Research Article

Same But Different: Comparing Public Access Computing Venues in Colombia

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Abstract

Public access computing (PAC) venues bring the benefits of computers and the Internet to a broad sector of the population of Latin American countries. While most previous studies have looked primarily at telecenters, this study of PAC venues explores similarities and differences among libraries, telecenters, and cybercafés in Colombia. This is done to assess their relative strengths and weaknesses, and to provide opportunities to make PAC more relevant for community development. We draw from interviews, focus groups, and surveys conducted in the country in 2010. While libraries tend to have strong institutional support, they are also often the least prepared to offer effective ICT services. Telecenters tend to meet the needs of underserved populations through customized training and support. Cybercafés, the most common type of PAC venue, tend to offer good customer service and hands-on support, even though their intent is not to contribute to community development. The study concludes that there are unique strengths in each type of PAC venue, as well as opportunities to strengthen partnerships and collaborations between them. From these findings, a key opportunity emerges in identifying ways to improve the collective development contribution of cybercafés, which are much more numerous in this country than telecenters and libraries combined.

1. Introduction

Information and communication technologies (ICT) can contribute to community development, but not automatically. According to Toyama, "technology—no matter how well designed—is only a *magnifier of human intent and capacity.* It is not a substitute" (Toyama, 2010, para. 11). A particular way of using ICT is through public access venues. People in marginalized and underserved communities in developing countries frequently cannot purchase and maintain their own computer or Internet access. They generally use computers in public access locations, such as libraries, telecenters, or cybercafés. These public access computing (PAC) venues have unique features and shared characteristics that contribute to the use of ICT and may contribute to community development in Colombia. How do libraries, telecenters, and cybercafés serve the needs of underserved communities, and how can they better contribute to community development? What are the similarities and differences between these different types of PAC venues, and how can they better serve the social and economic development needs of underserved populations? To answer these questions, we studied public libraries, telecenters, and cybercafés as principal points of public access to ICT in Colombia.

Three core ideas emerged from the field research in Colombia. These serve as a basis for the structure of this article: a) strengths and challenges of each venue, b) information needs of users and the role of operators, and c) social contributions and future prospects of access centers. The rest of the article is organized as follows: We present a short literature review of PAC for development, particularly focused on Colombia, followed by the research methods used in this study. We then present the main findings about libraries, telecenters, and cybercafés, and we discuss their strengths and weaknesses, as well as the role of operators and the social contribution of each venue type. We conclude with an overview of the similarities and differences of each PAC venue type, and of their implications for community development in Colombia and other developing countries.

2. Public Access Computing for Development, Focus on Colombia

The literature on PAC for development is abundant, especially regarding telecenters (most often cited include Benjamin, 2001; Delgadillo, Gomez, & Stoll, 2002; Etta & Parvyn-Wamahiu, 2003; Gomez, Hunt, & Lamoureux, 1999; Gomez & Reilly, 2002; Jensen & Esterhuysen, 2001; Proenza, 2001; Proenza, Bastidas-Buch, & Montero, 2002; Roman, 2003). Some researchers have studied libraries and their contribution to development (Gould & Gomez, 2010; Rutkauskiene, 2008; Walkinshaw, 2007), and others have looked at cybercafés (Finquelievich & Prince, 2007; Gurol & Sevindik, 2007; Haseloff, 2005; Salvador, Sherry, & Urrutia, 2005). Very few have looked at all three venue types in combination, yet it is becoming increasingly clear that the ecosystem of PAC, including telecenters (nonprofit initiatives), libraries (government-sponsored) and cybercafés (for-profit businesses), forms a web of inter-related services that, together, can make a stronger contribution than any single venue type on its own. A broad analysis of libraries, telecenters, and cybercafés in 25 developing countries suggests that, while cybercafés are far more numerous than libraries and telecenters combined, all three venue types have particular strengths and weaknesses. Furthermore, by working together, all PAC venues can make a stronger contribution to community development (Clark & Gomez, 2012; Gomez, 2012b).

Regarding Colombia in particular, studies mostly focus on how to improve the design and operation of community telecenters (Amariles, Paz, Russell, & Johnson, 2006; Gaitán, 2007; Parkinson & Lauzon, 2008; Paz Martínez, 2007; Soto, 2007) or evaluate the performance of government-run telecenters (Colnodo, Universidad Autónoma de Occidente, Ministerio de Comunicaciones, & Telecentre.org, 2008; Ministerio de Comunicaciones & Universidad de los Andes, 2007). There are even fewer studies of PAC in libraries in Colombia (Soto, 2007), and just a single, partial study of libraries, telecenters, and cybercafés conducted as part of an international study that describes some of the most salient initiatives but does not assess their impact (Barón & Valdés, 2012). Additional results of this research on PAC in Colombia have been published elsewhere (Baron & Gomez, 2012a, 2012b; Gomez & Baron, 2010, 2011; Gomez, Fawcett, & Turner, 2012), including an analysis of users' perceptions of the impact of PAC that was published in an earlier issue of this journal (Gomez, 2012a).

