Information Needs in Developing Countries: How Are They Being Served by Public Access Venues?

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ABSTRACT
This paper analyzes challenges to meet information needs of underserved communities through public access to ICT in 25 developing countries. Information needs are analyzed from the perspective of the users and of the operators of public access venues such as libraries, telecentres and cybercafés. We discuss the importance of locally relevant content, available in local languages, and the need to help strengthen information literacy among users and operators of public access venues, including digital literacy. Libraries, telecentres and cybercafés in the countries studied were found to be meeting local users needs in different ways in each case. Effectively meeting users’ information needs is critical if public access to ICT is to contribute to human development, especially in libraries and telecentres, which generally have a social development mission (as opposed to profit-driven cybercafés).

Keywords
Information needs, developing countries, public access, telecentres, cybercafés, ICT, libraries.

INTRODUCTION
User information needs vary by geographic location as well as economic and social standing, among other factors. These factors drive the format, content, currency, and language in which information is produced and presented. This paper focuses on salient findings in the study of user information needs in 25 developing countries, focused on the use of public access venues that offer ICT: public libraries, telecentres and cybercafés. By identifying new challenges and opportunities for libraries and telecentres, we offer insight into how the analysis of information needs can influence policy makers who might support program and policy changes.

The global study was guided by a broad research question: what are the opportunities to strengthen public access to ICT to foster human development in developing countries around the world? This broad question was complemented by specific questions about the nature of public access venues in each country, particularly focused on issues of equitable access, human capacity and training, and political and economic environment. In this paper we discuss information needs: How are information needs being met by ICT in public access venues in developing countries? This question is important to better focus the programs of libraries and telecentres if they are to effectively contribute to human development by providing public access to ICT.

User information needs are satisfied in a variety of manners, not always through public access venues or using ICT. The question arises as to how to determine a community’s information needs and how best to satisfy those needs. There is no lack of information. What needs to be established is where do people presently get information and can ICTs help to service their needs in a better way, or does any particular venue service certain needs better than others, and why? In this paper we consider what types of information users require in order to lead healthy and productive lives, which may go beyond simple
everyday needs to information that can also help them to improve their station in life. One must consider economic, political, and social needs, which are all important functions of daily life and long-term wellbeing.

The rest of the paper is organized as follows: in the next two sections we present a brief literature review and a description of the methodology used in this research. This is followed by findings and discussion around three important issues concerning user information needs: the production of locally relevant content, the creation of subject matter in local languages, and the need for increased user and operator training in order for users to productively access and use the information. The paper concludes with a discussion of the implications of the findings, as well as examples from our study that have successfully addressed local information needs.

LITERATURE REVIEW

Numerous studies have shown that access to ICTs can advance the development process (Castells 1999; Bailey 2009; Fillip and Foote 2007; World Bank 2008). The question remains: Why should ICTs be supported in developing countries (Heeks 1999; Ashraf, Swatman, and Hanisch 2007; Castells 1999; Mansilla 2007; Menon, Kiri, and Toyama 2006)? What is the best mechanism to use ICT as effective tools for human development and service users’ information needs (Alampay 2006; Georg and O’Connor 2003; Gurstein 2000; Kuriyan and Toyama 2007)? There is no “lack of information”; the issues are the avenues through which information passes and if there are better mechanisms to relay this information. Arguably, many communities are content with the transmission of information and see no reason to move from traditional methods (culturally related, oral, etc.) to more technologically derived processes.

We defined a “public access venue” as one that offers public access to information with services available to all and not directed to one group in the community to the exclusion of others. Furthermore, we focused on libraries (open to the general population, funded by government sources), telecentres (not-for-profit centers that offer public access to ICT as part of their services or other activities, may or may not charge a fee) and cybercafés (for-profit centers that offer public access to ICT, generally charge a fee).

