e-bibliography on digital exclusion

Bernardo Sorj[*]

Julie Remold

DIGITAL DIVIDE WEB SITES

==========

ACACIA (part of the International Development Research Center)
http://network.idrc.ca/ev.php

Aims to "demonstrate how ICTs can enable communities to solve their development problems in ways that build firmly on local goals, cultures, strengths, and processes; build a body of knowledge capable of identifying the policies, technologies, approaches, and methodologies instrumental in promoting the affordable and effective use of ICTs by marginalized communities, such as women."

They work in Africa and have some community development. Their projects are detailed on the site and they do studies on the outcomes.

AOL TIME WARNER FOUNDATION
http://www.aoltimewarnerfoundation.org/whatwedo/whatwedo.html

They fund Power Up (below) and have created a directory of free internet access centers across the US. They started the Digital Divide network. The only new idea I saw here was their support of a venture capital fair for minority-led companies.# called Southeast i-DealFlow. The idea was to bring minority led businesses in contact with venture capital. They don't say explicitly that they are working with technology focused VC firms.

[*] Professor of Sociology, Federal University of Rio de Janeiro and Director of the Edelstein Center for Social Research

BANCO FEDERATIVO (page on e-government)

http://federativo.bndes.gov.br/destaques/egov/egov_estudos.htm

Mostly links to e-government articles including a lot of links to information on the Brazilian and comparable cases. Some examples in the individual article section below.

Includes the following report:

http://www.federativo.bndes.gov.br/bf_bancos/estudos/e0001861.pdf called *Benchmarking E-government: A Global Perspective* which outlines several stages of e-government development. They say that e-government can "facilitate information access for enhanced citizen participation". They create an E-gov index for measuring where a country stands in e-government development and say that the placements on the index correlate with economic conditions and claim there is a significant digital divide in this area. They identify a lack of coordination in e-govt. development and suggest that increased web access does not always lead to increased use of e-govt. tools. They also say that some developing countried have focused on govt. to business communications instead of direct citizen programs to implement e-government programs at lower cost.

BELLANET

http://home.bellanet.org

"Bellanet helps the international community to work together more effectively, especially using information and communication technologies (ICTs)." They provide access and training, technical assistance for online "dialogs" by which they mean collaborations that allow groups to work together online. They promote open source development and implementation, knowledge management assistance for development organizations. Funded by various development organizations based in Europe.

They offer some open source downloads and even develop some software for their own goals. For them open development is "the pursuit of collaborative approaches to software, content and information standards that supports sustainable, free and fair

---

(besorj@attglobal.net).

sharing of information and knowledge for development.". They even develop some open source collaborative software.
BENTON FOUNDATION
http://www.benton.org

A lot of the non-governmental digital divide money out there seems to be coming from there. They are interested in demonstrating the value of communications for solving social problems. Seek to decentralize content production, equip non-profits with technology, and increase access, especially in the political arena.

Funders: AOL/Time Warner Foundation, Arca Foundation, The Aspen Institute, AT&T Foundation, Carnegie Corporation of New York, The Case Foundation, The Casey Family Program, Annie E. Casey Foundation, The Ford Foundation, Bill and Melinda Gates Foundation, WT Grant Foundation, Haas Charitable Trust, Intel Foundation, The James Irvine Foundation, Jacobs Foundation, The Robert Wood Johnson Foundation, W. Alton Jones Foundation, The Joyce Foundation, W.K. Kellogg Foundation, John S. and James L. Knight Foundation, Albert A. List Foundation, Lucent Technologies Foundation, John D. and Catherine T. MacArthur Foundation, The John & Mary Markle Foundation, Microsoft Corporation, Morino Foundation, Charles Stewart Mott Foundation, National Education Association, National Endowment for the Arts, NEC Foundation of America, North Shore Unitarian Universalist Society/Veatch Program, Open Society Institute, The David and Lucile Packard Foundation, The Pew Charitable Trusts, The Philadelphia Foundation, PowerUP, The Rockefeller Foundation and Rockefeller Brothers Fund, Inc., Russell Sage Foundation, StreamingMedia.com, Surdna Foundation, The Tides Foundation, Town Creek Foundation, Bernard van Leer Foundation.

They do not accept unsolicited grant applications except in one area http://www.soundpartners.org This program funds efforts to use local media to improve health. Note that the use of technology to improve health education and treatment is pretty widespread in the newest digital divide literature.

BRIDGES.ORG
http://www.bridges.org/index.html

An international non-profit aiming to help developing countries use ICT. Defines the digital divide as the difference between those with "real access" and capacity for effective use and those who do not. Real access includes: physical access, appropriate technology, affordability (of internet access), capacity (they mean training), relevant content, integration, socio-cultural factors (such as sex and race discrimination), trust, economic environment, political environment, and regulation. Most of their suggestions are for market development and government regulations in support of competitive markets. They believe that without these initiatives IT worsens inequality but that it is possible for IT to be an equalizer. I am not familiar with any of the listed sponsors.

THE CATO INSTITUTE
http://www.cato.org/tech/univservice.html

Right wing American think tank.. They argue that computers and the internet are not different from other technologies and should be budgeted as such without government subsidies, particularly
Still working on this one. Changed substantially since I read it a few years ago.
O Plano Estadual de Informática na Educação was a project that just selested technology before, now seems to be doing things differently, setting guidelines for schools.
earmarked ones that have to be used for technology regardless of local needs. They argue that both American parties favor technology subsidies and see this as problematic, a waste of public money.