3. Research Methods

We examined public libraries, telecenters, and cybercafés as the principal points of access to ICT in Colombia. Under the category of telecenters, we included both community telecenters (supported by non-governmental organizations) and governmental telecenters (supported by the government's Compartel program, among others). Cybercafés include commercial, for-profit businesses in towns and cities that offer access to Internet-connected computers and other related services (including food or beverages; connectivity services like telephone calls, scanning, printing, photocopying, and disc burning; or more diverse services, such as beauty services, access to exercise equipment, or video games).

Fieldwork was conducted in Colombia during the first half of 2010 by researchers from the University of Washington with a team of local collaborators. Several tools were used in this research: a survey to scan users of public access venues, in-depth interviews with experts, semi-structured interviews with users of public access venues, structured interviews with public-access-venue operators, and focus groups with operators and users in six different locations.

Table 1. Number of Public Access Venues in Colombia.

Type of Venue	Estimated Number
Public Libraries*	522
Telecenters 　NGOs: 1,062 　Government: 1,669	2,731
Cybercafés	15,053
Total	18,306

*Colombia has 1,178 libraries in total, but, according to data from the National Library, only 522 have Internet service.

1,182 surveys were completed by ICT public access venue users nationwide. Surveys were administered by local volunteers in libraries, telecenters, and cybercafés at different times and on different days to account for time variations.

There were 10 interviews with experts, who were organized in two groups: six ICT scholars linked to universities, government organizations, and NGOs (most of them lived in big cities, such as Bogotá, Medellín, or Cali), and four opinion leaders involved with activities linked to communication and information in a community in each region. Structured interviews were also conducted with 100 PAC venue operators—20 in each region, with a balance between capital cities and municipalities—within the three types of public access venues (libraries, telecenters, and cybercafés).

We held six focus group workshops, one in each region of the country. Approximately 12 community members participated in each workshop, including both users and operators or actors of public-access ICT in the community. The main purpose of these workshops was to facilitate structured conversations that would illuminate the community information and communication requirements and practices, with a particular focus on the role ICT public access venues played in community development.

All data was collected in Spanish by native Spanish speakers. Detailed field notes were prepared after each focus-group workshop; interviews were transcribed and anonymized, and all qualitative data was coded using Atlas TI, a qualitative software analysis package.

This paper presents findings related to the differences and similarities, strengths and weaknesses of the different types of PAC venues studied.

4. Findings

According to the Ministry of Information and Communication Technologies, in 2010, Colombia had approximately 18,306 public access centers providing access to ICT. Tallying up 2010 data from the National Network of Public Libraries, the National Network of Telecenters, and the National Council for Economic and Social Policy (CONPES), we calculate that 82% of all access was provided by cybercafés, 15% by telecenters (both state institutions and social organizations), and the remaining 3% by public libraries, as summarized in Table 1. The characteristics of each type of access center, according to the data collected, are explained below:

1) **Cybercafés** have multiplied exponentially over the last few years, and they now serve large sections of cities and towns. Cybercafé entrepreneurs have successfully adapted to technological developments and user needs by providing quality service, as well as informal support and training in the use of ICT. However, as a result of ignorance, misinformation, and lack of interest, they are generally not perceived as agents of local development, nor are they engaged in actions that contribute to strengthening and supporting socioeconomic equalities other than through the provision of access to information and communication.

2) **A. Community telecenters** are generally set up by nongovernmental organizations (NGOs) and other nonprofit groups, and they operate as nonprofit initiatives with the goal of contributing to community development. They generally offer strong training and support in the use of ICT to underserved people and communities. Several telecenters also develop programs that promote access to and use of ICT through projects and initiatives that support income generation, health information, and education. They also support ethnic, cultural, and political initiatives. Their biggest challenges are sustaining social projects and maintaining and upgrading their equipment.

B. Government telecenters, in contrast, are set up by national, departmental, or municipal government programs, and they

combine access and training in ICT with the promotion of services offered by public institutions, such as licenses, permits, or other government transactions. These telecenters are thus able to extend the ability of government agencies to communicate and promote their programs and political projects.

3) ICT access centers in **public libraries** stand out both because of the vocational and public spirit of their directors and operators, and because of the support and training they provide—not only in the use of technologies, but also in the finding, management, and use of information. Nevertheless, these centers have serious limitations in coverage, staffing, ability to upgrade equipment, and quality of Internet connections, especially in peripheral areas of the country, and sometimes even in larger cities.

The following sections discuss each PAC venue type in detail, drawing primarily from interviews and focus group data and speaking to the strengths, weaknesses, and social contributions of each venue type. Given the limitations of space, and also to sharpen the focus of this paper, we do not draw as much from the quantitative data that were collected in this study.

4.1 Cybercafés: Good Service and Less Social Responsibility

Despite the impressive expansion and development of cybercafés in Colombia—an expansion observed in much of Latin America and other parts of the world—these public access centers have neither become part of the agenda of the politicians of the country, nor a social phenomenon of interest to academic or nongovernmental organizations. While public institutions have begun to police and control cybercafés, academic and social organizations are demanding less of a focus on economics and more of a focus on contributions to local development.