There have been many previous studies about public libraries and ICT (Walkinshaw 2007; Rutkauskiene 2008), especially in the US (Bertot, McClure, and Jaeger 2005; Bertot et al. 2007; Bertot et al. 2006), about telecentres for community development (Proenza, Bastidas-Buch, and Montero 2002; Best and Kumar 2008; Etta and Parvyn-Wamahiu 2003; Kuriyan and Toyama 2007; Colle 2000; Gomez, Hunt, and Lamoureux 1999), and to a lesser degree, about cybercafés and their contribution to social and digital inclusion (Gurol and Sevindik 2007; Haseloff 2005; Robinson 2004; Rangaswamy 2008). Previous studies have been conducted in specific geographic areas (Amariles et al. 2006; Benjamin 2001; Best et al. 2007; Gitta and Ikoja-Odongo 2003; Jafri et al. 2002) and most frequently through case studies (Parkinson and Lauzon 2008; Rangaswamy 2007; Sharma, Sharma, and Subhedar 2008; Van Belle and Trusler 2005). Nonetheless, we found no previous studies that have done systematic comparison of different types of venues and across multiple countries.

According to a broad-based literature review by (Sey and Fellows 2009),

Studies have not established a clear link between public access to ICTs and socioeconomic change/impacts. Researchers are beginning to go beyond anecdotal evidence of public access impacts on end-users, but are still limited in their ability to make definitive statements about impacts…. There is a trend toward the view that the impacts of public access to ICTs are so highly tied to contexts that generalizability may be impractical.

METHODS

In this section we briefly summarize the research methods used in the study, and the analysis for the findings presented in this paper. Note that the complexity of this global study cannot be fully accounted for in this short description; for a detailed description of the research methods see Gomez (2010).

Selection of Countries

Of 237 possible countries and territories in the world, the final 25 countries were selected based on four successive sets of criteria to allow us to focus on “middle of the pyramid” countries (Prahala 2006), and especially on countries with existing public library systems. The criteria for selection were based on:

1. demographic data (country size, population, development index);
2. freedom of expression\(^1\) and political unrest\(^2\)

\(^1\) Based on Freedom House index: [http://www.freedomhouse.org](http://www.freedomhouse.org)

\(^2\) Based on Freedom House index: [http://www.freedomhouse.org](http://www.freedomhouse.org)
3. needs and readiness criteria\textsuperscript{3}
4. regional distribution and availability of country research teams.

Research Framework

This is an exploratory, qualitative study in which fieldwork was conducted in an iterative research process (Barzilai-Nahon, Gomez, and Ambikar 2009) in two phases between Nov 2007 and September 2008, followed by comparative analysis conducted by a team at the University of Washington during 2009 and 2010. From the outset we identified a framework, Real Access/Real Impact, developed in South Africa by Bridges.org (www.bridges.org). We adapted and refined Real Access and called the resulting framework the Access, Capacity, and Environment (ACE) Framework as a tool to understand the range of economic, political, educational, infrastructure, cultural, organizational, and other factors that affect the way people use ICT in public access venues. The three pillars of this framework are:

1. Access: physical access, suitability, and affordability of the venue; technology access;
2. Capacity: human capacity and training (users and staff); meeting local needs; social appropriation; and
3. Environment: socio-cultural factors; political will and legal and regulatory framework; popular support.

In this study we identified 75 variables associated with Access, Capacity or Environment features of public access venues, we did a detailed interpretation and coding of each of these variables on a scale of 1 to 5 (low to high), and coded a subset of these variables for all country reports using Atlas TI qualitative analysis software.

Data Collection

Nineteen local research teams were chosen (with some researchers representing more than one country) following an international call for proposals. Lead researchers from each team were brought together twice, at the beginning and halfway through the research process, to discuss the purpose, methodology, and emergent findings of the study. Detailed country reports were prepared by each local research team via a data collection template, which was designed to help each team organize their local fieldwork to answer detailed questions about access, capacity, and environment issues in each type of venue studied. The reports also included information regarding the national environment, history, and trends in relation to public access initiatives. Country reports are all publicly available (http://cis.washington.edu/landscape/library/working-documents), and constitute a primary source of information for this paper.

