GENDER PERSPECTIVES ON INFORMATION AND COMMUNICATION MEDIATED BY COMPUTERS:
Faróis do Saber de Curitiba

PERSPECTIVAS DE GÊNERO NA INFORMAÇÃO E NA
COMUNICAÇÃO MEDIADAS POR COMPUTADORES:
Faróis do Saber de Curitiba[1]

Cristina Tavares da Costa Rocha[2]

Resumo
Este é um estudo sobre a primeira rede de Internet pública no Brasil, implantada e implementada na cidade de Curitiba-PR, no Sul do País. A rede é caracterizada pela introdução de Sistemas de Informação e de Comunicação (SIC) em alguns Faróis do Saber (FS), pequenas bibliotecas públicas construídas no centro e na periferia da cidade, um processo que resultou em mudanças estruturais e sócio-culturais nesses locais. As práticas adotadas pelos usuários do SIC, a partir da perspectiva da comunicação mediada por computadores (CMC) e gênero, são ressaltadas aqui. Como mulheres e homens ocupam esses novos espaços de sociabilidade gerados pela CMC em suas duas extremidades: uma, como usuários dos sistemas; e a outra, como aqueles/as que produzem CD-ROMS, websites e páginas da Internet, conectando pessoas e instituições nessas redes de trabalho e lazer? São feitas considerações e reflexões sobre abordagens referentes a relações de gênero não apenas quanto às dificuldades técnicas quando se usam artefatos e/ou periféricos computacionais, mas também quanto a relações de poder e aprendizado nesses contextos. A pesquisa foi desenvolvida baseada em abordagem das comunidades de prática, focando na teoria social do aprendizado, a qual se estabelece através da vida social da informação e da comunicação. Adota-se a metodologia qualitativa de cunho interpretativista, com opção por estudo de caso. Os principais resultados demonstram que esses contextos são espaços autênticos de aprendizado, independentemente de gênero, e são importantes iniciativas em direção ao estreitamento do abismo entre a inclusão digital-social e a exclusão, no paradigma da tecnologia computacional, que caracteriza a sociedade em rede na atual Era da Informação.

Palavras-chave: Relações de gênero; sistemas de informação; artefatos tecnológico-computacionais; aprendizado social na prática; inclusão digital-social.

Abstract
This work presents a study about the first public Internet network in Brazil, introduced in the city of Curitiba, Paraná state, south of the country. The network is characterized by the introduction of Information and Communication System (ICS) in some Faróis do Saber (FS) (Lighthouses of Knowledge), which are public small libraries built in the center and on the periphery of the city, resulting in structural and sociocultural changes in such places. The practices adopted by the users of the ICS from the perspectives of communication mediated by computers (CMC) and genders are pointed out here. How are women and men occupying these new spaces of sociability generated by CMC at its two edges: one,

as final users of the system, and the other, as the ones who produce CD-ROMs, sites, pages of the Internet, linking people and institutions in networks? Considerations and reflections from gender relation approaches about not only technical difficulties with the use of the computer artifacts and its peripherals, but also about power and learning in these contexts are taking into considerations. The research was developed based on an approach of the communities of practice, focusing on the social learning theory, which establishes itself through the social life of information and communication. It is adopted the qualitative/interpretative methodology, with option on a case study. The main results showed that these contexts are authentic spaces for learning, independently of gender, being important initiative towards diminishing the abysm between the digital-social inclusion and exclusion, in the computer-technological paradigm that characterizes the network society in the Information Era.

Introduction

Nowadays the life in the western civilization is characterized by an enormous quantity of new information and communication technologies. It is the consolidation of the network society, mainly linked by the Internet, in the information age.