Statistics continue to show, however, that these access centers are important for public access to, and use of, ICT in Colombia. Data about ICT usage in households, stores, industry, service centers, and small shops show that fee-based PAC venues accounted for 53.1% of all Internet usage in 2008 and 47.2% in 2009, followed by home access at 35.2% in 2008 and 43.8% in 2009 (DANE, 2008). Similarly, measurements made by the National

Center for Consultancy and reports by the National Bureau of Statistics (DANE) show that, by the year 2006, cybercafés ranked second in preferred modes of accessing the Internet, after home access, which was still ranked first. The data for 2007 and 2008 place cybercafés as the preferred way to access the Internet in the country.

According to the respondents in this research, cybercafés have come to be mostly as the result of informal entrepreneurship and a search for alternate means of income generation. Many of them result from the evolution of services in small stores, informal businesses, street sales of mobile phone calls, or call centers for making phone calls—usually located close to markets, educational institutions, shopping centers, or locations with high pedestrian traffic. Several of the cafés visited began as a small shop that sold cell-phone minutes, and then integrated one or two computers with Internet access, generally dial-up. With time, they added more and better computers with faster Internet connections and improved their ability to transmit and download data from the Internet. To keep the influx of customers, a large proportion of these cafés also added other technologies, including photocopying machines, printers, CD-burners, and scanners, as well as other services, such as stationery, food, and beverages.

4.1.1 Strengths and Challenges of Cybercafés

Two strengths and benefits of cybercafés stood out. First, users valued the freedom and privacy that they offer, the activities available (surfing, chatting, watching videos, playing games, etc.), and the amount of time that people could dedicate to use them. This first issue speaks to the comparison that users make between libraries and telecenters, and the limitations that each type of PAC venue has. Nevertheless, the acknowledgment of these limitations does not imply criticism of these sites, but rather, recognition that they have a different type of rationale for service.

The second issue has to do with the characteristics of the equipment and Internet connectivity. In this research, the connection speed, the ability to download and transmit data, and the updating and provision of equipment and software (primarily, this referred to which software programs were installed) were the most frequently mentioned topics. Another highlight we identified was the

confidence that users had in cybercafé operators. The trust appears to be based, in part, on the close relationship that café operators (many of them pioneers in the communities where they are located) have built with their clients, and also on the expertise demonstrated by the operators, who solve clients' problems and create effective solutions for users. In general, operators are seen as technically skilled and knowledgeable about programs, as well as friendly and well-intentioned.

We have 30 computers, apart from those that offer bill payment, scanner, photocopies, etc., we're open from 7:00 in the morning to 11:00 at night from Sunday to Sunday. (Telecenter operator, Cali)

Finally, the importance of the location and the hours of cybercafés were highlighted. In most cases, cybercafés have been set up with customers in mind, resulting in their reputation as comfortable and enjoyable places. The schedules, decorations, equipment, software, accessories, and additional services have been designed and provided to serve users.

Cybercafé operators tend to provide hands-on help that allows users to acquire or improve their ability to create and read e-mail, navigate and consult the Web, communicate with family and friends, and play games and entertain themselves online. Although it is not their primary job, operators answer questions, assist with searches, provide basic information about using programs and accessing the Internet, and help to create emails and print documents. Nevertheless, one of the weaknesses and disadvantages of cybercafés, as perceived by users and operators, is the lack of formal spaces and programs or structured training in the use of ICT.

On the other hand, the testimonials collected indicate that, in several cases, cybercafé operators go overboard with their customer service, completing homework for users while the kids play, collecting private information (identification numbers, account numbers, and passwords) to conduct online transactions on behalf of customers. Even though these actions may be the result of an agreement between users and operators, they can be problematic, at least ethically (plagiarism), and possibly legally (invasion of privacy and access to personal information).

Students have become very lazy . . . leave just pay some money and don't even do the research,

they don't even know what is a paper, they just ask for it and we do it for them, they say it is too long [and ask you to] summarize it. They have become very lazy, and teachers allow it. (Operator, Cybercafé, Pasto)

I have no restriction, very rarely small children come, when they do, I do their homework, and I look for the topic and print, it's better for me because they pay for the printing, because I don't have time to help them, so I look for the homework, and I print it. (Focus group, Carmen de Bolívar)

When we analyze the other types of services offered by cybercafés (in addition to computer and Internet access), we note important differences between the other services offered by telecenters and by libraries, as shown in Figure 1.

It is self-evident that cybercafés offer food and drinks more often than the other venues, but the most frequently reported other service is actually "typing and printing papers," generically called "trabajos en computador." This is often a euphemism for "we do your research/homework for you," as indicated by the testimonials above. Furthermore, while all venues offer training, cybercafés report a greater proportion of computer training than other venues.

Identifying the information and communication needs of users is also part of the day-to-day work of cybercafé operators. This work is mediated by the questions, requests, and suggestions arising from the daily interactions between operators and users. In most cases, cybercafés do not have records of users, surveys, or suggestion boxes. Nevertheless, cybercafés seem to respond quickly and effectively to user requests, particularly those related to technical issues, access to programs, and primary research. Careful and effective support is provided in matters of information and knowledge.

