

Gender Differences in ICT Use and Information Literacy in Public Libraries: A Study in a Rio de Janeiro Public Library

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Abstract. We approached gender differences in information and communication technology (ICT) use and appropriation and other aspects of information literacy in this study that focused on users of a large and modern public library located in a poor neighborhood in Rio de Janeiro. We took into account the literature and research evidence that considered the importance of the public library as a place for ICT and information literacy development. We also took into account the literature and evidence on gender differences in ICT use that tend to emphasize that women show lower interest in ICT and lower levels of ICT literacy. We obtained the empirical data through a study carried out in a new experience called “park library”. As a whole, the data suggested that these public library experiences do not seem to represent a major contribution to the development of information literacy of this user group.

Keywords: ICT and gender · Information literacy · ICT literacy · Public library and society

1 Introduction

In this study we focus on social and gender aspects of information and communication technology (ICT) use and appropriation, considering a study carried out in a large public library located in a poor neighborhood in the city of Rio de Janeiro. Besides being a conventional library, with a large collection of books, it also has a sophisticated ICT infrastructure for its users. We deemed, therefore, that this study was a very special opportunity to examine how this public library ambience promotes information literacy and effective ICT use among a socially underprivileged group. At the same time, this study was an opportunity to analyze how gendered characteristics and behavior can affect ICT appropriation.

We approach here the literature that considers the importance of the public library as a place for information literacy development, especially work that shows empirical evidence of the positive impact of ICT access and use in these institutions by poor groups

and communities. We also take into account the literature that stresses the gender-associated disadvantages regarding ICT, discussing how some aspects of this technology tend to alienate women and ultimately restrict the impact of these public library programs.

The main results shown here come from a questionnaire applied to 81 library users during a month, in different periods of the day. Data collected describe socio-demographic characteristics of users and aspects of their library and ICT use. Analyses presented here try to bring about evidence of differences between male and female users in regard to ICT use.

2 Discussion

2.1 ICT and Public Libraries

The ongoing expansion of the internet and of other ICT resources tends to reveal the strong impact that social factors seem to have upon aspects of ICT appropriation and effective use. Computer and internet resources, especially those that can bring about advantages to individuals and groups, are not evenly distributed among the population. Individuals from a higher socioeconomic status seem to accumulate advantages of access and use of this constantly changing technology, notably in underdeveloped and developing countries.

Although different kinds of efforts are constantly being made to overcome the amount of social inequality associated with ICT, such as the use of public institutions for digital inclusion, these efforts seem to have limited results and are often under criticism by analysts. According to empirical studies, the amount of education is what counts for the attainment of internet skills. Just using the media does not contribute to those skills, as is the case of the number of hours of use; mistakes or limited results will be constantly repeated if there is no one around for guidance [1]. In Brazil, analyses based on the Bureau of Census data show that education and income are strongly related to internet use and several use purposes [2]. The possibility that ICT, even being accessed, contributes to the increase of social inequality is still a serious concern. To be effective, ICT introduction requires careful planning, as pointed out by Kleine [3]. Information science literature has for some time emphasized that the contemporary public library is an institution that, providing ICT infrastructure and other library programs, has a promising role in contributing to social integration, ICT familiarization, and to information literacy in general. This role is considered as especially relevant in poor communities and among socially underprivileged groups, such as immigrants and other marginal groups. Contemporary public libraries seem to be facing a paradox. Their role as a major institution for providing access to certain types of information sources might be declining. On the other hand, the role of public libraries as a welcoming “physical” place where ICT can be used for the promotion of information literacy, social capital formation and community development among the above mentioned groups seems to become stronger [4, 5].

Attention to ICT in public libraries as a democratizing resource has brought about other types of concerns and has motivated empirical studies. Having become an essential

service of public libraries in general, analysts point out that ICT needs to be available to everyone and the adequate conditions in which all users are capable to make a rational and qualified use of it must be assured. The sustainability of these resources and services, through adequate financing and qualified personnel, also needs to be taken into account [6].

