Young People and ICTs in Developing Countries

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Young people are often 'first adopters' of new technologies, and this appears to be the case with ICTs. Evidence from the developing world suggests that young people have widespread access to broadcast technologies and the telephone, but more limited access to the Internet. And even amongst young people, Internet *use* lags considerably behind Internet *access*. ICTs, and in particular the Internet, provide opportunities for employment, but it should be noted that there are limits to the economic impact of the Internet in developing countries. Broadcast technologies can be particularly useful tool in both formal and continuing education, the Internet may have a significant role in vocational and further education. There are potential social costs of ICT use amongst young people, but these can be mitigated. Youth-specific policy recommendations focus on the greater use of ICTs in education and content control.

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Introduction

Youth (those between the ages of 15 and 24) account for 17.6 percent of the global population, with an overwhelming majority located in developing countries.[2] As a rule, young people in developing countries have had greater educational opportunities than their parents and grandparents. Gross secondary enrollment rates averaged 21 percent in developing countries in 1970, they are 67 percent in 2002. Young people are a more globalized group –thanks in part to the greater spread of ICTs. Their youth itself is another advantage when it comes to adopting new technologies. This note discusses youth access to and use of ICTs, some of the opportunities presented by ICTs that might be particularly advantageous to young people, and suggests policy reforms that might maximize that benefit in developing countries.

How many young people use ICTs, and where do they use them?

Looking at the global picture, it appears likely that the great majority of the World's young people have access to broadcast technologies, the majority have access to telephony, but it is still a small minority that have access to the Web. Access to radio and TV has long been widespread –as many as 80 percent of the population of the developing World listens to the radio at least once a week (Eltzroth and Kenny, 2003). The phone is becoming increasingly ubiquitous. Nearly half a billion mobile phones were added to the global network 2000-2003 in developing countries alone (Keramane and Kenny, 2007). Regarding the Internet, more than one quarter of a billion people in developing countries are users. Nonetheless, computer penetration is very low in developing countries (47 per 1000 people) –and so it is clear that the great majority of households in the developing world have no fixed Internet access.

Data specifically on young peoples' access to ICTs in developing countries is not widely available, but we do have some survey evidence. Looking at data for Indonesia broken down by age (Table 1), echoing other samples, the reach of broadcast technologies appears almost universal –rates for access to television are at 99 percent even for poorer, less educated citizens. Access to cable and satellite provision, particularly in the home, is rarer, although there is little variation by age group. Computer access in Indonesia is limited to about half of the population, but is notably higher amongst 15-19 year olds, perhaps reflecting access at school. Internet access appears limited to a little over 20 percent of the population but, again, is higher amongst the 15-19 age group.

[2] http://www.un.org/esa/socdev/unyin/qanda.htm#3 (Accessed 11/09/2005 at 2:05 PM)

Table 1: Availability of ICTs in Indonesia by Age Group

	Any Access			**Household Access**		
Age Range	*Full Sample*	*15-19*	*20-24*	*Full Sample*	*15-19*	*20-24*
Television	99	99	99	89	89	87
Radio	92	96	93	73	81	77
Computer	46	57	46	5	4	5
Telephone	19	25	16	0	1	0
Dial-up Internet						
Broadband	6	9	4	0	0	0
Mobile	62	66	65	24	20	31

Source: Survey for the 2007 World Bank World Development Report

Access at school in particular varies considerably across countries. Wealthy developing countries have made significant progress in connecting schools –in Chile, for example, 62 percent of schools are online. Conversely, we have data on the percentage of schools connected to the Internet for eight countries in the Sub-Saharan Africa region (World Bank 2006) and the average proportion of schools covered in these countries is 7 percent. Excluding South Africa and Mauritius from the sample this figure drops to below one percent. Business access is more widespread: even in Sub-Saharan Africa, 38 percent of firms used the Internet (Qiang et. al. 2006). This may suggest a higher access rate for those in formal employment than for those in school, and less of a 'youth access advantage' in the region.

In some countries, young people appear to be more adept at accessing the Internet through alternate means. A survey conducted by the Internet Society of China found that a considerable number of mobile phone users say they surf the Internet via mobile phone services. The study also suggests that young people between the ages of 18 and 28 are the heaviest users of Internet via mobile.[3] Having said that, these results are not reflected everywhere. In Indonesia, it appears that the use of mobile phones for anything beyond short message service (SMS) and games is very rare, even amongst young people, at below five percent of mobile phone users. This may reflect lower access to wireless access protocol enabled phones or may reflect lower use of available access –a distinction returned to below.