They mention the e-rate tax program. The one supported by Gore and often called the Gore tax, it has been around since early in Clinton´s administration and funnels phone

bill taxes to internet connections in schools, an article on this tax is below). According to the CATO institute Bush has come out in support of this as well indicating support by both parties.

CENSO ESCOLAR

http://www.inep.gov.br/censo

Asks schools for the number of computers available into the questionnaire. Did not publish anything regarding technology in the reporting. The information exists but was not published. Do you think I can get this by request?

CEPAL (Comissão Econômica para a América Latina e o Caribe)

http://www.eclac.cl/

Few but good studies on the economic dimensions of e-development in Latin America.

THE CHILDRENS PARTNERSHIP

http://www.childrenspartnership.org/pub/low_income/index.html

This site is a review or audit of online material for low income and underserved Americans. They are concerned with evaluating the current state of the content divide. They propose more local content, more online content for limited literacy adults (multimedia), more culturally diverse content, and more content in languages other then English. They note that local job listings and local housing information, and are particularly hard to find for underserved adults. They also claim that content appropriate for underserved populations can be financially sustainable and that a good number of underserved Americans already have access.

Note that the research was done in 1999 but certainly some of it remains interesting.

COMMUNITY TECHNOLOGY CENTERS NETWORK

http://www.ctcnet.org/

A group consisting of over 1000 access centers throughout the US. They have posted a report on computer and communications use in low income areas (US only)http://www.ctcnet.org/casey/ The report pretty much outlines the characteristics of a good training center and there are no surprises. They do their research through ase study and give interesting information such as annual budget and numbers served. The cost effectiveness of the programs varies a lot and the types of programs vary as well (from ownership programs to community center access). They don't give enough information to calculate precisely but it might be possible to figure out he relative cost of access and ownership programs by asking these people for their original data.

COMPUTERS FOR AFRICA

http://www.computers4africa.org/

Another non profit that does refurbishing of old hardware. This group does not deal with clients directly. Instead it ships to non-profit organizations throughout Africa. They specifically work with technology that gets discarded in the US and ship computer labs to member organizations that are easier to maintain (identical equipment for all machines). They do not accept obsolete computers and hold minimum standards of Pentiums with pretty reasonable memory minimums.. They ship 10 computer labs complete with operating system and office suite software. They use Star Office (now called OpenOffice), an open source free equivalent of MS Office (I have this and can show this to you) and either Windows or Linux OS. Based on their minimum hardware requirements, I'd estimate that the computers in the labs they ship are slightly better than the PPGSA computer labs best computer. They would actually be useful for getting things done and not unreasonably slow.

Interested non-profits have to describe the community they serve and make some investments in electricity, stabilizers, instructors to get the equipment.

CISCO SYSTEMS, DIGITAL DIVIDE SITE

http://cisco.netacad.net/public/digital_divide/index.html

Through the Cisco Networking academies, students are offered chances to learn networking skills. In some countries these technical courses can be used in place of high school education, i.e. Offered for high school credit during school time. In places like Brazil with centralized curriculum this may not be possible. Some but not all of the materials, certificates, and equipment are donated, Cisco does charge for curriculum materials and other material in most cases, the courses are actually administered at local expense by local groups suh as schools and non-profits under supervision by Cisco staff.

DIGITAL DIVIDE NETWORK

http://www.digitaldividenetwork.org/content/sections/index.cfm

Defines Digital Divide as the gap between those who can effectively use technologies and those who cannot. This definition allows inclusion of literacy, content etc. but is a little on the broad side. They do not identify aspects of the problem that they see as more important than others. Digital Divide subdivided as: access, literacy and learning, content, and economic development.

Partners include: AOL Time Warner, Albert A. List Foundation, Annie E. Casey Foundation, AT&T, Bill & Melinda Gates Foundation, The Case Foundation, PowerUp, Ford Foundation, Intel Corporation, W.K. Kellogg Foundation, Lucent Technologies, Inc., The Markle Foundation, The SBC Foundation, Streamingmedia.com

Focus on IT for grassroots organizing. Suggests public, private, and public/private partnerships to increase access not necessarily in homes. They say IT is important for democracy, not just because of exchange of ideas but also because it offers choices for

the poor (no explanation for what these choices are). Promotes examples from expensive UN pilot programs that cannot be duplicated on a large scale.

http://www.digitaldividenetwork.org/content/webresources/index.cfm is a page with links of funding agencies that contribute to digital divide projects.

http://www.digitaldividenetwork.org/content/stories/index.cfm?key=199 is an article on using IT for peace in addition to development (finally some unique content!) The article criticizes the UN for separating development and peace building efforts and give the example of the DOT force (see below) "G8 states and the commercial partners shrank from linking development and peace, a nexus taken as a given by all. Further, whether by design or oversight, no organization with interest or experience in the field of peace was invited to join the DOT Force" The author argues that technology has a role to play in peace but only gives one example program and does not very clearly articulate the importance of technology.