The integration of ICT resources and comprehensive library planning involving the integration of these services to other library programs and actions, including, specifically, information literacy programs is also considered as a necessary step. But this does not seem to characterize some developing countries' experiences, as is the case of Brazilian initiatives in general. A recent study carried out in Brazil has shown that ICT resources in public libraries of several different regions of the country tend to function independently and not integrated to other library activities. Libraries are seen and used as places of internet access, functioning as a LAN house (internet café) [7]. Other studies tend to support these findings showing that, even in large and modern public libraries, ICT and internet use does not seem to be a qualified one, and is usually concentrated on leisure and entertainment, without professional assistance [8, 9].

Associated with the limited contribution of public libraries to information literacy development in Brazil and other developing countries, there is their restricted role in citizenship and social capital development, which, as already mentioned, is part of the new role intended to be an outstanding one in the contemporary public library [10]. Some exceptions, however, should be mentioned, as is the case of the Park Libraries created in the Colombian cities of Bogota and Medellin, and recently in the city of Rio de Janeiro, as described below.

2.2 ICT and Gender

The fact that women face disadvantages in science and technology (S&T) has been well supported by studies. Although women tend to attain higher educational levels than men and to form a majority of university students in several countries, they are still concentrated in some S&T areas and have fewer chances of career development and leadership. Gender imbalance in the profession of information technologist is another aspect brought about by some studies: in Brazil, as well as in other countries, only about 20% of women choose this field of study, a percentage that does not seem to change over time. Cultural and discriminatory processes seem to contribute to these gender differences and to perpetuate what has been called another great divide that could limit women's participation in the knowledge society [11, 12].

It is very early in life that girls, although having an equivalent or better school performance than boys, are inclined to choose feminine professions and turn their backs to the so called hard sciences, including information technology [13]. According to Wajcman [14], women have always been alienated from technology and technological processes, considered a masculine domain, where the content and shaping of technological artifacts are a male privilege. As a consequence, women do not tend to see technology as an inviting subject or a perspective for career purposes.

When the concern of research is on ICT use and appropriation, evidences seem to suggest that internet access is reaching gender parity but that some aspects of internet

use seem to show a gendered pattern – women tend to be more task-oriented and to show a more focused use of the internet for educational and communication purposes, whereas men tend to show a more diversified internet use, a more intense use for leisure, and to be more acquainted with the technological aspects of ICT media. Distinguishing between media related skills and content related skills, the suggestion is that women would be less interested and less involved in ICT media and more interested and involved with skills related to content [6, 15].

The above-mentioned concerns about different use and appropriation of ICT by men and women can be brought about when information literacy and digital information literacy are the focus of research. These concepts have many dimensions and have been approached from different perspectives, as well as applied to different types of information users, as pointed out in a very consistent review presented by Khatun et al. [16]. The concept of “digital information literacy”, for example, can be defined, according to the above-mentioned authors, as the “ability to access, evaluate, use, manage, communicate, and share digital information and sources in an effective and efficient way” [16]. The mastery of these abilities, however, requires that aspects of the more comprehensive concept of “information literacy” be met, aspects that are also a concern in gender studies of technology, as is the case of autonomous or “self-directed learning” that prepare the individual to become a “lifelong learner”, a key dimension of information literacy. The literature suggests that women would be less self-directed and autonomous in ICT use.

The public library has been considered a very adequate institution to promote informal information training considered necessary for lifelong learning. The public library has also been considered a “safe place to go”, notably for members of poor and often violent communities and would be valued by women, especially young women, who would feel less welcome in other places like LAN Houses. Brazilian data seem to confirm the fact that girls use the internet more for formal educational activities and that boys use it in a more diversified and autonomous way and are also much more assiduous in LAN Houses [17]. We lack, however, studies about differences in participation in public libraries by gender.

