

Report on WIT'08

II Workshop on Women in Information Technology – Brazilian Computer Society

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Claudia Bauzer Medeiros (University of Campinas, UNICAMP, Brazil) and Karin Breitman (Pontifícia Universidade Católica do Rio de Janeiro, PUC-Rio, Brazil)

1. Overview – WIT and the Brazilian Computer Society

WIT is an initiative of the Brazilian Computer Society (SBC) to discuss gender issues in Information Technology (IT) in Brazil – success stories, policies to foster participation, and ways and means to attract and involve the young, especially women, in IT-related careers. Organized around guest speakers and panels, the workshop concentrated on debating problems related with women's access to IT – the job market, digital inclusion and literacy. WIT was organized by Claudia Bauzer Medeiros and Karin Breitman, both CS faculty and part of the board of SBC.

The first workshop (WIT'07), held in Rio in July 2007, was a big success, and raised considerable interest in the Brazilian IT community. Most of the attendees were not aware of all the issues involved, and the workshop attracted the attention of many other scientific and political forums – in particular, within SBPC (Sociedade Brasileira para o Progresso da Ciência – Brazilian Society for the Advancement of Science). SBPC is a scientific organization that congregates all scientific societies in Brazil. Together with the Brazilian National Academy of Sciences, it is promoting a series of initiatives to attract the young to science, and considered WIT to be an interesting and novel idea.

Like its first edition, the second WIT was held within the annual SBC conference. This large conference attracts from 1500 to 2500 participants every year, and is one of the 40-odd conferences promoted by SBC annually. It is organized as a main scientific conference, a set of 5-6 thematic workshops and symposia. Furthermore, it hosts additional, parallel, events directed towards undergraduate and graduate students, high-school teachers, university faculty and IT professionals. In 2008, there were 2400 participants in the annual conference, held in the city of Belém, in Northern Brazil.

WIT'08 was held in a small room (70 seats), from 9AM to 4PM. From its start, there was standing room only, and many people had to sit on the floor – see pictures of audience. At peak times, an estimated 110 people were in the room. Most of the participants were undergraduate students from all over the country – some had travelled over 60 hours by bus to come to the conference. About 30% were male, who declared they were attending WIT because they were “curious to know what this is all about”. About 10% of the people present had already attended WIT the previous year.

The event was divided into a morning session (three talks given by guest speakers) and an afternoon session (a panel to discuss regional differences and gender in Brazil).

Participants were encouraged to interact with the speakers and talk about their impressions on gender issues in the country. There follows a brief presentation of each session.



Partial view of public during the morning session. At extreme right, Dr. Taisy Weber; second row at left, Dr. Maria Emilia Walter – both afternoon panelists. Not only women faculty were present. For instance, at the second row, holding chin, Dr. Hugo Nascimento, from Federal University of Mato Grosso do Sul.

2. Invited talks – from 9AM to 12AM

The first invited speaker was Dr. Jane Prey from Microsoft Research Redmond. She used data from several surveys to emphasize the importance of teamwork involving multi gender teams. Starting by giving an overview of the american job market, she continued by discussing gender and IT issues in the USA, covering a broad range of problems – course enrollment, innovation trends, patents, and AP exams enrollment. The audience was encouraged to participate and, at the end, prompted to answer several questions about the situation in Brazil. This was a very good start to this meeting, since her data emphasized the importance of multi-cultural teams with people from both genders. Moreover, she showed us that we (Brazilians) are facing the same situation as the USA.



Jane Prey and partial view of audience (one third male); Claudia Medeiros (standing) translating. At front row, Karin Breitman, Juliana Salles (Microsoft) and Taisy Weber.

Photo – Leonardo Tissot

The second guest speaker was Prof. Daltro Nunes, from the Federal University of Rio Grande do Sul, Brazil, who presented results of a comprehensive data analysis effort on undergraduate courses in Brazil, covering the years 2001-2006. (The government has not

yet published data on 2007). His statistics concerned 1730 IT-related university and college courses all over the country. They show that the number of students enrolled every year is still growing, at the rate of 1% growth every year. However, the percentage of women is decreasing. This is even more marked in teacher training courses; this is a traditional bastion of women, in Brazil, with an average 80% enrolled (graduates become high school teachers). However, in IT, only 10% women choose these courses. Moreover, within IT courses, there are several differences: for instance, there are at most 12% women in Computer Engineering courses, against 20% enrollment in Information Systems, or 18% in BSc in Computer Science. Regional differences are not significant -- the same scenario is replicated all over the country. His study appeared in a book on the history of undergraduate IT studies in Brazil, edited as part of the commemorations of the 30th anniversary of SBC (see list of references).