Each team conducted local research in local languages, using the following data collection methods:

1. Document Review: Identify and review salient literature in the country, including existing statistical information about population, ICT penetration, public access venues, government policies, and previous studies relevant to the study. On average, 30 to 50 documents per country were reviewed.

2. Expert Interviews: Identify at least ten specialists in the areas of interest of the project and conduct in-depth interviews with them. Interview guides were prepared in each country depending on the local needs and context. On average, 10 to 15 interviews per country were conducted.

3. Site Visits: Identify, visit, and observe six or more venues of each type (library, telecentre, cybercafé, or other). Site visits were undertaken for a minimum of a half day, making sure to include both urban and nonurban sites (ideally three of each). In selecting sites, research teams identified typical case samples of each type of venue. On average there were 20 visits per country, about 500 sites were visited in total.

4. User Surveys: Collect user information through surveys. A shared survey instrument was used to administer a questionnaire. Each country team added questions that they felt were relevant to the local context, which enriched

\textsuperscript{2} Based on U.S. Dept. of State travel advisories.

the overall body of evidence. At each site every second or third user exiting the venue was surveyed. Teams surveyed between 40 and 50 users at each venue. Around 1000 users were surveyed per country. Given limited time and resources, user surveys were not intended to provide statistically significant samples of the population or of the venues studied, but an exploratory indication of trends and patterns for comparison and further research.

5. **Operator Interviews**: Identify at least one operator in each site visited and hold a structured interview to provide a more in-depth understanding of the venue, users, and environment. About 20 operators were interviewed in each country.

6. **Additional Optional Data Gathering**: Perform focus groups with users, operators, or experts; additional visits and interviews; and/or peer consultation and review.

**Data Analysis**

Data analysis was conducted to identify and categorize trends in relation to users’ information needs using ICT in public access venues. We conducted different types of analysis and crosschecked the consistency of the country reports. When needed, we verified the accuracy of data regarding counts of venues in different countries.

After careful reading of all reports, we did a detailed annotation of issues related to information needs and grouped the findings along the themes discussed in this paper. As part of the broad study, we did a detailed coding of the qualitative data using variables from the ACE Framework for each type of venue (75 variables in total for each type of venue, totaling 225 variables in each of the 25 countries). All coding was done by the University of Washington research team following clear definitions and criteria for each variable. Integrity of the coding was verified through spot checks and partial double-blind coding to minimize distortion and bias in the interpretation. This interpretive coding of the qualitative data is not intended to be statistical in nature but was used to further understand the trends and patterns emerging in the data. Qualitative data from the country reports was then used to explain or illustrate the findings.

Finally, a detailed rereading and discussion of the country reports was undertaken to identify and group trends in the data and significant insights from local research partners in relation to information needs. These are the main categories of findings reported in this paper.

**Limitations of This Study**

This study is groundbreaking in its breadth and scope in that no other studies have systematically looked at different types of public access venues and across multiple countries around the world. Nonetheless, the breadth of the study also means that this study does not provide an in-depth analysis of a particular venue, country, or experience, and findings cannot be easily generalized without a clear understanding of the specific context and the analytic framework used.

The data about public libraries is generally the most reliable, as there are public records in most countries and international bodies that work with libraries (i.e., the International Federation of Library Associations and Institutions and UNESCO). When available, these official sources were used. Information about telecentres is more dispersed among international agencies and local nonprofit organizations that sponsor them. Information regarding cybercafés and, to a lesser degree, telecentres, tends to be less accurate.