DIGITAL DIVIDE .ORG
http://www.digitaldivide.org/

This site, funded by proposes that the only way to recuperate the world economy is through increased access to the internet. They propose that the solution to the weak worldwide economy is to encourage technology investors to serve the developing world. These people are from the Digital Nations group from MIT and Harvard (see below) and they have formed this separate group to try to get their ideas implemented by non-profits and international development agencies. They think the problem can be solved through financial tools and that there is little controversy about how the divide should be resolved. They think the only problem so far is money.

DIGITAL NATIONS
http://dn.media.mit.edu

From the MIT Media lab. Note their history, they opened in the late 70's or early 80's under a big grant from video game companies. Their objective was to show that computer games could be educational in an age when video games were viewed as bad for children. Digital Nations is a joint project of the Media Lab and the Center for International Development at Harvard.

The Digital Nations report http://dn.media.mit.edu/dn-eng.pdf claims that digital technology has not achieved it's promise in the areas of community development, health, education, and poverty. They describe technology as something that allows people to be more creative (how?) in finding solutions and claim that their group aims to develop technologies that help people creatively come up with their own solutions. They work particularly on pilot programs in the most underserved areas.

DIGITAL OPPORTUNITY NETWORK
http://www.digitalopportunity.org

Joint partnership of Digital Divide Network and OneWorld both funded by Benton Foundation. Andy Carvin is one of 2 editors, he wrote one of the academic papers I have. Mostly just links to articles. Not the best link collection but not bad.

Supports open source software for dealing with digital divide problems.

DOT FORCE
http://www.dotforce.org

This is the G8's digital divide group created at the Kyushu-Okinawa Summit in 2000. Their final repot (http://www.dotforce.org/reports/DOT_Force_Report_V_5.0h.html) is so full of jargon it is hard to make sense of.

The report supports policy that supports infrastructure growth, lowering connectivity costs, training, e-commerce. The report almost goes as far as to say that e-commerce will alleviate poverty. They prioritize infrastructure as the next step. They claim "The members of the DOT Force are convinced that the basic right of access to knowledge and information is a prerequisite for modern human development" and imply that IT is a critical part of this right.

The action plan includes the usual (connectivity, training, local content, etc) plus supporting and creating eStrategies for developing countries. Also, they are interested in using IT for health care. This seems to be an increasingly popular idea. They are specifically interested in AIDS related public information and health care worker information.

THE ECONOMIST SURVEY: THE INTERNET SOCIETY

A collection of the following recent articles. I have saved full text in case they are taken off line but they are online now.

Digital Dilemmas, Feb 16 2003

http://www.economist.com/displaystory.cfm?story_id=1534303

About early claims that the Internet would bring around rapid social change and put people in contact with one another. Discusses how these early ideas about the internet revolution have not really come true, the same power structures have reproduced themselves in the new media Lawrence Lessig, a Stanford professor who is also a leading commentator on the internet, is almost equally apocalyptic: "The existing dinosaurs are succeeding in stifling the creativity inherent in this new medium".

The article goes on to give an overview about predicted technological advances and how they will certainly have an impact on all parts of our lives, examples focus on ubiquitous technologies rather than computers *per se*.

Power to the People, A pervasive web will increase demands for direct democracy, Jan

23, 2003
http://www.economist.com/displayStory.cfm?Story_id=1534259

Author argues that voters have responded to internet technology by becoming more directly involved in politics through protest. Boycotts, demonstrations, etc. have gone up in the internet age. He sees this moving in the direction of voters eventually demanding direct democracy. "The growing expectations of an educated public for whom individual choice is an important value, combined with the technology of an increasingly pervasive internet, will challenge the structures of all western governments based on representative models of democracy".

Disagrees with the ample research that shows that interest groups tend to control referendum question type direct voting "The financial corruption and lobbying by special interests that plague all democracies today are much harder to stamp out in a representative system than they would be in a system with more direct voter involvement." Mentions research supporting his case but no citation. The opposing view is well documented.

FUNDACION ACCESO
www.oneworld.net/latinamerica

Their Internet work looks interesting, virtual community building (we actually don't see too much of this on the digital divide sites). This site is in Spanish so I'm missing some of it but it looks interesting because of their focus on strategic work. They are interested in "analyzing, monitoring and contributing to national policies relating to the internet; and, monitoring, evaluation and assessment of the impact of the Internet in Central America." Their research could be interesting, some of it is in English including The Internet: a tool for social change? Elements for a necessary discussion

"The argument presented here holds that the digital divide is the result of social divisions and that connection to the Internet by itself will not make a difference. At the

same time, this paper supports the idea that the fundamental role of the Internet should be to contribute to the generation of new knowledge that can be applied to real world situations in order to bring about social transformation and to facilitate action by different social agents that will create the capacities to effectively utilize information technology for this purpose"

THE GATES FOUNDATION
http://www.gatesfoundation.org/

This foundation´s focus is moving strongly in the direction of health. It used to be 2 foundations focused on health and education
(http://www.gatesfoundation.org/globalhealth/announcements/announce-030126.htm)

which now makes up over half of it´s giving. Not all grants show a clear connection to technology at all but the overall goal of the foundation is to #sharing advances in health and learning with the global community. # This is the result of a merger between 2 Gates foundations (one for health and one for education) and they now focus on health and health information.