Internet, according to Castells (2001) is the biggest network that provides CMC possibilities. It is understood not only as practice in itself, but also as sociocultural context, because it provides a continuous interrelation among individuals who use it, interchanging emotions, symbols, meanings and feelings, actions that result in the generation, in its virtual medium, of a proper culture. Internet is also a technological-computational artifact, as some of these actions are frozen and turn to reifications of objects, rules, etc., represented as accumulated knowledge until the moment of their constructions and productions. In fact, Internet is considered a constellation of communities of practice and the people who access it utilize a constellation of artifacts: computers and their peripherals. Internet is considered itself a human cultural artifact.

Due to this consolidated scenario, in the capitalist western world, the hallucinated "ciranda"[3] of the continuous introduction in the market of new and sophisticated technologies, has become a weight, sometimes unbearable to the consumers who are under pressure to quickly update the most recent human artifacts, mainly those of the information and communication areas. This constraint is constant as it threats the individuals highlighting their deficiency in relation to the new market launches (BROWN & DUGUID, 2000).

In addition to this general view, in the specific area of the technological-computational artifacts, there is certain negligence from the part of the softwares designers related to the technical problems. These problems are transferred to the ICS final users, who, in most cases, are improperly responsible by them. When they are at offices, firms, and institutions, these problems are somewhat easier to be solved, because there are more experienced persons in the digital scenario helping the beginners in their computational practices, compounding a true social network support. However, it becomes a very difficult situation when the users are alone at home working at ICS terminal machines. In this case, there is an extra "migration of administrative and maintenance duties" from producers towards the edges of the ICS, that is, to the individual users, who are

persons least equipped to deal with these problems (ODLYZKO, cited by BROWN & DUGUID, 2000:81).

Would this digital scenario promotes gender, race, ethnic, or socioeconomic equality? By the other hand, would the difficulties just mentioned also imply similar questions? Are the solutions of these difficulties centered in gender aspects? So, are there differences about how and why men and women use computers? This research revealed some partial results as an effort to start thinking about these questions, although some answers found here should be viewed as a preliminary contribution aiming to stimulate a widest discussion about so fascinated area of study which focus is also on the reflections on the individuals' access to Internet via computational artifacts.

From this point of view, it is necessary to look at the theoretical and methodological approach chosen to this investigation and to inform about the steps taken towards this goal starting from social-digital divide between rich and poor countries.

Theoretical-Methodological Approach

In order to develop the present study, it was applied the social learning theory based on the concept of the communities of practice. Two North-American anthropologists introduced such theory and related concepts: Etienne Wenger (1998) and Jean Lave (1991). It was adopted the qualitative/interpretative methodology. Also, documental research and field observation approach, with option on a case study, utilizing semi-open interviews technique directed to the persons implicated in the informatics process in FS, and opting for gender as a category of analysis. The universe of the research was confined to five FS's, among the 23 FS's already computerized of a total of 45. There were 49 people interviewed (ICS final users: population); 5 teenagers trainees; 4 female teachers who work partime at FS; one MES's manager; one ICI's manager (the firm specialized in computerization that works with MES; one DCI's manager (Democratization for Informatics Committee).

Communities of practice are either realities of social structure or conceptually, an analytical category. They refer to groups of people who develop activities in three dimensions: 1) a common entrepreneur; 2) mutual involvement; 3) a shared repertoire about the way that the practices are performed. In order to accomplish these three dimensions at the community, the negotiation of meanings on the part of the members of the community must be constant through participation and reification of everyday life. The members build and change their identities acquiring higher levels of participation inside the community, due to the sophistication of their practices. They go from peripheral to more central levels, and these changes are legitimated by the other members of the community, mainly the veterans, who usually help the newcomers in the specific practices of the activities performed in the communities.

To Wenger (1998), within the concept of Communities of Practice and respective Social Learning Theory, the failure in any learning is also result of the exclusion in the participation of the practices inside the community, as the learning means the access and the opportunity to these practices.