**FINDINGS**

This study revealed three key factors that are important to consider when evaluating how user information needs can best be served. The majority of the reports in our study emphasized that user needs vary according to social, religious, gender, cultural, economic, educational, and geographic variables. One cannot generalize that all people within a particular environment require the same things, or that community and individual needs are the same, although there are recurring themes. We describe these themes below with a primary focus directed towards content, followed by a discussion of user and operator capacity, concluding with a set of recommendations to help information venues develop and provide information that serves its users:

1. **Production of locally relevant content** is essential to serve individual and community information needs, which includes up-to-date information.

2. Information produced in **local languages** makes an enormous difference for access to underserved populations. It is also necessary to consider literacy levels, and to create content for illiterate users.
3. If people are to use ICTs, their capacity for learning these new technologies is fundamental; training for and by venue operators is also imperative.

Production of Locally Relevant Content

Content must be applicable to the users. As our Peru report states, “Each group or specific community would benefit from better public access to information, but such information should be appropriate, it means that it should be relevant, opportune, understandable, and usable” (Bossio and Sotomayor 2008). Information venues such as libraries, cybercafés, and telecentres may provide access to information, but information must be geared towards a targeted audience. If indeed our goal is to provide information to underserved communities, then we must determine what type of information they need and supply that information in a manner that is accessible and approachable for all users.

Different cultures, regions, and sub-regions will require variable content, as needs are based upon the users’ educational status; their vocational and entertainment requirements; cultural, sexual, and religious constraints or conditions; and technological and economic restraints. The political environment in which information is presented will also influence content, format, and access to certain types of information.

Several countries that we studied (Sri Lanka, Honduras, Indonesia, Nepal, Uganda) are primarily agriculturally based economies. In these environments, user information needs focus on weather conditions, market prices, government support, improved production, etc. Other areas, where there are high emigration rates (Dominican Republic, Ecuador, Honduras), users require information about obtaining visas, passports, immigration requirements, etc. This also affects the information and communication needs of friends and relatives who are emigrating or who have emigrated. Those who are ‘left behind’ are motivated to learn how to use ICTs in order to stay in touch with their loved ones.

Not surprisingly, mobile phones have begun to fill holes in user information needs. Many examples (Bangladesh, Indonesia, Mongolia, Namibia, Philippines, South Africa, and Turkey) were presented in which mobiles were used to obtain government data, account services, food and health information, and stock data, and of course they provide opportunities for long-distance communication. Mobiles can be essential for user access to information in rural areas where access to computers and information centers is much more problematic due to distances and lack of availability.

Other examples of locally relevant content to serve users look at the educational needs of students who are unable to attend school daily. In Mongolia, students are leaving school to help families with herding, making standard school inaccessible. Another population that lacks access to relevant information in Mongolia are miners:

The lack of infrastructure coupled with a lack of awareness about the possibilities and potential of digital ICT services in informal settlements such as those created by small-scale miners means that many of the miners and their families may find themselves unable to access information that impacts on their lives as citizens, and further isolates an already stigmatized population. (Pact Mongolia 2008)

In addition to accommodating user needs, user capacities must be considered. In most of the countries that we studied, particularly in rural areas, the use of ICTs has not penetrated, either due to infrastructure or lack of user awareness. A majority of the countries still use a combination of traditional information sources, as well as new ICT and non-ICT channels. Informal channels (social networks), such as face-to-face communication, is still dominant in many parts of the world, as is television, radio, and newspapers. Much of this can be attributed to the fact that many portions of the population have no idea what ICTs are, how they function, or how they can be applicable to themselves or their daily lives. This is illustrated in a quote from the Egypt report: “… the high illiteracy rate and the limited awareness of the importance of digital ICT have contributed to the slow pace of technology penetration, especially in under privileged areas” (Wanas 2008).