The third talk was by Dr. Alice Bonhomme-Biais, from Google New York. She started her presentation with a technical discussion on Web mining, and continued by discussing gender issues, and the culture at Google. Being a French citizen, and educated in France, she contrasted the situation in her country and in the USA. Similar to Brazil, french citizens have not yet been awakened to the very many problems involving women in IT, and thus her presentation allowed the audience to draw cultural parallels as regards this kind of problem. Like Jane Prey, she also emphasized the importance of diversity in constructing innovative products.

The morning session was finished by an announcement of a Google WIT award for Brazilian female students (undergraduate and graduate levels).

3. The afternoon panel - Gender and regional differences in Brazil: do they really exist?

The afternoon was occupied by a two-hour panel, including a very participative debate with the audience, investigating whether regional differences in Brazil would affect gender relationships in IT. Brazil is a very large country (the fifth in the world in surface), with very many geographical, cultural and social differences within its borders. The Brazilian “macho” attitude is still pervasive, having hampered the advancement of women in several regions, especially in the Northeast and Central parts of the country.

Thus, we were curious to find out whether the distinct regional profiles would also be felt and reflected on gender and IT.

Panel participants were faculty members invited from all five major geographic regions in Brazil: Dr. Taisy Weber (from the South), Dr. Cristina Murta (from the Southeast), Dr. Maria Emilia Walter (from the Center), Dr. Ana Carolina Salgado (from the Northeast) and Dr. Janne Oeiras (from the North). The panel was moderated by Dr. Karin Breitman (from the Southeast). Each participant is a faculty member in a well-known CS department, and conducts research in a different field: fault tolerant computing (Taisy Weber), computer networks (Cristina Murta), bioinformatics (Maria Emilia Walter), databases (Ana Carolina Salgado), interface design (Janne Oeiras) and software engineering (Karin Breitman). And they were awarded PhD degrees from Brazil, France, Canada and Germany, thus constituting a group with very distinct experiences.



The five panelists and the two coordinators – all wearing the official WIT 2008 pink Tshirt (for guest speakers only!). Starting from the back, left to right: Karin Breitman, Ana Carolina Salgado, Maria Emilia Walter, Cristina Murta. Second row: Taisy Weber and Janne Oeiras. Claudia Medeiros kneeling at the bottom.

Like 2007, the WIT Tshirt became an object of desire – and visible at a distance... WIT'07 Tshirts were yellow.

Each panelist prepared slides with statistics on her university and/or region: student enrollment, faculty distribution by gender, and evolution throughout the years.

Taisy Weber discussed the situation in the South and Southeast Brazil, the most industrialized areas in the country. In spite of an increase in job opportunities, and absence of gender discrimination, her data show the decrease in the number of women everywhere. In her university (Federal University at Rio Grande do Sul), the best in IT in South Brazil, there are only 8.2% women enrolled in CS, and 4.2% in computer engineering. Graduate studies fare better, with 21% of PhD students, and 10% of MSc students. Faculty has 28% women, perhaps due to the fact that enrollments were much higher 10 years ago. She challenged the audience with a question – why aren't jobs attractive to women? She also showed data from the University of São Paulo, in which the 47% women enrolled in 1986 dropped to 18% in 2006.

The second panelist – Maria Emilia Walter – works in the University of Brasilia, in central Brazil. Since Brasilia is the country's capital, it boasts a large number of highly paid government jobs in IT, and students start working very early, even before finishing their undergraduate courses. Hence, it is hard to get graduate students. In spite of this

very favorable job market, and the variety of affirmative gender actions in the city, women are not interested in pursuing careers in computing. She pointed out that the 2006 national census showed that in all other domains the presence of women is increasing – in particular, they occupy 48% of all research positions in the country. Every census shows this positive tendency, except for IT and engineering careers. Nevertheless, in her CS department, all decision making positions are occupied by female faculty members – its 26% women faculty govern the department. She is also vice-dean of the Sciences Institute in the university (congregating CS, Statistics and Mathematics), another example of the lack of gender discrimination.