GLOBAL CULTURE TRADE AND TECHNOLOGY DIGITAL DIVIDE PROJECT
http://www.washington.edu/wto/digital/

These people have actually come up with a curriculum about the digital divide for middle and high school students. They want students to consider especially the impact of the digital divide on world trade. The work was done by high school teachers. Students are supposed to study digital divide policy and come up and conduct policy studies of their own. The material itself contains a fair amount of digital divide background data within the lessons and resources page http://www.washington.edu/wto/digital/resources.html

HARVARD INFORMATION INFRASTRUCTURE PROJECT
http://www.ksg.harvard.edu/iip/

Has a good bibliography of their own papers and books at http://www.ksg.harvard.edu/iip/Bibliography.html including a lot of stuff that is not online (abstract only) about standards, planning, and coordinating information infrastructure and the book Public Access to the Internet which looks interesting (http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=5603) You find calls for better standardization in the literature about measuring and resolving the digital divide so these might be interesting books. Perhaps too academic though.

Includes an interesting case study about e-government. The US Social Security administration tried to offer electronic access to users but over concerns about privacy that the author claims were exaggerated, they were forced to take the site offline. http://www.ksg.harvard.edu/iip/cases/ssa.html

ICOLETIVA
http://www.icoletiva.com.br (it includes many articles unrelated to icoletiva itself. They are posted in the individual articles section)

INFORMATION COMMUNICATIONS TECHNOLOGY
http://www.itu.int/home/index.html

This group has a section of their site devoted to development most of which is digital divide related. They argue that all inhabitants of the planet have "the right to communicate... through access to infrastructure and information and communication services" There is a lot of this type of language appearing, that IT is a right but this is

perhaps the most bluntly stated.

Their development strategic plan (http://www.itu.int/ITU-D/isap/ITU-D_StrategicPlan.pdf) includes the following strategies; network expansion, access for disabled and disadvantaged, partnerships with developing countries. The report emphasized the importance regulatory changes that help in the fight against the digital divide such as the expansion of regulating agencies, privatization to "attract investments", and the opening of competitive markets. Part of their strategy is to collect communications data worldwide and make is available to member states for informed decision making.

Their Valetta Action Plan (http://www.itu.int/itudoc/gs/promo/bdt/80241.pdf) on electronic commerce for developing commerce outlines a number of training efforts in developing countries. They will focus on infrastructure, human resources, policy, and partnerships with industry.

The ITU has produced a report called *Oficina para a inclusão digital* at http://federativo.bndes.gov.br/bf%5Fbancos/estudos/e0001707.pdf . In the "Diretrizes Gerais" section they propose partnerships between NGOs, industry, and universities for providing universal access. (is there money connected with this proposal?). They also describe the need for tele centers and education centers. In the section on e-government they say that all information provided by the government must indicate the responsible parties and must be evaluated. Unfortunately they don't really give standards of evaluation. In the section in telecenters they say that telecentros should not just provide just access and training, they argue that they should also be either created or managed by the community. The end of the report features an email list of people consulted in writing it. Some of these people might be interesting contacts.

They have a report on gender called *Gender Equity, Telecommunication Development and the ITU* at http://www.itu.int//itudoc/itu-d/wtdc/wtdc98/doc/128.pdf . This report lists constraints to women's access to telecommunications such as the fact that women tend to be involved in small businesses where technology is often out of reach, the rural

locations of the majority of women in developing countries, access to education, and cultural pressures to pursue more traditional education as well as possible contributions of women to technology development.

THE INTERNET SOCIETY DIGITAL DIVIDE PAGE
http://www.bizjournals.com/philadelphia/stories/2002/06/24/newscolumn1.html

"The Society's individual and organization members are bound by a common stake in maintaining the viability and global scaling of the Internet. They comprise the companies, government agencies, and foundations that have created the Internet and its technologies as well as innovative new entrepreneurial organizations contributing to maintain that dynamic". The page is basically another listing of digital divide news stories. It´s still not as good as the UN site but it has different new items so is worth keeping an eye on.

THE MORINO INSTITUTE
http://www.morino.org/

This looks like a pretty interesting group. They have a page on digital divide #Today's Digital Divide movement remains focused, for the most part, on closing the gap in access to technology. The real -and far more powerful - challenge of the movement is applying technology to bridge fundamental social divides and help people in low-income communities improve their lives.. The site includes a number of initiatives and textx that match that goal. They want people to reconsider what technology is for and not just blindly support any old digital divide initiative.

They have produced a report about the digital divide in cooperation with some invited participants http://morino.org/divides/execsum_report.htm In the report they outline 10 premises; (1) Focus on Narrowing Social- not Digital Divides -, (2) Concentrate on Achieving Concrete Outcomes, (3) Work Through Trusted Leaders in the Community,

(4) Support Efforts by Communities to Strengthen Their Capacity, (5) Apply Technology to Help Build Capacity, (6) Recognize that Technology Requires Its Own Capacity, (7) Make the Case for Applied Technology, (8) Make Major Changes in Public Policy, (9) Dramatically Expand the Availability of Capital, (10) Dramatically Broaden the Scope of Efforts

Quote from report: "To be sure, donated computers and Internet accounts can help expand the number of citizens who are familiar and comfortable with the computer technologies that are such a growing presence in our lives. But if we lift our ambitions, we can help people achieve much more than technological literacy; we can apply technology in targeted ways to help people meet fundamental needs, such as quality health care, effective schools, safe streets, and good jobs that allow people to earn a decent wage as well as dignity and respect".