Creation of Current, Updated Information

One the most commonly mentioned barriers to information access, particularly in libraries, is the absence of current information. Many users are dependent upon up-to-date information in order to be effective in their occupations. Farmers can be helped by knowing the latest market prices, advanced agricultural techniques that may facilitate productivity, climatic variations that affect crop production, etc. Similarly, fishermen are dependent upon weather predictions, fuel costs, and supply and demand. Each vocation has its own needs, but current information helps almost everyone in their decision making.
As mentioned in several of our reports, users often prioritize the venue they choose to attend by whether or not current information is available. Libraries are often viewed as places to get information (Gould and Gomez 2010), but users commonly opt to frequent cybercafés or telecentres, where current information is available through ICTs (Bangladesh, Costa Rica, Sri Lanka). Obviously, it is easier to provide up-to-date information with ICTs than in static information conditions. A quote from Mongolia illustrates this phenomenon: “Because of the KBIC, I can get information whenever I want it. Before, if I missed the news on the TV, that information was lost to me. Now this has changed” (Pact Mongolia 2008).

The production of locally relevant content is illustrated in a variety of AIDS/HIV community centers implemented in South Africa. These centers provide a dynamic interaction between the community and the centers, which respond to the community needs. The centers are typically set up in locations accessible to the target communities, near orphans and vulnerable children (OVCs) or people affected with HIV/AIDS. The needs orientation of the services offered at the centers means that there is a high relevance to their offerings, including counseling, life skills, clinic services, education (such as homework support), and general OVC care. All centers are within walking distance of most of their intended beneficiaries, while outreach programs into homes, clinics, and schools mean that beneficiaries are able to integrate the services into their daily routines. No fees are charged at the centers for accessing public information, including through ICTs (James et al. 2008).

LoveLife is one of the life training programs that operate within these community centers. LoveLife provides public information on health and life skills via messaging on billboards, radio programming, magazine inserts, online content, and trainees who go out into the community to talk about HIV/AIDS and the life challenges facing young people. Media messaging is aimed at the country’s youth and seeks to change behavior by empowering and raising awareness. LoveLife has integrated various life skills issues into its computer literacy curriculum (James et al. 2008).

**Information Produced in Local Languages**

Providing information to underserved communities requires the determination of what type of information is needed and to supply that information in a format and language that can be understood by users. In many countries that we studied, not only was content provided in the dominant language, with little provision for indigenous or local languages (which may even be oral), but it was repeatedly noted that Internet content is predominantly produced in English, or in other locally dominant languages, like Spanish in Peru, or Russian in Georgia and Moldova (Algeria, Bangladesh, Dominican Republic, Georgia, Namibia, Nepal, Philippines, Uganda). This concept is shown in a typical example from Kazakhstan:

> English and Russian are the major ICT languages in Kazakhstan and the forecasts are that the prevalence of Russian will be increasing. Therefore access to ICT is limited for the population not proficient in these two languages. The Kazakh language is developed at household level. Technical, literary and other segments of Kazakh are developing too quickly. The majority of the population cannot keep up with this pace, and poorly understands the “new” Kazakh. This means that the language cannot effectively be used in everyday life. (PACT 2008)

Clearly, each region is variable in its language needs, as are the languages spoken within those regions.

Ideally, information needs to push beyond production of content created in local languages to production of content directly generated by the users and for the users. This provides incentive for local language production, as well as opportunities for “less connected” individuals to learn the tools, as well as be creatively productive using technology. In turn, those users in need of local information in local languages are serviced. This raises the need for “infomediaries,” sometimes referred to as information brokers. Infomediaries are individuals who are members of a community who are actively involved in information venues and directly feed information back into their community (Gould and Gomez 2010), providing information as well as a liaison for local information. The quality of the information depends upon the community’s capacity to communicate and understand infomediaries. In South Africa,

> Due to the high cost of Internet access or bandwidth, lack of a pervasive broadband infrastructure and the low level of awareness generally, online information drives do not reach their intended communities effectively. In many cases, information intermediaries are necessary to download the information and explain it to beneficiaries (government-driven, multipurpose community centers recognize this gap although the skills levels of staff to provide this service are often lacking). (James et al. 2008)