Based on what they ask me, I realize what needs to be updated in terms of equipment, software, and speed and everything necessary to improve the service. . . . The needs are revealed by the customers themselves who give us advice and information about themselves. (Operator, Pasto)

4.1.2 Social Contribution and Future of Cybercafés
With some exceptions, the operators of the cybercafés consulted did have ideas about social

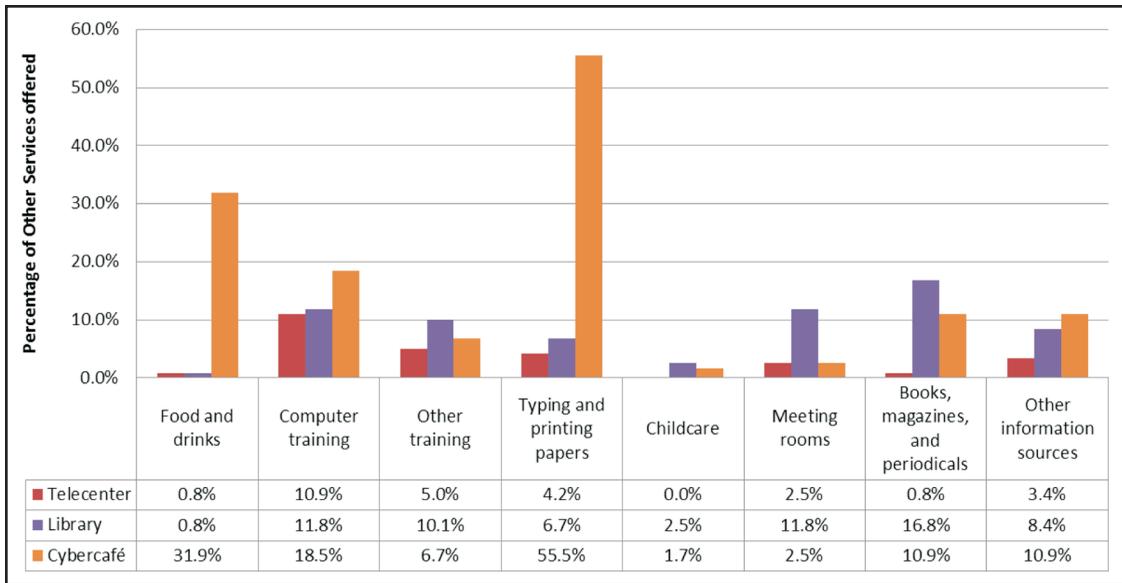|	Food and drinks	Computer training	Other training	Typing and printing papers	Childcare	Meeting rooms	Books, magazines, and periodicals	Other information sources
Telecenter	0.8%	10.9%	5.0%	4.2%	0.0%	2.5%	0.8%	3.4%
Library	0.8%	11.8%	10.1%	6.7%	2.5%	11.8%	16.8%	8.4%
Cybercafé	31.9%	18.5%	6.7%	55.5%	1.7%	2.5%	10.9%	10.9%

Figure 1. Other services offered by PAC venues (in addition to computer access).

contributions they could offer to the people and communities they serve, though they are not clear about how they might contribute to local development processes and communities. A frequent answer we heard was "we treat ourselves like a business." Therefore, local development is not one of the main priorities. Their responses also provided evidence of how little information and knowledge (sometimes a deliberate omission) cybercafé operators had about issues such as data privacy, copyright, or the necessary controls to censor the information consulted by children and young people.

Nevertheless, most believed that they made a social contribution by providing an Internet connection and access to information, communication, and entertainment (games, videos). These new tools, as the operators see them, allow people to defend themselves and contribute in a modern world that demands skills and knowledge of the use of ICT. In addition, it saves people time, travel, money, and long lines.

I do everything online now . . . I am studying accounting for example, I go to see the teacher once, everything else I do virtually, something that helps a lot. (Operator, Barrainquilla)

When we talked to operators about the future of cybercafés and public access to ICT, most focused on their plans to grow and expand their businesses. Their attention was on the success of their businesses, the development of their ideas as entrepreneurs, and their ability to build a better life for themselves and their families.

4.2 Telecenters: Contribution to Local Development and Construction of Public Policy

Telecenters have been one of the key pieces in the development and adoption of ICT in Colombia. The emergence of these technologies in this country was driven by communication NGOs; alternative providers of email and Internet access; and social organizations with local cultural, economic, and civic projects. Unlike other countries, telecenters in Colombia originated from, and have been supported by, many different public, private, and social organizations. This range of support has generated a variety of practices, experiences, and relationships between telecenters and outside organizations.

Telecenters have been developed by state agencies through national programs. Furthermore, telecenters are also developed or supported by private enterprise as part of corporate social responsibility projects, and some have been developed by nonprofit organizations, such as NGOs, universities, or foundations. But the most traditional of all are those operated and maintained by grassroots orga-

nizations that have united to start new telecenters as part of local development strategies, or as part of economic, political, or cultural projects and programs in various locations and regions of the country.

Telecenters have stimulated not only individual and organizational use of ICT, but also the formation of regional and national networks and the development of public policies. Today, the National Telecenter Network is one of the most important actors in the discussions, design, and implementation of plans and policies at the national level. The use of the Internet through public access centers has continued to grow over time as a result of citizen initiatives and policy implementations of universal access to ICT (telephone and Internet).

4.2.1 Strengths and Challenges of Telecenters

The majority of community telecenters originate from social projects designed to address different economic, cultural, or political experiences; these venues have strong links within the regional and local context. Some experiences can be more participatory than others, and some are more formal and systematic. Some incorporate historical components while others do not, but in general, they all seek to have a holistic view of the local and regional situation.