Yet in the conclusions they focus, not on the need to restate priorities, but on the need for more technology investment in the non-profit sector. They base this on the private sector's experience of basically wasting money on technology for many years until they finally figured out how to restructure the way they do business to better incorporate technology. They suggest that this is what is going on in the non-profit sector now.

This group is very interesting, none of the blah blah repetition all over the net. I am not sure how much I agree with but they are presenting ideas. They have 3 programs. Netpreneur information exchange for entrepreneurs (seems to be closing down), Venture Philanthropy Partners a socially conscious investment group, and YouthLearn a teacher resource and support non-profit for technology use.

UNESCO TELECENTER INFORMATION
http://portal.unesco.org/ci/ev.php?URL_ID=8827&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1049343882

They have a page on multipurpose telecenters
http://portal.unesco.org/ci/ev.php?URL_ID=5341&URL_DO=DO_TOPIC&URL_SEC

TION=201&reload=1049264086

which talks about the importance of broad participation from various community groups and the importance of providing local content and a wide range of services for community needs. They have an interesting program where radio call in shows are used to broaden internet access. Callers phone ahead with a question and the host performs internet research to answer. This might be an interesting way to reach out to those who cannot afford to use telecenters in Rio or in Brazil´s smaller cities. In addition to indirectly giving internet access it also helps people understand what kinds of information can be found on the internet and how it might be useful to them.

They have just posted 10 brochures on how to manage a telecenter (http://www.unescobkk.org/ips/ebooks/documents/tensteps/index.htm) with information in the following steps:

step 1, getting started: evaluating infrastructure and community interest
step 2, holding the first community meeting: here you establish a set of programs and estimate demand/interest
step 3, management, how to set up a team, deal with job responsibilities, mission statement, and hold regular meetings
step 4, staff appointment, how to deal with recruitment,
step 5, services and programmes, some things a center could offer
step 6, building and equipment
step 7, reach your goals
step 8 , financial management
step 9, operating procedures
step 10 customer service and promotional issues

I found 5 and 6 most interesting and looked into these. In book 5 they talk about general office services (rather than computer services) that a community center could offer. They suggest starting with email and internet access plus in some cases photocopying and then to let equipment availability and demand determine what else to offer. The example services include; scanner access, telephone messages or telephone

services, faxing, meeting space, access to government information. Some of these services go hand in hand with computer services so that a person could almost turn a center into their office. Another interesting service they suggest is help with job applications.

They make a set of equipment and space suggestions that are for the most part obvious but there are a few surprises. They suggest that telecenters should have zip drives (or at least one networked), photocopiers, basic office supplies for everyone to use (binder, hole punch etc.). They talk about the importance of organizing asset management so that warranties can be used. I liked the idea of a flexible space that offers more than just internet access and think especially in high crime neighborhoods that providing a meeting space would be a good way to get people into the center (and perhaps expand business) while also offering an important service that costs little if the center was built with room to grow.

PBS : DIGITAL DIVIDE
http://www.pbs.org/digitaldivide/

This site gives information about a PBS (the American Public broadcasting network) show about the digital divide. These people used to get a lot of direct federal funds but now their programming is more grant based so the views of the PBS program are therefore likely to represent the views of their finders.

On this site they claim that computers are actually widening social differences. Most other sites only claim that computers have not achieved their promise of diminishing differences.

This series has the unusual goal of building interest in technology in young people

PLUGGED IN

http://www.pluggedin.org/

This non-profit started by offering internet access in tele centers to residents of East Palo Alto, a low-income city in the Bay Area. Now they have some pretty interesting activities. They provide infrastructure and support for Technology Access Points (TAPs) providig other non profit organizations in their community with tele-centers. This way they can get public computers set up all over their area without having to create new offices.

Even more interesting is their Enterprise project (http://www.pluggedin.org/pie/index.html) Here they offer a course teaching teenagers to do web design and have a business that offers web design services that is operated by the teenage staff. The students work at their company after school on a part time basis. Not all participants in the web design course are offered jobs in the company.

POWER UP

http://www.powerup.org/index.shtml

This is a set of community computer centers. In addition to access and education/training in computer use, child participants are matched with adults. Like several of the other groups that work on access (such as Computers for Africa and Plugged In, this group works with existing organizations in communities. In fact they are a consortium of some of these groups. One of their main goals is to teach marketable technology skills. They believe the worst consequence of the digital divide will happen when underserved youth try to enter the workforce without any technology skills.

PROGRAMA NACIONAL DE INFORMATICA NA EDUCAÇAO

http://www.mec.gov.br/seed/proinfo.shtm

SIMPUTER
www.simputer.org

This is the site for the Indian low cost, open source, Linux based handheld computer. Simputer was designed to be usable by various people with each user owning a card that holds their data. Simputer is supposed to be usable by illiterate people. They do not have screen shot downloads or any explanation of how this is possible. The designers believe that their solution would work only in India and refer to some other local examples of similar technologies such as the Brazilian VolksComputer.