Gender is considered an analytical category, an element that constitutes the social relationships based on the differences that are perceived between the sexes and, also, as a primary form of significant power relations (SCOTT, 1995). Gender is understood as an useful analytical instrument that gives meaning to the culture allowing exploration of the inter-relation between culture and technology, from a set of ideas about masculinity and femininity and changes occurring at the borderlines of these ideas, related to actions, things and persons, in a constant inter-relation (LERMAN et al., 1997).

Internet, the biggest world network of human information and communication, is understood in this work, not only as a practice in itself, but also as a sociocultural context and a human technological-computational artifact (CASTELLS, 2001), because it "formats" people and is also "formatted" by them constantly.

This entire active scenario promotes the emergence of Communities Mediated by Computers, through the Communication Mediated by Computers (CMC) (BAYM, 1995; JONES, 1995).

Digital-Social Inclusion and Exclusion

Looking at this scenario, some data show an important fact related to the exclusion of a great part of the world population from the benefits of the network society, which are privileged of a few rich countries and their online population. It follows some estimated statistical data about online population.

Places	In thousand - Set/2002
Canada & USA	182,67
Europe	190,91
Asia/Pacific (includes Australia & New Zealand)	187,24
Latin America	33,35
Africa	6,31
Middle East	5,12
Total	605,60

NUA LTD. AND OTHERS[4]

The governors and institutions in general, are making some efforts aiming to diminish the widening gap between rich and less favored countries, implementing programs that promote a more democratic process towards participation in the technological-computational paradigm. In Brazil, only about 300 of the 5.500 municipalities, distributed into 27 states, are connected to the Internet network. Therefore, as a proposal of diminishing this increasing gap, 23 Faróis do Saber de Curitiba-PR, were introduced as an informatization process, object of the present research. This initiative is important by its pioneer character,

because it is known as the first public Internet network in the country. This process started on August 2000. The initiative is part of the *Digitalizing the Future*'s project, under the county's administrative responsibility, aiming at the democratization towards Internet's access.

Description of the Research

In order to facilitate the comprehension of the study, this paper is divided into two parts. The first refers to a cut on the results of a research that aimed to the implantation of the first public Internet network in Brazil, emphasizing the main changes occurred in these places, mainly according to ICS users' point of view. The other refers to a posterior phase of this investigation, which makes a preliminary and exploratory research at the other side of the ICS, the producers' point of view.

Part I: ICS Final Users

The research was done at Faróis do Saber (FS) located in the city of Curitiba[5], Paraná state, and computerized through Digitando o Futuro's project (Digitalizing the Future), under the administrative responsibility of the county, together with the Municipal Education Secretary (SME)[6]. This system is considered the first Internet public network in Brazil.

Faróis do Saber[7] (FS) are 45 public small libraries, built in the center and on the periphery of Curitiba-PR since 1994. The inspiration of FS came from ancient Greeks, in Alexandria. In August 2000, a process of informatization of these places was implemented and which each point received nine networked computers and peripherals: scanners, printers, mice, monitors, etc.. During the field research period, there were 23 FS's already computerized. This process implemented Communication Mediated by Computers (CMC). It follows FS's two pictures:

**FAROL DO SABER M. DE ASSIS**
(on a square)

FAROL DO SABER
(inside the school)

This is Curitiba's map, divided into educational nucleus (the balls signaled with different colors are FS's total number); the blue ones are those that I visited; and, finally, the red ones configure the universe of this research.