Unfortunately, the production of local content and servicing local users is not a high priority for government entities in many countries (Algeria, Bangladesh, Colombia, Costa Rica, Ecuador, Mongolia), particularly for excluded groups. Further, the production of disinformation in some regions leads to illegal practices against underserved populations such as migrants and women (Sanchez González and Camacho Jiménez 2008).
Creating Content For Illiterate Users

Illiterate users have much to gain through infomediaries, although not all communities are lucky enough to have someone who can cross the information divide to provide content for underserved communities, including those who are less educated and/or illiterate. In this case, it is important to provide digital subject matter that is accessible to users who do not speak the dominant language or who are not conversant in technological applications. As seen in Nepal, this is particularly relevant to nonurban users:

> The major factors hindering access to ICT services in the rural areas, apart from the inadequate rural telecommunication and electricity infrastructure, are widespread illiteracy and the “under poverty-line” population. Also, the ICT awareness is really low in the country, more so over in the rural areas. In many rural parts, people even do not know what a computer looks like. (SAP International 2008)

Brazil has a program entitled InfoBahia, a portal for services offered by the state of Bahia, which utilizes icons to display content. “Researchers believe Brazil must work to improve the functional literacy rate while also delivering information in more visual ways (i.e., less text-heavy), by taking advantage of ICT services” (Voelcker 2008).

User and Operator Capacity

A recurring theme in many of our reports was a lack of user and operator training in the usage of ICTs. Across all venues users of ICTs were expected to have a certain level of digital literacy in order to utilize the equipment. Very infrequently, operators or librarians were trained or provided instructional opportunities for their users. More often, operators lacked ICT competency in libraries, but competency in technology venues such as cybercafés and telecentres often did not transfer to training opportunities. There was also a large discrepancy due to age, with smaller discrepancies due to class and educational levels in terms of users of ICT venues (Gomez and Camacho 2009).

Our study shows that a majority of the users of ICTs in public access venues are youth (aged 15 to 35). This applies to public libraries, telecentres, and cybercafés. Furthermore, there is a clear distinction between education levels and users of ICT venues. In this study, a majority of the users were high-school or university educated. There is also a pattern of users from medium- and low-income brackets, with very few upper-income users, which may be attributed to access at the office or in the home. If at all, training often occurs in school, which benefits youth and populations that can afford education and/or supplementary educational services such as computer usage. Furthermore, this digital literacy tends to favor youth who are often bigger risk takers in terms of learning new technology. Older users often fear new information technology but can be encouraged to adapt given proper circumstances, such as appropriately geared courses, a need to communicate with loved ones who have emigrated, and teachers or trainers who understand their needs and uncertainties. “Another important type of information is the information on their civil rights, most of the population of Georgia don’t have information about their status, rights, responsibilities. They don’t know how to access public information even if there is available the piece of information they need” (Institute for Polling and Marketing (IPM) 2008).

Class distinctions can discourage usage because of perceptions of whom a venue services, and who feels comfortable using a given site to access information. This also applies to gender issues. Some cultures do not allow women to access particular areas at certain times of day, in certain circumstances, and in certain areas (Algeria, Egypt, Indonesia, Nepal, Sri Lanka, Uganda, Turkey).

Proper training of operators can lead to enhanced user education, which ultimately encourages user application and practice. Eventually, under proper circumstances, enhanced user capacity can lead to peer training, ultimately strengthening community building. In many of the country reports of the Landscape Study, parents have been observed learning how to use technology in order to help their children with school work. Equally, students are sharing their computer skills with their parents, either to teach them how to use the equipment or to gather information from computers that their parents request.