Local knowledge is perhaps one of the great advantages of telecenters. By local knowledge, we refer to the local and regional stories that have been established from the experiences in the influential areas of the telecenters, based on information from primary and secondary sources or a combination of the above. Local knowledge and links to local organizations give telecenter users more trust in the services provided to them by the telecenters. Although the telecenters are generally motivated to support the public good, they also follow the needs and priorities of the organizations that sponsor them. As a result, the actions of telecenters can be effective and well-focused, but at times, they can also limit the opportunities for the public to access wider services or limit the possibilities for other populations to use ICT. Another advantage of telecenters identified by the sources we consulted is that train-

ing processes are designed and implemented to suit the public and "beneficiaries" who use telecenters.

Other services offered by telecenters, as described in Figure 1, depend on the priorities and approaches of the organization sponsoring them. Telecenters that are part of local or national government programs tend to concentrate their efforts on universal access and training in the use of ICT. Some also support institutional health, education, or employment programs. This type of support is highly valued not only by users, because it saves them time, travel, and money, but also by local governments, because it speeds up and facilitates their work by reducing the need to go from one office to another, the amount of people visiting the offices, and the number of office staff required to serve the public.

Our main strength is that we support the government entities, we have online government, and we support the users in all of the different entities that are found in the Supercade (government information center). Right now, we are working with the Minister of Finance; we help the users with printing the files of the land registry, and we also collaborate with car [registrations], and we support the state with the sale of vehicles, among other things. (Telecenter operator, Bogotá)

The community telecenters seem to have more of a critical approach to technology, its uses, and its social appropriation.[1] In addition to digital literacy, a significant group of telecenter operators expressed a commitment to the principles and projects of the social appropriation of ICT. That is, they are committed to the idea that these technologies do not represent an end in themselves, but rather, the means to achieve social objectives, and that access to and ownership of information and communication are part of the rights and duties of citizens. Such principles highlight the participation and linkages of these telecenters in networks and discussions at national and international levels.

In general, community telecenters are committed to *processes* and the social outcomes of their actions. When discussing the social impact of these access points, they tend to emphasize criteria such as community capacity gained (such as dialogue

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1. *The notion of social appropriation of ICT is derived from the Spanish language phrase* apropiación social, *frequently used in Latin America to describe people's capacity not just to access, but to effectively use ICT tools and resources to solve their information and communication needs and improve their quality of life.*

with other people and sectors), relationships, business carried out, or the applicability of knowledge in everyday life. The impacts of these criteria are less visible, and their evaluation is more complex.

Telecenters tend to go beyond the use of ICT and strive to produce knowledge in a local context, especially those telecenters developed and managed by local organizations and social foundations. The emphasis of many of these telecenters is not only on the search for and management of information, or on the fast communication these technologies provide, but also on the production, exchange, and promotion of local content. These goals demand and generate another set of activities, such as the production of many different media, such as radio, video, and printed materials.

> We're trying to show the culture so that the very same community can assemble information in blogs showcasing the traditions of El Carmen, their activities, photos of the municipality. (Carmen de Bolivar focus group)

The biggest challenge facing telecenters is sustainability. For the most part, telecenters depend either on contributions and assistance from public and private entities for their operation, or on charging users small fees. However, these resources are insufficient to meet user demands for the quantity and quality of service and innovation. These results coincide with previous evaluations of the impact and viability of telecenters, such as the study by the Ministry of Communications and the Center for Studies on Economic Development at Universidad de los Andes (2007), which showed that telecenters are viable and have high impact potential, but mostly in areas with little competition (from cybercafés) or where there are high numbers of potential users (urban areas). But telecenters are intended to have a social mission, to contribute to community development, which is not necessarily part of the mission of cybercafés. Therefore, market-driven competition from cybercafés can present special challenges to the sustainability of telecenters or the realization of their social mission.

4.2.2 Social Contribution and Future of Telecenters

Telecenters neither collect nor record the needs of their users as libraries do, and they are not as informal as cybercafés. Some use surveys, others have registries, and others have databases with user

information. However, because of their links with the communities and some community projects, telecenters generally seem well aware of the needs of their users. That said, measuring impact remains a big challenge for government programs, community programs, and national and international donor organizations. The user survey suggests that the most common social use of telecenters is related to *education* (42%), while *government services* accounts for only 1% of the reported use. However, some interviews and focus groups show that telecenters are mainly used for e-mail, utility payments, and access to information on government websites.

One of the greatest contributions of telecenters has been the visibility and public discussion they have inspired. The organizations and telecenter networks have driven projects and public policies not only for this sector, but also for the overall development of ICT in Colombia. In recent years, their participation in the policy debate has enabled a more consistent participation of telecenter representatives in international fora and institutions where decisions about access to and use of ICT in Colombia and some international settings are made.

When we asked about the future of telecenters, respondents emphasized the need to find and design (if necessary) tools, programs, and spaces that offer more and better access to ICT and user training. In particular, respondents would like to see resources specific to the languages, characteristics, and needs of the local communities. And to achieve this goal, several respondents mentioned the need to strengthen and build alliances with other organizations, especially educational institutions.