This research approached some facets, among them: 1) the meanings

that the IS users give to the free technology access; 2) reflections about the democratization of the use of these new information and communication technologies; and 3) questioned about the main difficulties faced by the users related to the use of these technologies. Among many other facets, it is emphasized the informants' talking, centering on the meaning given by some digital actors/actress involving the computer as a mystery and the difficulties faced by them, who are contacting a recent technological-digital paradigm in the digital scenario of the network society in the Information Era (CASTELLS, 1999 and 2001; LÉVY, 2000).
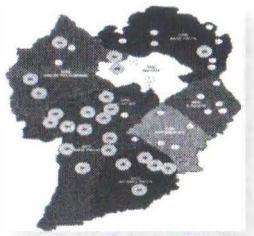
The interest focuses on the necessity of making this investigation about people and their social surrounding, from CMC perspectives emerged from empirical evidences about the effects on the individuals of the ininterrupt, fast, new and sophisticated information and communication technologies introduced in the market. The reflections and the basic questions were centered on these effects, which resulted in changes either referring to the physical structure of these contexts of work and leisure, or on changes and adequations of the individuals to the technological-informational paradigm of the network society[8]. And on this recent cycle of humanity's history, known as Information Era (CASTELLS, 1999), which characterizes the birth of the cyberculture in the cyberspace (LÉVY, 2000).

Some Results of the First Part of the Research

The age of the informants varied widely, from 5-year-old children (two girls) to 49-year-old adults (two women). But as the data obtained through observations *in loco* and written on the field diary, it is possible to state that people older than 60 from both sexes also go to FS and utilize the computers and peripherals to their activities, accessing the ICS and using CMC. A majority of the users of these contexts are teenagers, since 24 persons interviewed were 24 years old.

From the total of the CMC's users through ICS, interviewed at the FS' contexts, 27 were female and 22, male. These numbers show a kind of equilibrium between genders, noted during all the development of this investigation.

ICS Final Users' Relations with Technologies and Meanings Given to them

The users are allowed to use ICS-CMC one hour/day and to print 3 pages at each time. About their relation with technologies and about the meaning given to them, were found some situations, related to both, males and females categories: It follows some examples:

- The learning conceptualized through the users practices, as the majority answered that has learned in practice;
- Their preferences in researching on books or Internet – the new artifacts (Internet, etc.) do not replace the older (books). Some have told that they feel dizzy with the excess of information received in Internet, meanwhile others make clear that too much time is lost researching on books because it is not possible to find all data in a unique book.
- The interaction through ICS via CMC occurred among people and involves local and global practices.
- The absolute majority answered that it is important to be connected to Internet because of social inclusion. Wilson (age 45, 3.º grade, salesman) emphasizes: *Nowadays, the computer is becoming like the telephones in terms of importance. Without it, it is difficult. You become disconnected of the world.*
- Aspects of costs-benefits relating to the digital-social inclusion and exclusion. Francisco, age 26, a physicist, says ... *The main difficulty is to have the access to the computer, because although it is no more so expensive, the Internet, and everything more, have high costs. You have to pay the computer, the access provider, and the telephone line. It causes difficulties to population to the network access.*
- Usually, when ICS' final users have difficulties on using the computers (in case of emerging technical problems) they are responsible for these problems, but they are the less prepared people to face these embarrassing technical situations. Many users internalize guilty processes, accepting their own incompetence and inexperiences, as there are many factors influencing on these difficulties, as the example of system failures, or lockout with consequent screen freezing; programs incompatibility, and so on. The ICS users at a FS want only to interact with other people, through the mediation of the new information and communication technologies (CMCI). Therefore, they do not mind with what is inside the black boxes[9]. Jaygman, 17, a student, says: *My biggest difficulty is that the computer blocks many times. It is one of Murphy's Law. At the right time at which you need it, things come wrong. When the computer blocks, you have to reset it and start everything again. You never could let the machine knows that you are in a hurry. If this happens, everything goes wrong. It is always this way. It is only a question of luck.* Jaygman reports to the famous Murphy' Law, which states that if there are many possibilities of something be all right, and an unique possibility of going wrong, it is this one that will prevail. He goes beyond with this reasoning, when he gives to the machines the power of knowing what goes inside peoples' mind. It can be noticed, following his narration, the human submission to the power of technique and machines.

