolia, (June 6, 2002) (copy on file with author).
92. Id.
93. Id.
96. Id. at 24.
97. Id. at 26.
99. Int'l Fed. Red Cross Relief Web, Mongolia In Throes of Third Successive Winter Disaster <http://www.reliefweb.int/w/rwb.nsf/6686f45896f15d9dc852567ae00530132/3ff10b5aa4d5a12>
Ulanbaatar. The U.S. Department of State reported in 2000 that child abuse, often by alcoholic parents, is a concern.

Mongolian children like Erdene may lack access not just to ICT but also to basic education. Although Mongolia developed a high quality educational system during the Communist period, and education through age 16 is free, the educational system has suffered since 1990. The amount of government financial support for education has fallen since the Communist period. Primary school attendance rates have fallen from 103% to 86% in 1998. Children of herders, such as Erdene, are at particular risk for dropping out of school, due to the financial need to help support their families by working. Other children of poor families drop out of school due to a lack of basic supplies, such as books or shoes, and even food. Many children from herding families also are hampered by the reduced numbers of boarding facilities, traditionally common for herding children in Mongolia. Many Mongolian schools suffer from poor facilities, such as dilapidated buildings and malfunctioning heating. There is a clear geographical educational divide in Mongolia: urban children in the larger cities generally have better educational opportunities than rural children. Adult literacy is suffering.

As Mongolia confronts the serious development problems described above, it also clearly lags far behind the four OECD countries profiled above in providing Internet access to its children generally. Although there are a number of ongoing efforts to improve ICT access, Mongolia clearly has much ground to cover if it is to bridge the digital divide with the developed world. The final country of the six, Tanzania, is also lagging far behind in providing its children with access to ICT.
6. Tanzania: Significant Development Concerns; Little Likelihood of Access to ICT in Schools or Elsewhere

Esta, aged 12, lives in Tanzania.111 She belongs to the Masai people, one of more than 120 ethnic groups in Tanzania. The Masai are traditionally nomads, who herd cattle.112 Esta enjoys playing and sharing things with her best friend Manka.113 Esta speaks Masai at home and studies Swahili at school.114 Esta is not at all likely to have access to ICT at school, or anywhere else. As will be detailed below, Esta is the least of all the children profiled in this article to have access to ICT. However, in attending school at all, Esta is much more fortunate than many Tanzanian children.

Although seven years of primary education is compulsory in Tanzania, in 1999-2000, only 46.7% percent of eligible primary school-aged children were enrolled in school.115

Beyond lack of educational opportunities, Tanzania has many other serious development problems that adversely affect the lives of many of its children. Tanzania is one of the poorest countries in the world; the per capita gross national income is only $280 per year.116 40% of the population lives below the poverty line.117 Esta is probably among them; she must make her own toys by forming dolls out of the local clay soil or building a ball by wrapping grass around a wild tomato.118 Like most Tanzanians, Esta’s family depends on agriculture for their livelihood; Esta’s father tends a small number of cows, goats, sheep and donkeys.119 Esta is fortunate to live with both her parents; an estimated 15% of the adult population of Tanzania is HIV positive120 and over 800,000 children are estimated to be

111. Kindersley, supra n. 5, at 42.
112. Id.
113. Id. at 43.
114. Id.
118. Kindersley, supra n. 5, at 42.
119. Id.
orphaned as a result of AIDS. 121

Esta is not statistically likely to use the Internet, since there are only 300,000 Tanzanian Internet users. 122 This is only about .83 of the Tanzanian population. 123 Nor is Esha likely to have Internet access at home. She may not even have a telephone: Tanzania's telephone infrastructure is very limited: 6 phone lines per 10,000 people and 81 mobile per 10,000 people across the country.

Esta is also very unlikely to have Internet access at school. Very few Tanzanian schools have computer labs at all, let alone with access to the Internet. 124 There is an official Tanzanian Secondary School Computer Studies Syllabus but very few Tanzanian students use it, due to the lack of computer facilities in the schools as well as a shortage of qualified teachers. 125

If Esta accesses the Web at all, she is most likely to do so from an Internet café, since that is how the majority of Tanzanians access the Web. 126 Internet cafes are very popular in Tanzania, and have been mushrooming in popularity over the past two years. 127 Most Tanzanian Internet cafes use wireless broadband technology to overcome the problems of an inadequate fixed telephone lines. 128 The popularity of these Internet cafes may be due to the relatively low cost charged for Internet access: this may be as low as $.30 for 30 minutes. 129 Service is generally reliable and fast. 130 The BBC reported that, as of November 2002, there are estimated to be hundreds of cyber cafes in Dar es Salaam. 131