SOCIAL SCIENCE RESEARCH COUNCIL
http://www.ssrc.org/programs/itic/gcsdocs/ (articles are posted in the individual articles section since they are republished)

STANFORD BERMUDA COMPUTING CURRICULUM PROJECT
http://bermuda.stanford.edu/

This group works with a grant from the Bermuda Ministry of Education to develop a computer science curriculum for Bermuda´s public schools. They believe in focusing on programming.

They explain their decision to teach programming (as opposed to the usual computer literacy programs) here http://bermuda.stanford.edu/project/project_principles.html They site a study saying that computer literacy is not enough and that people need computer fluency which goes beyond the use of particular software.

UN DEVELOPMENT PROGRAMME
http://www.undp.org

Site includes links to various news sources and reports with current numbers updated regularly. The purpose statement is not too interesting but the news is updated often with news about G8 programs and involvement http://www.sdnp.undp.org/perl/news/articles.pl?do=browse&categories=4

They are interested in e government, e learning, e commerce, and also have a page with constantly updated news on open source. Like many others, this site has very little of it's own information and more links to news articles. It is the most current, broad, and well organized of the digital divide portal pages I have visited.

The Human Development Report 2002 (http://www.undp.org/hdr2002/) has links to some tables with technology data as recent as 2000 (http://hdr.undp.org/reports/global/2002/en/indicator/indicator.cfm?File=index_indicators.html). This could be a good source of data since most other sources are older. They have the following broken down by country for different years: Telephone mainlines (per 1,000 people), Cellular mobile subscribers (per 1,000 people), Internet hosts (per 1,000 people), Patents granted to residents (per million people), Royalties and license fees (US$ per person), Research and development (R&D) expenditures (as % of GNP), Scientist & engineers in R&D (per million people), 1990-2000

There is a report on the influence of digital technology on Latin America (http://www.eclac.org/cgi-bin/getProd.asp?xml=/publicaciones/xml/9/7139/P7139.xml&xsl=/ddpe/tpl-i/p9f.xsl&base=/administracion/includes/top-bottom.xsl)

They say that much of the Latin American economy is in the types of sectors that lend themselves to E-Commerce. They observe correlation between entrepreneurship and technology use among nations. Claims that access costs are coming down because of free ISPs. In Brazil, the report sas that free ISPs are simply copying the Bradesco model ignoring the fact that the companies are funded by the phone company and are making money for the phone pulses. They also claim that only a little over 2% of the web is in

Portuguese..

UNESCO
press release on progress toward the Education for All initiative
http://portal.unesco.org/uis/TEMPLATE/pdf/efa/efasuivi_en.pdf

Brazil is among the 70 countries who will fail to reach the goals of the Education for All initiative. Brazil will probably fail to halve adult illiteracy by 2015
This is one of the list of 6 benchmarks that were considered reachable 2 years ago when the goals were set. It is the benchmark that has the largest number of countries failing to meet.

WOMEN IN GLOBAL SCIENCE AND TECHNOLOGY
http://www.wigsat.org/

Primarily an information source for people working on the international gender gap in Science and Technology. They link to an information clearinghouse (partnered with UNCSTD) at http://gstgateway.wigsat.org/gw.html
More than half of the links are not working and many are uninformative, i.e. gender inequality exists and is problematic.

They have worked with the UNCSTD to write a declaration of intent which they are trying to get countries to sign. The site does not say how many have signed. Here is the declaration link: http://gab.wigsat.org/declara2.htm

This article (http://gstgateway.wigsat.org/ta/data/toolkit.html) called *The Toolkit on Gender Indicators in Engineering, Science and Technology* is aimed at promoting "the systematic collection of gender-disaggregated data on science and technology" It describes gender based division of labor and claims that women are central to development and therefore development programs must consider gender. They report

some interesting findings from a previous conference which they argue should weigh on science and technology development: "Women-owned small and medium enterprises (SMEs) are reported to be growing at a faster rate than the economy as a whole in several OECD countries, and Data are often incomplete, and it is difficult to obtain national statistics on income and wealth by gender." They are interested in improving the availability of information on gender and science and technology development because "No data, no visibility; no visibility, no priority".

They argue that gender is an important factor in knowledge management because the local knowledge of men and women differ.

They describe 3 areas of science and technology activity "Research and (Experimental) Development - R&D, Scientific and Technical Education and Training at broadly the Third Level - STET , Scientific and Technological Services (STS). and give proposals on measuring these

Also, they discuss and give substantial data on the leaky pipeline and especially on higher

They also run an online network of NGOs working in this area at http://www.wigsat.org/ofan/ofan.html

NOTE: This group is the ONLY one so far that makes it's reports available in html format. Other groups like the UN, World Bank, ITU, etc. only make their reports available as PDF files and sometimes Word documents. This means their documents are not available to people with older slower computers, not always searchable (depending on version) and not available to people with disabilities who use text to voice or similar tools to access the internet. Their documents are also very hard to read on screen (jumpy scrolling) and meant to be read in printed version. Basically this group is the only one who really makes their research available online as opposed to posting on the web for printing. I suspect these people actually want their work to be read and this is exceptional.