For some people, during some specific moments of their lives, the computer represented already mystery and fear, due to the difficulties facing in using it. Eliana (49, 3.º grade, tourism area) says: *The computer is still a mystery for me. It is still a little "animal", but no more having seven heads, but now, having five! I will learn how to dominate*

it! Therefore, the domination of the practices of the technique gives to her the sensation/feeling of empowerment that excludes the fear and eliminates the mystery. For her, it is a question of learning, too. She says: *I am learning. Thus, it is for this reason that… I was not able to… still… because I did not make any informatic course, I am like this… I mean… I am learning, making mistakes, deleting, loosing, saving…* At this stage of the interview she was unable to say a complete phrase, so astonished she was trying to remember and to put order in her thoughts. How many Elianas there are in this population of ICS users, to whom the computer was a little "animal of seven heads". And to those to whom the computer is still a "little animal of five heads". The domination of these computational practices will put down the difficulties in using these artifacts and will represent the total human domain over "little animal of seven heads", or better, on the computer functioning technique.

- The computational-technology social function. The technologies, the practices and the social relations are mutually constituted systems, because the computers are immersed in people's practical activities. Cesar, 22 years old, tells that *because I am unemployed, I look for a specific employment site, as, for instance, the Sine's site.* Thiago, l6 years old, says about his experiences at FS:

My father always tells me that I used to be too long on the streets. Now, I come to the Farol where I acquire knowledge sailing in the Internet. He prefers that I come here instead of keeping playing football. I come to the Farol all the time it is possible to come, because it is very good to be here. I started to come to FS since 4 months ago. I cannot come here every single day because there are too many people who come here and it is not always that I can find a available space for registration. Every time it will be possible to get available space, I will come for sure. I have an Informatics basic course. But in the Farol it is possible to get improved each time more and more.

Wilson Douglas, 16-year-old, 8th Grade, explains:

I am coming to FS daily in the last six months. I did not have Informatics classes before. I learned Informatics here, accessing chats and, during school period, researching for homeworks. After I started to come here [at FS], my life has changed, mainly because I used to stay at the streets too long. Being at the FS, I am out of the violence and drugs influence and also prostitution, and I am learning how to use the computer. I am enjoying. It is too cool.

The two teenagers are conscious of the chance they are having by frequenting the computerized FS everyday, because being at the streets all time, they suffer violence consequences, which the most common, would be their physical, mental and psychical dependency to the drug world. According to MARCONTI (2001), the most significant cause of the violence is the individuals' social exclusion.

Marcia, one of the teachers who help the population in the book research at a FS, says: *It is the computer from Monday to Saturday. Now, FS has computers all over. It is cool to have and to use computers at the moment.* Also, there were verified rough changes in the dynamic of the activities developed at

FS that were computerized, up to the point of letting confused some persons implied in the process in focus. This perplexity is expressed in the talking of another teacher, Bruna: *After the introduction of the computers all activities developed before is over up there* [mezzanine of FS] *... what stayed... the place... what was before, with enough space, there are the computers. The new are still the computers. Therefore, FS are going... they are taking another direction, because this also... Heavens!* Bruna's expression shows a mix of perplexity, enchantment and surprise. The previous traditional activities Time for history, Origami's workshop, Literature Meetings, Tricot classes, Choral Singing – were all almost totally excluded in favor of the CMC with the media via Internet in these contexts. This fear is probably still consequence of certain mystery involving the computer operational commands, which, some time, seem to have soul and feelings reacting to these commands, not accepting them and not obeying them, exasperating their users. Finally, the computers are still a novelty to many people, mainly the ones who live on the periphery of the city. Sometime, it denotes a kind of enchantment due to its many possibilities provided by computers while mediators of the human communication and activities.