122. ITU World Information Technology 2002, supra n. 86, at 1.
123. Id.
125. Id.
126. Id. at 19.
128. Id.
129. Id.
130. Id.
131. Id.
Although some Internet cafes as springing up in other parts of the country, such as Arusha, Dodoma, Morogoro, Moshi, Mtwara and Tanga, most cafes are still located in Dar es Salaam.132 Thus Esha, who lives in the country, is unlikely to use an Internet cafe. She also does not fit the profile of the average user: 16-24 and unemployed.133

Even if, as is unlikely, Esta could access the Internet, there is not much local content in KiSwahili. There is a clear need for more relevant Tanzanian websites, especially in KiSwahili.134 This is similar to the dearth of Mongolian language websites available to Mongolians. Like Mongolia, Tanzania has very low rates of ICT access in comparison to the OECD countries discussed above. Also like Mongolia, Tanzania has severe development problems.

II. Eradicating the Development Divide: A Moral Imperative

The above survey of children’s access to ICT in six countries across the globe indicates a connection between the digital divide and the general global development divide. Unless the general development divide can be bridged, the future for a growing number of the world's children will be one of poverty, inequality, and disenfranchisement. Most of the world’s population already lives in developing countries like Mongolia and Tanzania: such places are home to approximately 5 billion out of just over 6.2 billion people.135 The world’s population is likely to expand by around 2 billion over the next 25 years and another 1.3 billion by 2050.136 Most of this increased population will be born in developing countries, which means that all too many people will be born into poverty, hunger, and inequality.137

Although over the past 40 years some regions of the world, notably East Asia and the Pacific, have closed their relative income gap with wealthy and developed OECD countries (increasing average per capital income from 1/10 to 1/5 of that in OECD countries between 1960 and 1998), the relative income gap has not improved

133. Id. at 19.
134. Id.
137. See id. at 10.
over this time for South Asia, Latin America, and the Caribbean. This relative income gap has widened substantially for sub-Saharan Africa where the average per capita income has fallen from about 1/9 to only 1/18 of that in OECD countries.

Moreover, there is a growing absolute income gulf between the OECD countries and the rest of the world. The World Bank has estimated that in 1998 about a quarter of the developing world’s population, totaling around 1.2 billion people, was currently struggling to survive on less than one U.S. dollar per day. The distribution of income worldwide is also highly unequal. A 1999 study by World Bank economist Branko Milanovic, based on household surveys between 1998 and 1993, reported that the income of the richest 1% of the global population was as much as that of the poorest 57%. Milanovic also found that the richest 25% receive a 75% share of the world’s income, and vice versa.

Income inequality is not a problem only for those within developing countries. When income inequality is measured within countries rather than between countries, many countries in the world, including developed OECD countries like the United States, have experienced growing income inequality since the 1980s.


139. Id. at 16-17, Figure 1.6 (pointing out that even the relatively wealthy regions of East Asia and the Pacific experienced an increased absolute income gap that rose from $6,000 in 1960 to more than $13,000 in 1998).


142. Id. at 52.

Beyond income inequality, the development gap is also manifested through the large number of people around the world lacking adequate nutrition, sanitation, and education. 826 million people in developing countries are malnourished.\(^\text{145}\) Although the number of malnourished children under the age of five in developing countries has fallen during the 1990s from 177 million to 149 million, the number of malnourished children in this age cohort has risen over this period in Saharan Africa.\(^\text{146}\) Many lack access to clean drinking water and other basic sanitation: 2.4 billion people in developing countries people do not have access to basic sanitation and 968 million do not have access to safe water sources.\(^\text{147}\)

Many children also lack educational opportunities. Over 100 million children of primary school-aged children do not attend school.\(^\text{148}\) As a growing percentage of children are born into developing nations, the number of children without the opportunity for formal education will likely rise, unless something can be done to prevent it. Many other children will be born into countries where citizens lack political participation and/or countries ravaged by civil war or other political strife. Although the latest United Nations Human Development Report for 2002 noted growth in democratic governments, it counted only 47 fully democratic countries and reported that reported that “[t]he spread of democratization appears to have stalled, with many countries failing to consolidate and deepen the first steps toward democracy.”\(^\text{149}\)

This development gap is of particular concern because of the link between development and the essential protection of human dignity and freedom. As Pope John Paul II stated on the occasion of President Bush’s visit on July 23, 2001: “Respect for human dignity and belief in the equal dignity of all the members of the human family demand policies aimed at enabling all peoples to have access to the means required to improve their lives, including the technological means and skills needed for development.”\(^\text{150}\)


\(^{147}\) Human Development Report 2001, supra n. 138, at 9, Table 1.1.