3 Data and Methodology

The Manguinhos Park library, in which the study was carried out, is a new model of public library. It received financial support from federal government programs and it is inspired by the Colombian park libraries, built in the cities of Bogotá and Medellín. This model of public library proposes to bring together sophisticated cultural resources, ICT access, as well as citizenship and community development in localities characterized by a very low level of human development indexes (HDI) and also by high violence indicators. Some analysts considered that these libraries significantly contributed to community building and the reduction of violence in the surrounding areas in the Colombian cities where they were created [6].

Three Park Libraries were recently created in the State of Rio de Janeiro, and the Manguinhos Park Library, under study here, was the first one. It is intended to serve 16 communities of approximately 100 thousands inhabitants. It is a sumptuous and modern

building contrasting with the local reality of extreme poverty and violence. What can be seen inside the building is also impressive: a new and sophisticated collection of documents, attractive and comfortable furniture, spaces designed for specific activities – a room for young children, a room for the community, and others. Around 40 computers are available for users and integrated to the reading room where free access to books is guaranteed.

The study, carried out in 2012, involved the use of observation, of interviews with librarians and administrators, as well as the application of a questionnaire to 81 library users.

The observation period and interviews showed us that the library was being used by a very young group of adolescents and young adults who were frequently competing to use the computers for playing games. Professional librarians' main task was, in their own words, "teaching civilized manners to users" – a role they considered as that of "socio-educators", which they proudly assumed. The control of the time each user could work with the computer and resolving disputes between them seemed to be the main tasks of librarians.

The content of the questionnaire took into account the information obtained during the observation period suggesting very limited diversification of computer usage, despite its popularity. The apparent socio-demographic homogeneity of users coming from the surrounding poor neighborhoods was also taken into consideration in the elaboration of the questionnaire. Questions formulated involved indicators of library and ICT use and appropriation, trying to detect dimensions of the broader concept of information literacy and digital information literacy, as well as some general information about the socio-demographic characteristics of users.

A small research team sought to apply the questionnaire to all users that fit the minimum age of 11 years old. A total of 81 questionnaires were applied in different periods of the day during a month. We were aware that we were not using a representative sample of library users. Data was processed using the IBM/SPSS software.

Previous analyses carried out with the data focused on users' motivations to attend the library, on aspects of their library use, and on activities suggested to the library. Results revealed that they have interest in ICT instruction as well as in several artistic and musical activities. Their answer to the question formulated to identify their idea of the impact of the library on the community indicated that they seem to consider the library as a governmental initiative for youngsters in order to keep them away from criminality. These previous analyses also described the socio-demographic profile of respondents. These were typically youngsters, from 14 to 19 years old, still going to elementary or secondary school and coming from homes where parents have only elementary school level. The great majority (80 percent) defined themselves as belonging to black or mulatto racial groups, a racial composition characteristic of the city's low income neighborhoods. The majority of respondents – 49 or 60.5% - were from the male group and 32 or 39.5% from the female group [9].

4 Results

Data presented here attempt to detect gender differences in library and computer use and aspects of ICT competence in this specific group of young people aiming at finding out if a kind of “gender divide” is present and being a second layer of disadvantages to girls belonging to this user group.

Table 1, below, reveals the activity that the user mentioned he/she was doing at the moment of the interview.

Table 1. Activity at moment of interview [8]

Activity	Gender	
	Female	Male
Using or waiting for the computer	67.8%	78%
Reading	32.1%	17.1%
Other	0.0%	4.9%
Total (N)	100% (28)	100% (41)

Source: Silva [16]. Microdata.

Using the computer or waiting for it is the main activity absorbing the interest of both male and female library users. Boys, however, show it more intensely. It is also noteworthy in Table 1 that girls indicate greater interest in reading activities.

Table 2 describes, gender-controlled, two variables that try to detect characteristics of library use: a measure of attendance and a dimension of autonomy (the habit of going to the library by him/herself).