As for the majority of the computer users, the perplexity permeates the beginning of the activities mediated by them, and also, to the interviewed Bruna, the progress evidences to be inexorable as she, a kind of being conformed in accepting the new technological-computational paradigm, emphasizes: *I am also in the rhythm of the computers. The persons have to go along with the technology. There are computers at all places. Otherwise, we become... Because the computer is here... It is not a case for you to run out... Therefore... There are people that do not have opportunity of knowing, of seeing what the computer is able to do.*

It can be noticed that for her, technology means only computer. She does not mention other traditional artifacts and/or equipment, which also use technology to their production and are, also, utilized in the educational contexts, as for instance, chalk, blackboard and whiteboard, among others. Despite her disposition and opening to the novelty, she confesses that she felt the changes impact, clarifying that, at *the principle, when these computers started to come to FS, the changes were ... you know... so drastic,* [that] *I thought: My God, now they* [people] *will not read anymore, they will abandon the books, they will think only about the computers, and... but the children keep on coming here and borrowing books. Therefore, I think that* [the computers] *do not disturb the reading habits.*

Ellis emphasizes that [Internet] *surely came to improve everything. It improved a lot the level of our community. Heavens! If you make this kind of analyses, a kind of "before" and "now" at the FS, and also in the beginning and now, after the computers... it is indeed another thing.*

I face this talking as a harsh one, as it represents a clear and concise way, the changes that the computers at the FS are provoking. They are so significant to the point that they result in social and cultural changes, well detected by Ellis.

Parts of these narratives give the impression that there is certain dizziness by the part of the professors, provoked by the fast way that changes are happening at the FS, after the introduction of the networked computers and

peripherals, with free access to Internet. It seems that the time is not sufficient enough to accommodate the activities developed before and those that are being developed after the introduction of the computational artifacts in these contexts.

From this perspective, these places could be seen as laboratorial contexts, where experiences have being performed aiming to the consciousness and the improvement of the individuals. The information via CMC acquires social life, as it goes circulating in the real and virtual media, according to the specific cultures who access it. It is this web of meanings that gets complex at all instant by the multiple and differentiated access that fascinates the digital female and male actors of the network society in the Information Era.

Part II: IS Producers

After I have finished this research I started to look at ICS' other side, the softwares producers, who make sites and pages of Internet and other networks as well as CD-ROMs, for instance. The occupation of all work spaces (and also these technological contexts) by women would represent, according to the French researcher Heritier (2004) the equality of professionals among genders, a step conquered as a result of the access to education at equal conditions, besides similarities and parities of political representations. They are steps where the women can and must follow in their trajectories of conquering many and differentiated spaces of knowing and acting, making possible a more visibility in the scenarios of pos-modernity scenarios.

At the time I was working in the field research (2000/2001), this process of computerizing FS was in its very beginning. After the implementation of the technical infrastructure according to the technical and institutional partners, the FS administrators begun to look for the educational partners, in order to implement educational and social projects. During my research I could only find the final users.

Therefore, I started an exploratory research[10] in other places, to see how could I find women and men taking part in the softwares production area. Since then, I have interviewed eight people in different places. They are: two women at educational contexts, one specifically producing networks and the other producing several kinds of softwares; two others were working in networks, linking public and private hospitals and laboratories; one woman at institutional place, working on the software production directed to industries and governmental areas; a woman and a man working on them in order to fulfill the market entertainment segment. My main purpose was to plan a kind of map in order to see how women were occupying these newest working contexts. As I do not have enough space to inform about all of these interviews, I will choose the educational context.

Thus, one of these places was at one of the biggest educational center, located in the South of Brazil, which focus is on the production of softwares, CDs, sites and pages interconnected in networks. These materials are directed to students, their parents and family, researchers and teachers.

Nowadays[11], this educational center has the following departments and respective numbers of male and female workers:

Departments	Workers Total nr.	Female workers nr.
Content Developers	47	29
Programmers	19	03
Designers	21	06
Research & Development	03	zero
University Gateway	02	zero
Projects	01	zero
DBK*	13	zero
TOTALS	106	39

* DBK is a partner that develops any kind of softwares at one of the firms of this big educational complex.