4.3 PAC in Libraries: New Challenges for Public Access to Information

The emergence of ICT has presented a new challenge and new tasks for libraries, not only in relation to new forms of information and interaction brought about by digital media and communication, but also in the design of new services to meet the needs and demands of populations with different social, economic, and cultural backgrounds, as well as different (but still generally low levels) of digital skills. In addition, it has required the development of new forms of consultation, reading, and communication with users. These changes have driven the design of public and institutional policies, involving

substantial investments in networks, devices, plat-forms, databases, programs, and staff. They have also transformed the relations among state, private sector, and social organizations, entities which, among other things, have faced the challenge of working with logic structures and networks.

In 2003, the National Reading and Libraries Plan came forward to promote literacy by improving access to and increasing the desire of the Colombian people to use books and other means of knowledge dissemination, including the Internet.[2] In an evaluation of the plan, Colombian scholar Jorge Orlando Melo argued that, despite successes, the national libraries still have great challenges ahead. One such challenge is the production of complete and sufficient information about *their real performance* and the impacts of plans and policies that have been executed by them. Melo also identified a number of problems with the plan's performance related to ICT access: the weak commitment of most local governments to ICT, difficulties in local administration and implementation of plans and policies designed by national institutions, training of librarians, the limitations of current Internet access (and the slow progress in improving this problem), and gaps in the development of an adequate system of content creation through the Web (Melo, 2010).

Nonetheless, public access to computers and the Internet through libraries in Colombia has grown over the past few years. While in 2007, only 14% of the public libraries were connected to the Internet (Rodríguez, 2007), some experts consulted in this research reported that, in 2010, about 45% of the libraries had public access to the Internet, and they expect 100% coverage to be achieved in the next few years. In fact, PAC in libraries in Colombia is poised to grow significantly in the next few years. The "Access to Learning Award" (ATLA) of the Bill & Melinda Gates Foundation has already recognized the global excellence of the libraries in Bogotá (2002) and Medellín (2009) (Bill & Melinda Gates Foundation, 2012). And in 2011, the Gates Foundation approved a grant for US$3.2 million to the National Library, part of the Ministry of Culture, with an additional software donation by Microsoft Corporation to explore, test, and pilot connectivity, training, and use to better meet users' needs and

interests through the careful application of ICT (Biblioteca Nacional de Colombia, 2012). As a result of this initiative, the PAC dimension of public libraries should be significantly strengthened in the near future.

4.3.1 Strengths and Challenges of PAC in Libraries

Libraries are a meeting place where you find . . . information, knowledge, reading, artistic expression, community. . . . [M]aybe that's not the plan every week, but it's the plan this week. . . . This Internet access is completely free, and we do not prioritize the information need of one person more than the others. . . . You have your time, and you do what you want to do: research, find out about a topic, go to social networks, chat with your friends, see your e-mail. (Library operator, Bogotá)

The opportunities and strengths found in library access centers are mainly related to their public nature, the personalized support they provide in the training and use of ICT, the variety of sources offering information, and the networking opportunities they encourage.

The public nature of PAC in libraries was the most commonly cited benefit raised by those consulted for this research. This public characteristic has at least three different aspects: a) libraries provide access to all segments of the population, *to all audiences;* b) libraries are *public spaces,* i.e., community meeting places; and c) libraries have a public *responsibility* in the sense of seeking to ensure equal access and equity for all population sectors. These considerations are not part of abstract and idealistic discussions, but rather, they are reflected in both institutional policies and the series of everyday practices that we observed while undertaking this research.

The public nature of libraries is expressed, for example, in the development of software and the design of spaces specifically for vulnerable and marginalized groups who cannot access ICT though other venues. Such groups include people with disabilities, street people, and the elderly. The creation of spaces for meetings and cultural exchanges (such as festivals, meetings, artistic performances, and lectures) also exemplifies the

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2. The plan was based on previous experiences from a National Plan made by the Biblioteca Luis Angel Arango in early 2002, which was hosted by the government of Alvaro Uribe and formalized in CONPES document 3222 in April 2003.

public nature of libraries. Finally, the free nature of the service makes it widely accessible. For many people, libraries, despite their locations or schedules, provide the best opportunities for ICT access because they are *free.*

> *The advantages we offer is that it is a free service, a cultural service, a personalized service, a service for which if the user requires help we will provide it. We offer personalized advice and sometimes while we are giving some information it may help with their training and career. . . . [I]t is a public service, a service where you learn, you get to know people, and I do not believe we have disadvantages compared to other [PAC venues]; we try to address all needs and concerns that people have. (Library operator, Bogotá)*

PAC in libraries not only offers custom training in the use of ICT, but also provides support for finding and using information, which is also seen as a strength. In general, libraries not only have people trained to help locate good information, but also have educational software and access to database management tools for common and specialized searches.

As illustrated in Figure 1, two aspects of public library offerings that are highlighted most often are computer training and the availability of reference materials, such as books, magazines, and other periodicals. Meeting places appear in third place, confirming the idea that libraries are public spaces that encourage both gathering and participation in different cultural and educational activities.