A flourishing example from the Dambulla Public Library in Sri Lanka illustrates how the dedication of a trained operator, catering to the needs of the users, collaboration between institutions, and improving awareness can make the difference in the success of a venue:

> The Dambulla library opened in 1968 but it took ten long years to get it up and running. A temporary librarian was appointed in 1978 and she started work with one book rack, a table, four chairs and 60 books. But she had 97 members and that was remarkable for this rural area. Today the library is thriving with over 15,000 books, periodicals, newspapers and a special section for the library. But what is remarkable about this library is the proactive measures taken to meet the information needs of the community using digital technology. (Wanasundera 2008)
Because over 90 percent of the population depends on agriculture for their livelihoods, there was a need for access to agricultural information. A program was implemented that is supported by AGRINET (Agricultural Information Network of Sri Lanka). Through the Damballa Public Library, farmers are provided with access to pertinent information, an arena for discussion, and a facility that collects and disseminates indigenous knowledge. For support services, the library communicates with specialized farming agencies, the local agricultural office, the economic center, and other local officials. A seminar held to introduce these services to local farmers found that none of them had ever used a library before.

Without proper operator training, user training will develop much more slowly, if at all. Some students are utilizing computers in schools, but that training is limited to youth, leaving most other populations without adequate knowledge to utilize new ICT tools (for a more in-depth look at ICT users see Gomez & Camacho, 2009). Some older populations may be exposed to ICTs in their jobs, but this leaves many with no exposure at all. Particularly at risk are elderly populations who have never been exposed to modern technology and are less likely to receive training in its usage.

Additionally, as discussed previously, the use of “infomediaries” can make a marked difference in successful ICT usage. Infomediaries, who act as liaisons between communities, can help to bridge the information needs of both groups. Infomediaries are crucial links for capacity building because they help to connect people and communities with technology. They can provide connections to remote and underserved communities, as well as through youth training programs that enable digitally literate youth to work with less experienced users.

**DISCUSSION & RECOMMENDATIONS**

According to the Ministry of Education and Sports (MoES), education is a key component of human capital quality that is essential for higher incomes and sustainable economic growth. It is also recognized as an essential ingredient in poverty eradication. The Uganda Population and Housing census (2002), states that education is not only fundamental for well-being, but also a fundamental human right. Education is crucial for poverty eradication, as it equips the population with the information and the ability to make informed choices. (Ndaula 2008)

The primary information need for underserved communities in a majority of the countries studied was education. Whether education was needed for youth or adults, basic education or technological training, distance learning, or vocational knowledge, a preponderance of responses from both users and operators who visited ICT venues was the desire for additional training opportunities. Also important was access to news, entertainment, health and personal information, and government services, but without attention to individual and specific community needs, “generic” information serves little purpose. What use is international news if you need to know who will buy your fish nets? What use is information on diabetes if you are infected with HIV/AIDS? What use are movie times in Dakar if you want to know when the festivities begin in Pikine? Further, women need information that may differ from what men need: Women need data on healthcare, childcare, their rights, etc. (Olatokun 2008; Hambly Odame 2005; Wheeler 2007). Youth need information on job opportunities and school-related information. The Internet provides opportunities but it is designed from the top down. We need to look at the usability of services to users (Bosio and Sotomayor 2008, 2008).

South Africa has responded to the great user demand for HIV/AIDS information by adapting appropriate media and developing appropriate content for its target audience. This sector has explored the potential of alternative multimedia platforms including radio, TV, print media, billboards, and using face-to-face orientation and training programs. One of these projects, Soul City, uses multimedia edutainment to address a broad range of health-related topics, primarily targeted at HIV/AIDS. These programs target children as well as adults through a mixture of print media, outdoor marketing, television, and radio with outreach and support programs. They also partner with other organizations to produce newsletters on health and communication issues, and focus on HIV/AIDS awareness and life skills.