\(^{150}\) See John Paul II, Address to the President of the United States, H.E. George Walker Bush ¶ 3 (July 23, 2002) (transcript available at
The fundamental principle of the centrality of human dignity and its essential relationship to human rights forms the cornerstone of the Universal Declaration of Human Rights. Article 1 of the Universal Declaration of Human Rights states: “All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.” The preamble to the Universal Declaration also emphasizes human dignity, stating: “[w]hereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world.”

The authors of the 2001 United Nations Report on Human Development have very eloquently described this close connection between human dignity, human rights and human development:

[H]uman development shares a common vision with human rights. The goal is human freedom... People must be free to exercise their choices and to participate in decision-making that affects their lives. Human development and human rights are mutually reinforcing, helping to secure the well-being and dignity of all people, building self-respect and the respect of others.

To ensure human dignity and give due respect to human rights, overcoming the global development divide must be a moral imperative.

III. Increased Access to ICT: A Weapon To Eradicate the Development Divide?

I have argued above that to protect the dignity and freedom of every human being, we need to eradicate the development divide. But how? Is increasing access to ICT a weapon that can be used to combat this development divide? Commentators differ significantly on this question.

International development organizations are generally strong

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152. Id. at art. 1.
153. Id. at preamble.
advocates of increasing access to ICT as a weapon to assist less developed countries in overcoming the development divide. Organizations such as the World Bank and the United Nations take the view that unless the digital divide is closed, less developed countries will fall further and further behind industrialized countries in general development. The Administrator of the United Nations Development Programme, Mark Malloch Brown, has expressed this view, warning a group of G-8 leaders at a 2000 meeting in Japan that “If we fail to act now, the Information Gap risks being widened into an uncrossable gulf that increases global inequality and leaves the poor further behind.”

Other commentators such as Professor Tim Yu contend, while not disagreeing with Malloch Brown’s altruistic approach, that it is also in the interests of the developed world to close the digital divide. Yu contends that greater Internet access in the less developed world will lead to increased network effects, making each Internet connection more valuable. He also argues that increasing the flow of information from the less developed world will assist businesses in the developed world to make better decisions about their global activities. Moreover, closing the digital divide will foster the spread of democratic ideals and values, such as the rule of law, while helping to undermine repressive and tyrannical regimes. Yu also contends that closing the global digital divide can help to prevent the sort of extremist violence and terrorism that gave rise to the September 11th attacks.

But the approach to the digital divide advocated by Yu and Malloch Brown has many detractors. For example, Michael Powell, the Chairman of the Federal Communications Commission, famously downplayed the significance of the digital divide in his first press conference, commenting that the digital divide was like a “Mercedes divide”. Powell stated: “I think there is a Mercedes divide. I would

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157. Id. at 23.
158. Id. at 23-4.
159. Id. at 24-5.
160. Id. at 28.
like to have one, but I can’t afford one.” Powell’s comment subjected him to widespread criticism, but he does not stand alone in questioning the importance of the digital divide.

Microsoft Chairman Bill Gates has used a similar metaphor to Powell’s to make a similar point about the digital divide: at a Seattle conference on the digital divide in 2000, Gates noted that “most of the world doesn’t have cars, but we don’t talk about the auto divide.” Despite being the founder of a prominent technology company, Gates has challenged the idea that increased ICT can reduce the great disparity in health care and literacy across the world. At the same Seattle conference, Gates stated: “Do people have a clear view of what it means to live on $1 a day? . . . There are things those people need at that level other than technology. . . . About 99 percent of the benefits of having (a PC) come when you’ve provided reasonable health and literacy to the person who’s going to sit down and use it.” Gates added: Gates continued, “People with elephantiasis aren’t going to be using their PCs. I’m suggesting that if someone’s interested in equity, you wouldn’t spend more than 20 percent of your time talking about computers. It’s almost criminal more money isn’t spent on curing malaria, which kills 1 million children a year.”