These numbers show that this educational center has a majority of men, although the women are also occupying some spaces. The products are directed to elementary and secondary levels, besides the intermediary level. Thus, the educational material contents should have done by women, who were used to (or still are) educate kids and teenagers at off-line schools. One of the main reasons for this choice is that they pursue the mother's concept of "educating", a perfect profile for a function: "content developers" specific for such grades.

At the very beginning when one of these departments were established, all the producers' team was composed by men. Then, there was a decision to hire two women whose function was only to make tests in order to verify if the softwares, produced by the men, have any defect. This decision was centered in a consensus that women always pay more attention than men to everything. Some time after the department was established, another woman was hired in this team, whose work was to produce softwares directed to first and second grade and intermediary level publics. She was chosen because of her Psychopedagogic profile. After some time working in this team she discovered that she was earning three to four times less than the men's producers and three times less than the designers, having, as them, university level of instruction and capacity and ability comparable to those of the men's programmers team and the same profile demanded by this function.

Also, as a new data of the research, smaller schools were considered as intermediaries between the biggest school, in this case, one of the biggest educational softwares producers, and the final users: parents, family, teachers, educators, researchers, and others. When I was making the investigation, one of these smaller schools (which follow Batistes and Adventists' religious dogmas, rules and behavior norms), prohibited the link about sexuality matter produced by specialists, due to their religious concepts. It is interesting to think that we are at the dawn of a new millennium and that this is a very important area of study, mainly nowadays when we see a biggest opening to the sexuality thematic but there still are people deciding who could have access to information and when, how, where and what. Despite being a new media - Internet and other

networks processing information through computers and linking communities – it is still reproducing old dogmatic concepts and situations.

Final Considerations

The sites, pages and other spaces in Internet and/or WWW, facilitate the information and communication "ciranda", which is able to be dynamic and always mediated by the new CMC technologies, giving social life to the system, as the information is continually re-appropriated and re-signifying by people.

One of the final considerations of this research is that there were in these contexts significant changes and they are still in progress. There were structural changes because they implicated in readequation of the physical spaces, as the FS' mezzanine level, where were tables for book researches, now there are, at each point, only networked computers, printers and scanners, contexts where people are always circulating, interacting, given significance to their lives. Finally, as a consequence, sociocultural changes occurred as these new contexts provoked differentiations on the ICS's users profile, resulting at new behaviors.

These contexts are been transformed in small centers of computerized activities, not only as before, conventional small public libraries. They are being characterized as spontaneous, continuous and unorthodox spaces for learning.

Finally, as the first part of this paper represents a cut from gender perspectives, it is important to deepen this investigation from this specific point of view, not only on the ICS final users, but also mainly on ICS producers. Relating to the difficulties, for instance, gender specialties were not considered relevant, as both men and women had equally technical and operational difficulties. Indeed, what has made difference instead, is the sophistication of the computational practices. The suggestion is that when the full implementation of the ICS is over, the investigation on gender perspectives would be deepened, mainly because these places are rich of meaning negotiations and power relations, and allow constant social interactions. These contexts were (and still are) modified in order to promote social equality in this information era of network society. One of the main points to this agenda is still gender equality, as women could get more visibility as "historical subjects as participants of human social-historical events (SCOTT, 1995:93).

Bibliography

BAYM, Nancy. The emergence of community in computer-mediated communication. In: JONES, Steven G. (Ed.). *CyberSociety*. **Computer-mediated communication and community**. Londres: Sage, 1995, p. 138-163.

BROWN, John Seely; DUGUID, Paul. **The social life of information**. Boston, Massachusetts: Harvard Business School Press, 2000.

CASTELLS, M. **The Internet and society**. Lecture at Annenberg School for Communication University. Available at:
<www.usc.edu/schools/annenberg/indexf_asc.htm?/schools/annenberg/events/events.html > Access 24 Jan. 2001.

_____. **A era da informação – economia, sociedade e cultura**. Vol. I. A sociedade em rede. São Paulo: Paz e Terra, 1999.