Beyond production of content for local relevance, it is important for social development for users to produce their own content. This services the local population as well as “fosters authorship and interactions and help to develop literacy skills” (Voelcker 2008). In Brazil, Rede Lê (the Digital Inclusion and Literacy Network, www.ufmg.br/rede.le/) is composed of a collaborative public–private association that promotes collective production of knowledge via Internet-facilitated cultural exchange among communities. Its goal is to promote the development of existing local activities and create new projects through the usage of ICTs. Through this network, telecentres are being utilized to create local content through radio and television. They produce “CD-ROMs, websites, printed and on-line publications, and books and others, exploring content related to local sustainability, education, cultural patrimony, design, graphic arts, hardware maintenance and the creation of open source software” (Voelcker 2008). Through “TV Read” and “Radio Read,” communities are creating their own
Ultimately, we return to user needs. As stated in the Brazil report, “the education system has … failed many Brazilians to succeed in the workplace” (Voelcker 2008). Beyond education, it is necessary to determine what the users need. If employment is a primary focus, then resources need to be directed to skills that will increase employability (Garrido et al. 2009; Sullivan 2009). If current information is the need, then updated data will best serve the community. Not only do users need current information, they need to know where to access this information. Our Peruvian researchers mentioned that users do not know what options they have for access to current information (Bossio and Sotomayor 2008). Honduras needs information on agricultural supplies, entrepreneurship, and microenterprises (Arias and Camacho Jiménez 2008); Moldova needs information on human rights (OPINIA 2008); Georgia needs official information to be accessible at more local sites, rather than having to walk 20 kilometers to access up-to-date information (Institute for Polling and Marketing (IPM) 2008); Kazakhstan desires uncensored information about lifestyles and social and economic issues (PACT 2008); Uganda craves recreational information and interests to draw people away from “activities that may be detrimental to their health, especially social vices including prostitution, [and] drug abuse, among others. Most of the respondents hoped that with access to better entertainment activities through computers and provision of leisure reading materials in libraries, this could help to reduce the social vices” (Ndaula 2008).

CONCLUSION

Fundamentally, we must address three primary issues to service the information needs of underserved populations: the production of locally relevant content; information produced in local languages; and user and operator capacity. The application of ICTs into a user’s daily life is insignificant if the content is not directly targeted to the needs of the local population. This must take into consideration literacy levels, available technology, cultural and regional variations, and the capacity of the users to utilize any given piece of technology. Emphasis must be placed on user and operator training and on increasing user awareness so that ICTs can be utilized to their full potential and directed towards underserved communities. Further, it is essential that information is current in order to serve many occupational and social needs.

Vital to including underserved communities is the production of content in local languages, which includes the consideration of illiterate populations. A potential solution utilizes infomediaries, or liaisons, who can help to connect populations with varying information needs. Beyond simple use, it is hoped that ultimately communities will begin to create their own content, rather than merely being consumers of online content. If this is to be accomplished, attention needs to be given to the capacity of operators and users so that access is not the primary issue, but content production becomes the goal.

The provision of information must reflect user demands; otherwise we are wasting our resources on projected needs that do not service the targeted populations. As stated in the Sri Lanka report, “information provision has to be very focused and not service the targeted populations. As stated in the Brazil report, “the education system has … failed many Brazilians to succeed in the workplace” (Voelcker 2008). Beyond education, it is necessary to determine what the users need. If employment is a primary focus, then resources need to be directed to skills that will increase employability (Garrido et al. 2009; Sullivan 2009). If current information is the need, then updated data will best serve the community. Not only do users need current information, they need to know where to access this information. Our Peruvian researchers mentioned that users do not know what options they have for access to current information (Bossio and Sotomayor 2008). Honduras needs information on agricultural supplies, entrepreneurship, and microenterprises (Arias and Camacho Jiménez 2008); Moldova needs information on human rights (OPINIA 2008); Georgia needs official information to be accessible at more local sites, rather than having to walk 20 kilometers to access up-to-date information (Institute for Polling and Marketing (IPM) 2008); Kazakhstan desires uncensored information about lifestyles and social and economic issues (PACT 2008); Uganda craves recreational information and interests to draw people away from “activities that may be detrimental to their health, especially social vices including prostitution, [and] drug abuse, among others. Most of the respondents hoped that with access to better entertainment activities through computers and provision of leisure reading materials in libraries, this could help to reduce the social vices” (Ndaula 2008).

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