WOMENSPACE.CA

Canadian site on women and the internet. This was the suggestion emailed to you by Drory (bridging@skynet.be)

They seem to have a strong focus on equality (e-quality) in the workplace and E-government. They describe the state of the art in Canada which has a rather ambitious e-government program that allows some official senate discussions to take place electronically (how do you know that the person chatting under the name Senator Don really *is* the senator?) This apparently widens participation since generally being there is a big barrier to participation.

They have the e-quality project "The E-Quality Project supports the integration of ICT in women's equality work, promotes the visibility of women's equality work and Canadian women's organizations online, and works collaboratively with Canadian women's equality organizations to participate in and assess the gender implications of federal government ICT initiatives."

The Women´s Internet Campaign aims at equal access, participation, and voice in communications technology. They list an enormous number of groups using the internet for activist purposes. It might be of a broad interest to look at the examples they have of non-profits that have used the internet to coordinate campaigns .

They have links to many reports, primarily conference reports on women and the internet. Many of them are listed in sites elsewhere on this document but the following may be interesting. Let me know which look interesting.

Supporting Women's Use of Information Technologies for Sustainable Development http://www.wigsat.org/it/womenicts.html

Gender equity, telecommunication development and the ITU
http://www.itu.int/ITU-D/gender/home/Doc128.html

Information Technology is a WOMEN'S RIGHTS Issue
http://www.womenspace.ca/magazine/vol25i.html

The Women's Internet Conference Proceedings
http://womenspace.ca/confer/

WORLD BANK ITC SITE
http://info.worldbank.org/ict/

"The World Bank Group's Global Information & Communication Technologies Department (GICT) plays an important role in developing and promoting access to information and communications technologies (ICT) in developing countries. "

They announce a Global Technology Conference in April of 2003 http://cvent.com/EventManagement/Summary/Summary.asp?code=&ecode=iptlirbilbdiivqliiiilqviipblir

The claim that their financing can be longer term than most other supporters of IT development. They have a page on their investment focus where they basically say they are interested in a broad range of IT areas (I don't see anything missing from the list of areas)

They have a page of links to other venture capitalists (http://info.worldbank.org/ict/techInfoSource.cfm) Some are specialized for example on women entrepreneurs.

They also have a page on their policy work listing projects they have funded (http://info.worldbank.org/ict/policyHighlights.cfm) including strategy research projects for developing countries, assistance in privatization of telecommunications and helping countries bring about policy changes for greater investor friendliness. Many of the privatization efforts focus on helping to develop real competition presumably since the related industries are hard to break into and often have problems with monopoly.

A summary of a Talk on Gender and the Digital Divide (http://www.worldbank.org/gender/digitaldivide/sophiahuyer.htm) outlines a problems called "the leaky pipeline" in which girls and women are lost at all stages of science and technology professional development. They give 5 sources for this problem: socio-cultural attitudes; education; academic appointments; science and technology professions; S&T development and transfer.

Latin America ITC page
http://lnweb18.worldbank.org/External/lac/lac.nsf/Sectors/InfTelecoms/175BFEF0E678F649852569AD00018365?OpenDocument

More on this part of the page later

OTHER WORLD BANK REPORTS AND SITES

report: "Brazil: Secondary Education Profile: A Summary of Secondary Education: Time to Move Forward
http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2002/09/07/000094946_0208

2104033872/Rendered/INDEX/multi0page.txt

- This is an overview of Secondary Education in Brazil, it´´s structure, organization, and efficacy. Includes some grades from ensino fundamental and some from what Brazilians consider secondary.
- Regarding the Telecurso 2000 program, they say that "Currently, there are more than 700,000 students enrolled in one or more Telecurso subjects
and preliminary results have been positive."
- Other than that nothing specific about technology outside of school management.

report "Latin American and Caribbean Studies: Closing the Gap in Education and Technology"
http://lnweb18.worldbank.org/External/lac/lac.nsf/All+by+Category/CA690C199E3E051985256C4D006C3043?OpenDocument

- The entire Latin American region has a major deficit in secondary level education. Brazil has the highest deficit (calculated by comparing actual enrollments with their predicted values, not clear if this is number of students in the age group or if primary school graduation enters into the formula) with disproportionate investment in tertiary education. In fact for every 22 Brazilians with some secondary education, 8.4 (more than 1/3) had some tertiary education. The authors believe that this is a combination of problems in quality of primary education such as high repeating rates and transition from primary to secondary education.
- Links education to digital divide issues giving a pretty detailed report on how countries can be held back from making use of technologies when the balance between education and technology is off. For Brazil, the defecit in secondary level
- The most interesting new idea in this report is that the author does not think “leap-frogging” is really possible primarily beecause of human resources issues. While the technology may exist to skip a stage, the people usually must pass through it. Thus the hopes that being underdeveloped technologically can be used to a country’s advantage are called into question. Leap-frogging goes mostly unquestioned in the literature making this an interesting case to look at more carefully.

Digital Divide Narrows, ABC News Article
http://www.abcnews.go.com/onair/CloserLook/wnt000417_CL_digitaldivide_feature.html
This article repeats a lot of what is said all over the place but has an interesting quote regarding job access, that it will soon be impossible to get a job without internet access.

Falling Through the Net
http://www.ntia.doc.gov/ntiahome/digitaldivide/ US Dept of Commerce. The first of these reports was the text that coined the term digital divide. It has since been updated several times. Their primary goal is universal access. This page includes a fair amount of data on access in the US.