Maria Emilia was followed by Cristina Murta, who works in a technical university in Belo Horizonte, in the center of Brazil. Instead of discussing gender issues in IT, she prepared a study on research careers in the country. She extracted her data from reports and public databases maintained by CNPq - one of the most important federal funding agencies in the country. CNPq hosts two large public databases – one on research groups, and another on curriculum vitae. All Brazilians who apply for any kind of research funding or scholarship must feed and update these databases, which can be publicly accessed via the Web. The first database contains data on thousands of research groups, while the second holds over 1,2 million vitae. Dr. Murta's study, prepared for WIT08, showed that women get far more CNPq individual research grants than men, in 5 out of 8 areas (e.g., 55% of grants in Social Sciences, or 67% of the grants in Literature and Languages). The exceptions are Engineering (only 32% of the grants), agricultural sciences (46% of the grants) and the so-called Exact Sciences (Math, Physics, Statistics, CS), where they receive 36% of the grants. Men receive more grants in the South and Southeast Brazil (the regions with highest GNP and employment rates), whereas women get more grants in the North (the Amazon area). The latter was somehow unexpected, since the North has lower literacy levels, and one would expect that women might be a minority in such a situation. In the rest of the country, there is no difference in grant distribution. She also showed that women are progressively gaining more grants every year, though values are not evenly distributed – grants awarded to males are usually more substantial. In Computer Science, women were the leaders of 29% of the projects financed by CNPq in 2007 (but only 24% of grant money). As a whole, there are no great regional differences. Women get more grants and scholarships, but men still get more money.

Ana Carolina Salgado presented graphs on the diminishing number of women enrolling in CS courses in her university (the top CS department in NE Brazil). Her analysis shows that there is no gender discrimination in IT jobs in the region. To several people, this came as a surprise, since this Brazilian region is known for its very traditional, male-oriented, culture. She also showed data that indicated that female faculty account for between 20% to 38% of older CS departments, whereas newer departments only have 10% to 15% female teachers. According to her, the older generation had more female involvement – and thus, departments founded in the seventies hired more women, who now occupy top positions. She is an example, having directed the CS department (over 60 faculty) for four years.

Finally, Janne Oeiras gave an overview of the situation in the Amazon area (the North of Brazil). Though youngest of all presenters (she finished her PhD in 2005), she has also seen diminishing numbers of women students in the region. Moreover, the number of young people interested in following IT careers is not keeping up with the increase in the job market. She challenged the audience to try to come up with strategies to attack this situation. Since the university where she works is in Belém, many of her students were present – in direct response to her advocacy of WIT activities among the student body.

4. Conclusions from the panelists

There are really no differences across regions, which is good news, because we can conduct concerted actions all over the country.

A large number of new IT courses have appeared in the last years, partially reflecting market needs and government policies. However, novel careers in other areas are attracting young crowds, such as management of new media, content engineering or food engineering. Computer Science had that power of attraction 20 years ago, when it was considered a novelty. Now, it has reached the same stability as traditional technological careers, such as engineering, architecture or economics. It does not have the social appeal of Medicine (over 50% women) or Law (55% women). Perhaps the solution to the gender problem would be to reformulate courses and foster multidisciplinary approaches.

Another idea would be to disseminate factual information about the IT career and associated opportunities, including statistics on the job market and the multitude of interesting job profiles. An important finding is that juniors have a very narrow and antiquated view of the world of the IT professional. Most think they will necessarily end up as hard-core programmers, with little chance of career growth. Students should contribute to this dissemination effort.

Finally, it must be stressed that IT is one of the country's industrial and social priorities, and many initiatives are being undertaken to foster computer literacy. However, this is not enough - we should also start attracting young at the elementary and high school levels. And one must not forget any effort must put teachers into the loop.

5. Interaction with other societies – the importance of WIT

Already in 2007, WIT raised the interest of other scientific societies and of the Brazilian press. The Brazilian scientific community had not been aware there was any special problem with attracting women to IT. The general perception in the country is that IT careers face no obstacle, because of the very good job market. Moreover, many managerial IT jobs are held by women (from the older generation, when colleges attracted 40% to 50% women students). Hence, it came as a surprise that our community is facing gender problems. SBC must continue this advocacy campaign, to attract the cooperation of these other societies.

References and links

1. WIT'07 page, with program and slides of presentations – www.inf.puc-rio.br/~karin/WIT07
2. WIT'08 page, with program and slides of presentations – www.inf.puc-rio.br/~karin/WIT08/wit08.htm
3. Cabral, M.I; Nunes, D. J.; Bigonha, R. S.; Costa, T. S.; Wagner, F. R.; and Oliveira, J. P. M. The trajectory of the undergraduate computing courses in Brazil – 1969-2006 (in portuguese, A Trajetória dos Cursos de Graduação da Área de Computação e Informática). SBC Press, 136 pages, 2008;
4. Brazilian Computer Society home page – www.sbc.org.br
5. CNPq curriculum vitae database – lattes.cnpq.br – 1.2 million curriculae to browse