Turning to usage (as opposed to access), general surveys from rural areas in three developing countries of India (in Gujarat province), Mozambique and Tanzania in 2004 suggest that above 80 percent of rural people in the surveyed areas used broadcast technologies, above 60 percent were using telephony, and around two percent were using the Internet (Souter, 2005). It is clear that the great majority of young people in these areas were not using the Internet. This is despite the fact that survey locations were near public Internet access points. Across a number of countries, Internet usage rates of five

[3] http://chinadaily.com.cn/english/doc/2005-09/02/cotent_474447.htm (Accessed 11/09/2005 at 6:16PM)

percent of the population or below have been found even in areas with public access to Internet facilities (Kenny, 2002).

Again, however, young people appear somewhat more likely to use the Internet when it is present. In Indonesia, usage rates are notably higher amongst young people, at double full-sample averages –but still only at 12-13 percent compared to access rates of 20-34 percent (Table 2).[4] At the same time, a survey of users in six Internet cafes in Uganda's capital, Kampala in 2001 suggests an older skew to usage. It found that only 10 percent of respondents and Internet café users were under the age of 20. People from the 20-29 age group accounted for 70 percent of users. The Kampala survey also echoes data from Indonesia which suggests that usage divides between gender and income groups are particularly stark with the Internet –women, those with limited education and poor people are all unlikely Internet surfers.

Table 2: Use of the Internet in Indonesia

	Full Sample	**15-19**	**20-24**	**Female**	**Primary Education**	**Social Class D**
Yes	5	13	12	3	1	1
No	89	86	86	89	89	92
Other	6	1	3	5	9	7

Notes: in answer to question: "have you ever accessed the Internet (World Wide Web)"
Source: Survey for the World Bank World Development Report 2007

What do young people use ICTs for?

The non-youth-specific surveys from rural areas in three developing countries cited above (Souter, 2005) suggested that the primary usage of phones was contact with relatives and friends as well as use in family emergencies. The primary use of broadcast technologies is entertainment, with both sets of technologies playing an important secondary role in providing news and information on prices and services. There is little reason to believe that young people primarily use these technologies for dramatically different purposes.

For example, mirroring general survey results of usage in developing countries, the primary use of the Internet found by a three-city youth survey was to check email, secondarily to find information (Geary, 2005). There is some evidence that younger users are early adopters of more advanced uses. A 1999 survey of Internet users in China found that only about 12 percent of users had bought goods or services on-line, but 89 percent of these users were between the ages of 16 and 35 (Wee Keng Neo and Ramachandra 1999).[5] Survey results from public access points in Lima suggest similar results (Apoyo Opinion Y Mercado, 2004).

[4]A 2004 survey conducted of Lima's cabinas publicas de Internet found that 54 percent of users were between the ages of 8 and 24. Apoyo Opinion Y Mercado, 2004.
[5]It is also worth noting that 88 percent were male and 86 percent were degree-holders

ICT as a means for youth job creation and income generation

ICT service provision and applications may present the opportunity to create significant employment and income-generating opportunities amongst the young. A number of young people are involved in selling scratchcards or time on phones, for example. In Bangladesh, Grameen phone operators are earning an average of 24 percent of household income providing the service (Richardson et. al. 2000) and as of 2005 there were more than 165,000 village phones in operation.

ICTs are also creating new employment opportunities through business process outsourcing (BPO). Based on a survey conducted over 2002-2004 covering three Indian call centers, call center employees are 60-70 percent male, young (18 to 30), highly educated (primarily college level) and urban. Employees earn between $378-587 a month (Poster, 2004). Other opportunities include programming and entrepreneurial sales activities through the Internet –commonly cited examples include artisan goods such as crafts and sandals (Curtain, 2002).

It is worth noting that examples of scaled Web-enabled businesses in developing countries are rare –there is not an equivalent of an Amazon or Ebay that has been launched in a developing country and reached a significant scale. Again, approximately 80 percent of the cross-country variation in the number of secure Internet servers per capita between countries can be predicted on the basis of GDP per capita alone (World Bank, 2005). While there will be more opportunities for entrepreneurial youth in developing countries to provide goods and services to a global customer base, it is impossible to separate opportunities to exploit ICTs from the broader economic environment present in developing countries.