Keeping Computers in their place
http://education.guardian.co.uk/elearning/comment/0,10577,872472,00.html
Jan 10 2003 English article concerned that "Software manufacturers, especially those affiliated to the government's Curriculum Online scheme, can have an unprecedented level of influence over the curriculum itself". Interesting

School´s Internet Subsidies Are Called Fraud Riddled (NY Times)
http://query.nytimes.com/gst/abstract.html?res=F70B10FB355A0C738DDDA80894DB404482
This article talks about the discovery that public funds made available to narrow the digital divide are finding their way into the wrong hands. Companies are #giving# materials to schools and then billing the government sponsored program for price. I have the full text of this article on my computer the NY Times only makes abstracts available.

Techno Dystopia

http://dir.salon.com/tech/feature/2000/09/20/technoutopia/index.html

Reports on a group of non-profits that ran technology critical ads in the New York Times. The groups claim that the idea that new technologies are empowering is unsubstantiated. Includes quotes from Jerry Mander who was involved in the ads.

What if the net was as free as air?

http://news.bbc.co.uk/1/hi/in_depth/sci_tech/2000/dot_life/1878309.stm

An article on community based groups offering wireless shared connections for FREE. This really looks like a wonderful idea and definitely could be implemented in some more concentrated parts of Rio where infrastructure is problematic. It's different from regular radio transmissions because it is free access. In court (in England so who knows here) the practice has held up as long as the free access is shared not sold shared. Customers of ISPs can share their access with neighbors if they want but re-selling is not allowed. An interesting was to implement something similar would be to help groups of low income users, perhaps small businesses, share a single internet connection.

Would a license help bridge the digital divide?

An article promoting certification of technology qualification to bridge the digital divide. By David Kay in the Philadelphia Business Journal. This article is interesting because it describes some similar European programs, a standardized EU certificate program.

Iceland's Health Sector Database: A Significant Head Start in the Search for the Biological Grail or an Irreversible Error? By Hróbjartur Jónatansson, " American Journal of Law & Medicine, 26, no. 1 (2000): pp. 31-68. http://www.aslme.org/pub_ajlm/26.1b.php

This article is about the genetic database in Iceland that I mentioned. I can probably get the full text as I have net access to a lot of periodicals.

Movimento Nacional Pró-Educação a Distância, João Roberto Moreira Alves
http://www.icoletiva.com.br/secao.asp?tipo=artigos&id=31 Talks about the problem with certifying distance education courses in Brazil. Interesting because the "cultura cartorial brasileira" that the article complains about is a question for social science. Raises some interesting questions about how the inefficiency of burocratic systems can lead to digital divide problems.

Inclusão Digital - muito além de tecnologia, Alex Lucena
http://www.icoletiva.com.br/secao.asp?tipo=artigos&id=22
Suggests a process in the inverse order from the usual for resolving the problems that lie outside the realm of simple have or have not questions. He suggests using distance education and other educational technologies to increase literacy, information literacy, and quality of education (for example through teonline acher education programs). This would improve the level of preparedness of the people to make use of technology when available. Interesting reversal, usually we hear about using technology for education but this author argues in favor of using education to help society make the most of education. This illustrates the cyclical nature of the problem though.

Brasil tem 19 milhões de internautas, diz pesquisa
http://www.icoletiva.com.br/secao.asp?tipo=sociedade&id=55&n_page=10
45% of Brazilians over 16 years of age who live in houses and have fixed phones have internet access (what about apartment dwellers?)
"14,3 milhões de pessoas acessam a Internet no Brasil a partir de computadores domésticos"
" Entre os dez países incluídos na pesquisa da Nielsen-NetRatings, o Brasil aparece em sétimo lugar. "
has link to the full neilson report.

Closing the digital Divide: From Promise to Progress

<http://www.ssrc.org/programs/itic/publications/ITST_materials/mannnote1.pdf> This article compares the different countries of the British commonwealth. Suggests that even now that the internet boom is over, access is important for economic development. Example: industry cannot compete internationally without IT developed along the same lines as overseas competitors. Discusses the importance of low cost per minute local calling for closing the digital divide. Data is missing on the relationship between education and the D.D. with the most extensive collection of data occurring domestically in the US. The US studies show that age, education, and income level are persistent barriers while the digital divide has nearly been closed in terms of geography, race, and gender.

Assesing the Digital Divide (Policy Brief) -- Toby J. Arquette
<http://www.ssrc.org/programs/itic/publications/civsocandgov/arquettepolicy.pdf>
This article is among the first that I reported to you at the beginning of the summer. Suggests the needs for new benchmarks of technical developments and infrastructure. Identifies problems with existing measures like those of ITU and proposes a new measure that is clearly not worked out in detail. Interesting for any reporting on infrastructure.

The Open Source Software Process (Research Note) -- Steven Weber
<http://www.ssrc.org/programs/itic/publications/ITST_materials/webernote1.pdf> This is a very different spin on the Open Source issue, instead of getting into the open source or not discussion, this author details the process and suggests that it might be useful in other areas. Discusses was that open source can be a process that is more efficient for industry but more importantly explains exactly what open source is. This is also a good introduction to the open source process which can also be well understood by visiting an open source software page and following the development links.