Other technologists share this view. Steven Jobs, co-founder of Apple Computer, has stated of the digital divide: “That’s just a new sticker we use to cover up a more important word: poverty. . . . I don’t think we should worry about the digital divide nearly as much as we should worry about poverty. It’s all over the planet. . . . We invent terms like digital divide to distract us from the real problem that must be solved in the world, and that’s poverty.”

Journalist Todd Oppenheimer agrees with Gates’ and Jobs’ concern about ICT as the wrong priority. In an award-winning


164. World’s Widest Divide is Hardly Digital, Seattle Times, Oct. 21, 2000, at A15 (“But the more important divide, as Microsoft chairman Bill Gates continues to argue, is between their water, food, schools and health.”)

165. Richman, supra n. 163.

166. Id.

article written in 1997 for The Atlantic Monthly and entitled "The Computer Delusion", Oppenheimer criticized the Clinton Administration's "overheated campaign" for computers in every classroom, arguing that this was the wrong priority "at the expense of impoverished fundamentals: teaching solid skills in reading, thinking, listening, and talking; organizing inventive field trips and other rich hands-on experiences; and, of course, building up the nation's core of knowledgeable, inspiring teachers."\textsuperscript{168}

Other critics are just as dismissive of the significance of the digital divide as Gates, and Oppenheimer, not because they agree with these commentators that the digital divide should be a lower priority than other development issues, but because they believe that the market is naturally working to overcome the problem. For example, Dean Henry Perritt of Chicago-Kent College of Law has argued that the problem of the digital divide is "often overblown".\textsuperscript{169} Perritt notes that the relatively low cost of Internet technologies, as compared with predecessor technologies, strongly reduce barriers to entry to e-commerce.\textsuperscript{170} Another proponent of a market solution, Adam Thierer, a researcher at the Heritage Foundation, has written that "The problem of access to the Internet, however, has been greatly overstated; regrettably, it is being used by some in Washington to support Big Government solutions to "problems" already being solved at a rapid pace by competition and choice in the free market."\textsuperscript{171}

This debate over the digital divide has a "chicken or egg" quality. There is currently no consensus as to whether increased access to ICT will generate increased development in other areas, such as better healthcare and greater access to food and clean water, or whether increased development in these areas will generate increased access to ICT. The existence of the ICT access gaps indicated by this paper's comparative analysis of six countries—both between highly industrialized countries and lesser developed countries, as well as within developed countries—does not by itself prove that closing this digital divide will be an effective tool in

\textsuperscript{170} Id. at 565-6.
\textsuperscript{171} Adam Thierer, A "Digital Divide" or a Deluge of Opportunity?, Heritage Foundation Executive Memorandum #646 <http://www.heritage.org/Research/InternetandTechnology/EM646.cfm> (February 1, 2000) (copy on file with author).
overcoming the development divide.

IV. Conclusion

Another chicken and egg aspect to the debate over the relationship between access to ICT and the development divide is that it is probably not possible to fully resolve this debate without taking some action to increase access to ICT or increase general development and then attempt to measure the effect of that action on the development gap or the digital divide. But to take this kind of action is like taking shots in the dark—risky and with no clear benefit.

At first glance, it may seem that this conundrum leaves policymakers in an unenviable position. While the study of six countries set out above has provided evidence of a link between a digital divide in children’s access to ICT and the global development divide, it is not clear whether closing the ICT access gap will really help to bridge the global development divide, or whether there are serious dangers in focusing on the digital divide if its result is to hinder development in areas such as healthcare, adequate food, and clean water. But this is not really the total impasse that it may seem.

Even if the debate over the causal relationship between improving access to ICT and improving development is not presently resolved, policymakers can learn an important lesson from the debate as well as from the existence of the digital divide. Unless and until it can be clearly established that the mere provision of access to ICT will amount to a useful tool in promoting general development, it should never be a sufficient policy goal simply to improve the numbers of children who have access to computers or the Internet. Rather, the goal in providing children with any ICT should be to ensure that these technologies are affordable technologies that children can use for some useful purpose in their lives. If children cannot effectively use the computers or other technology that are provided to them in their schools or elsewhere, whether due to a lack of qualified teachers, excessively high pupil-computer ratios, or sufficient curricular materials that are written in the child’s language or that are relevant to the child’s community, it is difficult to see how ICT can possibly assist in overcoming other development problems.