ICT as a resource for learning and education

ICTs have long been involved in education and learning. One survey suggests that the impact of a dollar spent on interactive radio instruction is nearly seventy percent higher than a dollar spent on purchasing textbooks and over eleven times higher than a dollar spent on teacher training (Adkins, 1999). A number of particularly cost-effective interventions using basic ICTs for educational purposes have taken place outside the classroom, including a range of interactive radio and television programs designed for older audiences. Broadcast media has been widely used to combine education and entertainment to provide important messages about health topics, with examples including same-language subtitling and entertainment programs containing messages about HIV awareness (Coulson 2002, Kothari et. al. 2004).

Recent surveys of tertiary education establishments in India suggest that young people actively embrace use of advanced ICTs, not least as a tool for personal development (Ezer, 2006). Nonetheless, it is, to date, hard to move beyond anecdotal evidence on the

impact of the Internet on learning in LDCs. While there are a number of exciting pilot projects, they have yet to be subjected to rigorous cost-benefit analysis. Most of this type of research has been concentrated in industrialized countries, where results have been mixed (Goolsbee and Guryan, 2002) Furthermore, for networked technologies in LDC schools, the current low access to equipment itself suggests problems for the attractiveness of the technology for school use. Sustainability is likely to be a significant barrier to expanded Internet use in schools. In some low income countries, the discretionary budget for non-salary expenditures is about $5 per year per primary student, compared to annualized costs of $78-104 per student for a computer lab (Kenny, 2003). But while the sustainability and cost –effectiveness of Internet use in developing country school settings for general pedagogical use may remain limited until costs fall, use for vocational training as well as in tertiary education is likely to be more widespread (Curtain, 2002).

Political. social and cultural impacts of ICTs

ICTs can be a powerful tool of youth empowerment. A 19-country social survey of European political involvement found that regular Internet users were significantly more likely to be a member of a civic organization, more likely to have taken part in product boycotts and signed petitions, and more likely to have donated to a political party –this allowing for factors such as age, gender and income (Norris, 2005). This suggests that greater use by the young may be a force helping to counter lower civic engagement in the age group as a whole.

Regarding potentially negative social impacts, there has long been a concern with the social impact of television on viewers that has spilled over to concerns regarding Internet use. Studies in Botswana and Zimbabwe have found that teenagers exposed to US television programming were both more likely to buy the type of clothing seen in US music videos and somewhat more likely to use cannabis and inhalants (although the association with exposure was far lower than associations based on age, sex and use by friends and siblings) (Geary et. al. 2005). These results echo results of surveys in developed countries which find that violent television, films and video games increase youth violence, and alcohol advertising increases youth alcohol consumption (Anderson et. al., 2003, Grub et. al., 1996).

Policy Conclusions

Despite social concerns, it appears that access to and use of ICTs can be a powerful tool to spread knowledge and information, provide employment and increase participation amongst young people. As such, the general policy prescriptions that apply to the ICT sector (private competition, well designed regulation) are as relevant or even more important to those interested in development for the next generation.

As to specific youth-centered policies, these probably revolve most significantly around education. Here there is a greatly expanded role for a range of ICTs in schools and beyond. Educational radio and television can be cost-effective tools even in very poor countries. Wealthier developing countries may want to consider the introduction of computers in schools, if they are introduced as part of a broader effort involving curriculum redesign and teacher training.

Regarding vocational and tertiary education, India is working to restructure the curriculum at the university level to address human capital needs in growing sectors such as the service and IT industries, and some states are offering vocational schooling to provide more technology-specific skills that students may not have acquired at school. Providing the human capital required for ICT-enabled industries is perhaps the best form of intervention to expand employment opportunities for young people in this area –with a better track record than industry subsidies and tax breaks, for example (Kenny, 2006). Governments have a further significant role in providing content that is aimed at youth users. Multimedia campaigns content could deal with a range of issues from straightforward educational content to advice on health issues.

Regarding harmful content, efforts to curtail young people's access to offensive content is growing. For example, when a request for access to a pornography site is sent over a Vodafone network, this request is passed through a filter which verifies the age of the mobile owner[6]. The Australian Communication Authority is currently discussing two possible ways to block access by minors. One method is to issue PIN numbers that would be required to access adult services and another is to rate content in a similar way to films.

There is a considerable opportunity in many developing countries to better use the 'old' ICTs including broadcast technologies to improve the lives of young people. The new ICTs add to that potential. A reform agenda which seizes these opportunities will do much for the next generation in development. Donors have a large role in support of this agenda, not least in support of pilots aimed at youth-centered applications that include a significant monitoring and evaluation component.