Table 2. Two characteristics of library use by sex [8]

Library use	Gender		Total (N)
	Female	Male	
Goes everyday	15.6%	26.5%	22.2% (81)
Goes by himself/herself	35.5%	62.5%	51.9% (79)

Source: Silva [16]. Microdata

From the results above, we might interpret that boys use the library more frequently than girls and can do it by themselves in a much higher proportion. This aspect of autonomy, although not directly applied to information literacy, can be a significant contribution to this type of competence, since self-directedness is a key aspect of information literacy. As a possible explanation for these gender differences in autonomous use of the library, we should consider the possibility that girls might be forbidden to go to the library due to the dangerous environment in which they live. Another possible explanation is that girls are more involved in household tasks and, therefore, less available to go to the library.

The next Table 3 shows responses to closed questions in which users were asked to mark –yes or no - if they do the following activities when using the computer in the library: sending e-mails, accessing social network sites and playing games, reading the news, downloading software and Google searching.

Table 3. Types of computer activities in the library [8]

“Mark the activities that you do in the library computer”	Gender	
	Female (% affirmative answers)	Male (% affirmative answers)
Send E-mail	65.6%	77%
Social network sites	65.6%	51%
Playing games	21.8%	38,7%
Reading the news	25%	63%
Downloading	15.6%	34,6%
Google searching	81.2%	85,7%

Source: Silva and Olinto [17]. N = 73 (in all variables synthesized in this table)

Some results in Table 3 show high participation and do not suggest any strong gender pattern. These seem to be activities that are already generalized on the internet as is the case of Google searching, e-mail sending and social network use. Other activities, however, indicate a very strong gender pattern. Playing games, reading the news, and downloading software are chosen in a much larger proportion by boys. Among these activities, downloading, specifically, suggests greater autonomy or more familiarity with ICT. Looking for information is an activity that has been associated with the masculine ICT culture, as well as the interest in games.

The next table brings information about the environment where respondents learned to use the computer. It is a measure that tries to compare the importance of formal versus informal environment for computer learning.

Data in Table 4 indicate that girls do their computer learning at home and in formal places, including computer courses in specific institutions or school. For boys, on the other hand, learning in informal places, as LAN houses and in the work environment, is more common, although they also learn in similar percentages in formal places. Learning at the library is a marginal occurrence for both boys and girls.

Table 4. Place for computer learning by sex [8]

Where did you learn how to use the computer?	Gender	
	Female	Male
At home or with relatives	30.7%	16.2%
Informal places outside home	19.2%	35.1%
Formal places outside home	46.1%	40.5%
At the library	3.8%	5.4%

Source: Silva [16]. N = 63

The variable that tried to detect self-evaluation of computer knowledge, involving the option “I can do it by myself” also showed some amount of difference between boys and girls, indicating that girls consider that they need help in higher percentages (46.9 percent) than boys (34.7 percent).

5 Concluding Remarks

All conclusions made here have to take into account the specific characteristics of the library taken as a study field as well as its ambiance. We are dealing with a new experience, in a particular neighborhood of the city of Rio de Janeiro. We must also point out again that data come from a small group of users that do not represent, from a statistical point of view, the population of library users. On the other hand, we are dealing with a very especial opportunity to observe ICT appropriation as a result of the availability of a large ICT infrastructure to a socially underprivileged group and, at the same time, consider gender issues related to ICT.

Data as a whole allow us to conclude that there is a general interest in computer use by this group of young people. Library attendance and types of computer activities also indicate a clear gendered pattern: boys and girls seem to show different preferences and behavior. Interest in general information – reading the news, involvement with games, and downloading are clearly more frequent among boys. Some of these activities suggest their greater familiarity with ICT technology, which is expected by the literature considered on the subject.

Although not directly dealing with information literacy measures, some facts, brought about by the analyses presented, also indicate that boys have a more diversified and autonomous relationship with ICT. Having more autonomy to go to the library, learning ICT in informal places, as in LAN Houses, and feeling able to learn to use the computer by themselves is higher among boys.

The analyses presented here can be considered as initial approaches to more comprehensive studies and at the same time they can be incentives for the promotion of public library programs aiming at reducing gender differences in ICT, notably among socially underprivileged groups and communities.

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