HERITIER, Interviewed by Carmen Susana Tornquist. 2004.

JONES, Steven G. Understanding community in the information age. In: JONES, Steven G. (Ed.). *Cybersociety:* **Computer-mediated communication and community**. Londres: Sage, 1995, p. 10-35.

LAVE, J.; WENGER, E. **Situated learning: Legitimate peripheral participation**. New York: Cambridge University Press, 1991.

LERMAN, N.; MOHUN, A.; OLDENZIEL, R. Versatile tools: Gender analysis and the history of technology. **Technology and Culture**, v.38, n.1, jan 1997, p.1-8.

LÉVY, P. Cibercultura. 2. ed., São Paulo: 34, 2000.

MARCONTI, J. Entrevista concedida a Heródoto Barbeiro. Rádio CBN. São Paulo, 05 ago. 2001

ROCHA, C.T.C. **A informação via artefatos tecnológico-computacionais nas comunidades de prática: Os Faróis do Saber de Curitiba-***PR*. Master Dissertation. Curitiba: CEFET-PR, 2001. Also available at:

< http://www.ppgte.cefetpr.br/dissertacoes/2001/cristina.pdf >.

SCOTT, Joan Wallach. Gênero: Uma categoria útil de análise histórica. In: Revista **Educação e Realidade**. Porto Alegre: 20(2): 71-99, jul/dez, 1995.

SECRETARIA MUNICIPAL DA EDUCAÇÃO. **Proposta de implantação das bibliotecas "Farol do Saber"**, Curitiba, 1994.

WENGER, E. **Communities of practice: Learning, meaning, and identity**. New York: Cambridge University Press, 1998.

Autumn 2004.

Notas:

[1]   This paper was presented at the International Congress hold by International Association for Media and Communication Research (IAMCR 2004), at PUCRS. The theme of the congress was: Communication and Democracy: Perspectives for a New World, at Gender and Communication Section. This research received financial support from Capes. I would like to thank Prof. Dr. Marília Gomes de Carvalho for the orientation given to this investigation.

[2]   Graduated in Journalism. Master in Technology by Centro Federal de Educação Tecnológica do Paraná (CEFET-PR) (now UTFPR). Doctoral Degree in progress in the Interdisciplinary Pos-Graduation Program in Human Sciences of Universidade Federal de Santa Catarina (UFSC). E-mail: cristinaroch@uol.com.br.

[3]   "Ciranda" is a Brazilian kids folks-popilar dance and music.

[4]   In: < http://www.nua.com/surveys/how_many_online/index.html > Access 16 mar 2004.

[5]   Curitiba's population is: 1.586.000 inhabitants (Brazilian G. & Statistics Institute) - IBGE / Censo 2000,). Including the metropolitan area, this number is up to 2.632.915.

[6]   To additional information, see ROCHA, C.T.C. (2001). It is important to emphasize that although the general and specific objectives of this research were not been directed to the gender area of study, some answers of the informants and some situations observed in the field made possible to generate reflections about gender and digital technologies and some of them are expressed in the present paper.

[7]   The information was obtained in the Municipal Education Secretary (SME, 1994).

[8]   To a broader conceptualization of technological-infortmational, cyberculture and cyberspace paradigms, see CASTELLS (1999) and LÉVY (200).

[9]   In order to understand black box concept, applied to artifacts, see to LAVE & WENGER (1991, p. 101-192). They argue about the concept of the two models of computer system *design*: black box and glass box. The black box hides totally the system mechanisms; the results will seem random to the users, who need to know a specialist to correct some failure system. The glass box characterizes itself by allowing to the learners of the computer systems to know the mechanisms implied in its functioning, opting by the cultural transparency of the technology. In such a case, the users have conditions of reasoning about the input and the output data. With these data, they may state previously how the different actions chosen by them could affect the system behaviors.

[10] This preliminary research is still in operation.

[11] Data is related to Jun 2004 given by one of the interviewers.