> *Thus, in our libraries, and probably in others, people with physical disabilities such as the blind have programs and activities with new technologies. They have been appropriating the space; there are a number of programs and activities [for them]. Also there is room for people with other disabilities in the library. For example, in the case of the deaf: they come and send their e-mails as another form of communication and this medium facilitates their lives and what they do. (Interview with experts, Bucaramanga).*

The third advantage of libraries identified in interviews fell into the category of access to information and knowledge services offered, including Web resources, written documents, resources, audio, video, multimedia, and databases. In addition, a variety of educational and cultural activities are conducted in libraries, both small and large.

Finally, respondents in this study also highlighted that networking between libraries and the opportunities libraries provide for some users to participate in networks of users is another advantage these spaces provide. The achievements of networks, such as *BiblioRed* in Bogotá and *Medellín Library Network,* are widely recognized by most of those consulted. These networks also serve as a reference point for the work that many people would like to develop in their own cities and municipalities. Networked libraries appear to offer better services; there is ample opportunity to extend the network beyond libraries, reaching out to include the services offered by telecenters, and even cybercafés. Stronger partnerships with government-run telecenters (Compartel in particular) are not impossible, though we found no evidence of them throughout our investigation.

Although access sites in libraries have designated funds for their operating and personnel costs, another of the major constraints identified by both analysts and operators is the lack of resources to provide quality services that correspond to not only the needs of the communities where they are located, but also the anticipated needs and potential future services of their ICT access centers. This difficulty can be directly related to the lack of interest and political will of local authorities (Melo, 2010), which coincides with the testimonials of most respondents in libraries.

In libraries, the operators are expected to offer training and support for both the use of ICT, and the organization and use of information in digital and non-digital formats, but library staff are frequently not well-prepared to do more than give very basic computer use instructions. A high percentage of the operators identify *digital literacy* or *information literacy* as one of the main objectives of the library. As one of the coordinators of the libraries of Bogotá described in an interview, from their information needs, people learn to access, locate, and use information. Knowledge of the use of computers and the Internet is important, but the ability of people to incorporate the use of this tool into their everyday lives and gain autonomy is fundamental.

4.3.2 Social Contribution and the Future of PAC in Libraries
Compared to cybercafés and telecenters, libraries have more formal information and monitoring systems on the characteristics and needs of their users.

They have designed and implemented forms, data-bases, surveys, and suggestion boxes that record user suggestions and activities, as well as evaluations of library services. However, as Melo (2010) notes, many libraries do not effectively use the information collected. In several of the interviews, no evidence of an effective systematization or use of the information was recorded.

Research shows that, in Colombia, libraries, not telecenters, are seen as areas that provide greater opportunities for people with disabilities or physical limitations, particularly people who are visually or hearing-impaired. In libraries, people primarily use ICT for jobs, entertainment, and homework. Indeed, almost half of the respondents in the survey cited education uses, such as homework and school research, as a primary function of libraries.

Although the availability of computers and Internet access are required topics when talking about the future of libraries, most current library plans and strategies are targeted at providing better service to users (particularly those who are generally excluded or in vulnerable positions), strengthening reading and writing programs, and expanding the reach of their programs, as well as the variety of cultural offerings.

Although libraries represent key services for universal access programs, they are still failing to implement a comprehensive policy that meets the combined criteria of equality and equity—providing access to all while concurrently providing more and better services to the marginalized and underserved sectors of the population. Figures in CONPES document 3670, 2010, showed the following:

a) The 415 libraries in the National Network of Public Libraries and about 78 cultural centers benefited from the Compartel program, and

b) 292 libraries with 4,450 computers and 124 cultural centers with 2,363 computers have benefited from the Computers for Schools programs.

Nevertheless, many libraries are far from becoming important nodes for access to information, culture, and knowledge (Consejo Nacional de Política Económica y Social—CONPES, 2010). Looking ahead, Melo suggests that, despite the rapid technological transformations and changes in the cultural practices, access habits, consultation, and information processing, sustaining and improving public libraries as a complementary system to the educational system will be a challenge for two or three more decades.

You have to use the Internet to make good websites and to guide readers quality reading materials, artwork, movies, and music. It should be free to use computers and access the Internet, so even the smallest children can become familiar with using computer and the Internet, can learn to draw and write on them and learn to find information, find what is worthwhile to spend time on, to evaluate and disregard trash. But above all, to do the basics well, basically, have good collections updated, books and movies, and lend without many restrictions. (Melo, 2010)

5. Conclusions

Cybercafés, telecenters, and libraries continue to play an important role in enabling access to and training in the use of communication tools, information, and knowledge provided by ICT.

Table 2 presents the key issues analyzed in the three types of PAC venues in Colombia. The level of government support for telecenters seems to be comparatively high in this country, particularly through the Compartel program. Nonetheless, nonprofit and community telecenters are common in many other Latin American countries, while for-profit *cabinas públicas* (cybercafés) are most common in Peru. The relative strength of the telecenter movement, and the level of support of the government for this type of PAC venue, may change the way the lessons learned in Colombia can be applied in other countries.