Indeed, if this brief survey of the evidence regarding youth and ICT use in developing countries suggests anything, it is that there are considerable unknowns regarding the new ICTs in particular. We have a stock of anecdotal evidence regarding new ICT applications focused on youth development, but few rigorous analyses of costs and benefits, or of sustainability. A dollar spent on further evaluation in this area is likely to have a considerably higher impact than a dollar spent on the scaling up of an untested approach.

[6] http://www.infosyncworld.com/news/n/4707.html (Accessed 11/16/2005 at 9:55AM)

Bibliography

Adkins, D. (1999) Cost and Finance in A. Dock and J. Helwig (ed.s) Interactive Radio Instruction: Impact, Sustainability and Future Directions Washington DC: The World Bank.

Anderson, C., L. Berkowitz, E. Donnerstein, L. Huesmann, J. Johnson, D. Linz, M. Malamuth, and E Wartella (2003) The Influence of Media Violence on Youth Psychological Science in the Public Interest 4 , 3.

Coulson, N (2002) Developments in the Use of Mass Media at the National Level for HIV/AIDS prevention in South Africa, retrieved from http://comminit.com/pdf/HIV-AIDS_south_africa_campaigns_report.pdf 09/29/05

Eltzroth, C. and C. Kenny (2003) Broadcast and Development: A Role for the World Bank? World Bank Working Paper No. 11.

Ezer, J. (2006) Gandhi's third assassination: Information and communications technology education in India Information Technology for Development Volume 12, Issue 3, Pages 201 – 212

Geary, C., H. Mahler, W. Finger and K. Shears (2005) Using Global Media to Reach Youth: The 2002 MTV Staying Alive Campaign Youthnet Youth Issues Paper No. 5, Family Health International.

Goolsbee, A. and J. Guryan (2002) The Impact of Internet Subsidies in Public Schools, NBER Working Paper 9090, Cambridge, MA.

Grace, J. and C. Kenny (2003) A Short Review of Information and Communications Technologies and Basic Education in LDCs, International Journal of Educational Development Vol. 23.

Grub, J., P. Madden and B. Friese (1996) The Effects of Television Alcohol Advertising on Adolescent Drinking Poster Presented at the Annual Meeting of the Research Society on Alcoholism, Washington DC June 22-27.

Kenny, Charles (2002) Information and Communication Technologies for Poverty Alleviation: Costs and Benefits Development Policy Review (20,2).

Kenny, Charles (2006) Overselling the Web? Development and the Internet Boulder: Lynne Rienner.

Keremane, R. and C. Kenny (2007) Toward Universal Telephone Access: Market Progress and Progress Beyond the Market, Telecommunications Policy, forthcoming.

Kothari, B., A. Pandey and A. H. Chudgar (2004) Reading Out of the "Idiot Box": Same-Language Subtitling on Television in India, Information Technologies and International Developmen Vol. 2 Num. 1 Fall 2004, The Massachusetts Institute of Technology

Norris, P. (2005) The Impact of the Internet on Political Activism: Evidence from Europe International Journal of Electronic Government Research 1, 1 January.

Poster, W. (2004) Who's On the Line? Indian Call Center Agents Pose as Americans for US-Outsourced Firms, mimeo, University

Qiang, Christine, G. R. Clarke and N. Halewood (2006) The Role of ICT in Doing Business in World Bank (ed) Information and Communications for Development: Trends and Polices Washington, DC: The World Bank.

Richardson, D., D. Ramirez and M. Haq (2000) Grameen Telecom's Village Phone Program in Rural Banlgladesh: A Multi Media Case Study, mimeo, Telecommons Development Group.

UNCTAD (United Nations Conference on Trade and Development) (2006) Information Economy Report, 2006 Geneva: UNCTAD.

Wee Keng Neo, L. and R. Ramachandra (1999) Cyberbuying in China, Hong Kong and Singapore: Tracking the Profile of On-line Buyers, paper delivered to The Measurement of Electronic Commerce: ISI Cutting Edge Conference, Singapore, 6-8 December, 1999; www.singstat.gov.sg/EC

World Bank (2005) Financing Information and Communication Infrastructure Needs in the Developing World: A World Bank Contribution to the World Summit on the Information Society Working Group on Financing ICT Washington, DC: The World Bank.

World Bank (2006) Information and Communications for Development: Trends and Polices Washington, DC: The World Bank.