Libraries, telecenters, and cybercafés all respond to the needs and demands of a large number of individuals and communities who cannot access, temporarily or permanently, these services at other private locations. Moreover, consultation with experts and operators highlighted the high number of people who receive information about and training in the use of new technologies in public access centers. Indeed, user training was seen as one of the biggest impediments to the use of ICT by operators. The lack of training in the use of ICT is most evident outside the large cities, where individuals and communities are marginalized for economic, educational, or cultural reasons—including fear, lack of information, and lack of digital literacy skills.

Although the cities and towns surveyed had multiple sites for social interaction (such as parks, street markets, or shopping centers), in general, ICT public

Table 2. Comparison of PAC Venues in Colombia.

	Cybercafés	Telecenters	Libraries
Advantages	Independence and updated equipment Confidence in the operators Location and hours	Diagnostics and local knowledge (local development projects) Training tailored to the public Development of local content and relationships with other media and projects	Spirit of public service Personalized support Variety of information sources Networking
Challenges	No training programs Engage in activities that invade the privacy of users	Specialized service Sustainability	Location and hours Budgets Responsible for ICT
Meeting Information Needs	Face to face (everyday relationships) Fast response to suggestions from and needs of users	Local knowledge and the everyday how-to training	Have different tools Are not efficient in the systematization and analysis of collected information
Role of Operators	Diffusers of innovations Efficiently support basic training and problem solving	Intermediate knowledge of local needs and problems	Trainers Support in the search, processing, and use of information
Social Contribution	Not necessarily contributing to local development, but some open to experimentation and support of local initiatives Contributing to welfare through service and use of ICT	Visibility and public discussion of their contribution to development Results in projects with local communities	Service and comprehensive training Include programs for people with physical disabilities
Future	Business growth (more equipment, more services)	Design of differential programs and proposals for training and social projects In state telecenters, a commitment to coverage, more access to ICT	Comprehensive range of information, knowledge, communication, and culture

access centers appear to play an important role as places for meeting, socializing, and strengthening social and community ties. This issue deserves further documentation and study, especially in regard to access sites mainly used by young children.

The information collected for this research shows that cybercafés offer the highest quality of equipment and connection; complementary services; and freedom, privacy, and easy access for ICT use, especially for young people and workers. Telecenters appear to be the most connected with local life and social projects for vulnerable, marginalized, and peripheral communities, and libraries are seen as spaces that ensure free, public access to the general population and people with disabilities.

Although cybercafés and telecenters lack the elaborate mechanisms and tools that libraries have for determining the characteristics of their users' characteristics and information needs, the former are more effective at recognizing these characteristics and needs, and at designing and implementing plans to respond to them. However, serious problems with monitoring, systematization, and evaluation of both their practices and the communication and information needs of users exist in all three types of PAC venues.

While cybercafé entrepreneurs have responded effectively to the challenges of sustainability, their goals and practices show little relation to the individual and collective development of the communities in which they are located. Cybercafés are neither joined to social projects, nor are they making great efforts to implement actions that will allow users to gain independence and autonomy in the use of ICT. Nevertheless, owners, administrators, and operators have expressed an interest in and willingness to develop social and socially responsible projects. This interest should be exploited.

Whereas cybercafés appear to be the best places for communication and individual interactions, telecenters appear to be the best places for groups and social organizations to collaborate. The latter are also depicted as spaces that contribute to the establishment of public spaces for discussion and mediation of rights of individuals and local communities with state institutions. Libraries, in contrast, represent spaces with a greater variety of information services that have the potential to provide training and support not only in access to ICT tools, but also in the search, organization, and management of information.

Telecenters and libraries are seen as developers of training spaces and programs, and as supporters of groups and communities with particular ICT needs. Telecenters have targeted their activities toward vulnerable and marginalized groups and communities, while libraries have shown a special interest in groups with physical disabilities.

It is also worth considering the different ways in which each of these access sites conceived of and named their customers. In general, in interviews and workshops, cybercafé operators talked about *clients,* libraries talked about *the public,* telecenters of state institutions talked about *users,* and community telecenters talked about *communities* and *beneficiaries.* Each of these characterizations implies different forms of relationships, motivations, and approaches to interactions and the formation and development of joint projects, something which merits further analysis.

Public access to ICT is a large-scale phenomenon in constant transformation, due in large part to technological developments, including mobile telephony. However, no evidence exists that these centers will disappear with the proliferation of mobile phones. Instead, PAC venues seem to change and adapt as technology changes, integrating and complementing the opportunities opened by mobile phones, but not being replaced by them.

As a result of this research, a better understanding of the similarities, differences, and interactions between libraries, telecenters, and cybercafés can help to inform better policy formulation and program implementation in Colombia and other developing countries, particularly in Latin America. While libraries and telecenters can learn from the entrepreneurial spirit and customer service orientation of cybercafés, they can also seek ways to reach out and help to strengthen the social service dimension of cybercafé services in order for them to become better contributors to community development.

There is much that each type of PAC venue can learn and share with the other types of venues. Cybercafés are the most numerous of all PAC venues, but they are also the ones that are the least organized under a common body, network, or organization. Libraries and telecenters have a unique opportunity to establish innovative partnerships in order to help cybercafés make more effective contributions to community development while maintaining their entrepreneurial spirit and financial sustainability. Cybercafés, disparagingly referred to

as "just businesses," can become sustainable and profitable businesses that also help meet social objectives. ■

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