

United Nations Division for the Advancement of Women (DAW, part of UN Women)
United Nations Educational, Scientific and Cultural Organization (UNESCO)

Expert group meeting
Gender, science and technology

Paris, France
28 September - 1 October 2010

Women, Development, and the Knowledge Society in Latin America

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wealth and poverty. It is also the region where other dimensions of inequality, in particular gender inequality, interact with this gap.

A society cannot achieve competitive conditions if women, who constitute half of its members, do not benefit from development. Latin American countries have consistently reported, with the exception of Cuba and Brazil in some indicators, that women do not have equity in access to education, paid work, generation of knowledge and the benefits derived from it, as well as to the so-called "new technologies".

In the words of Amartya Sen (1985), the information society allows new ways of being, but also allows new ways of doing. Developing countries can hardly benefit from the virtues of the knowledge society if they do not leverage the talent of their people; that is, the talents of both men and women. The best way to do so, not only for basic justice but even for economic reasons, will be to guarantee universal access to education.

Education is the indispensable condition for development; if Latin America is to participate in the concert of Nations, then women ought to be formally trained and guaranteed access to jobs, especially those related to science and technology (S&T), and not only at the operational level, but also in decision-making.

As it will be pointed out later in this paper, information and communication technologies (ICTs) play an important role in education initiatives, as narrowing the technological gap increases both women's and men's access to new opportunities and enables them to perform better in a highly competitive world.

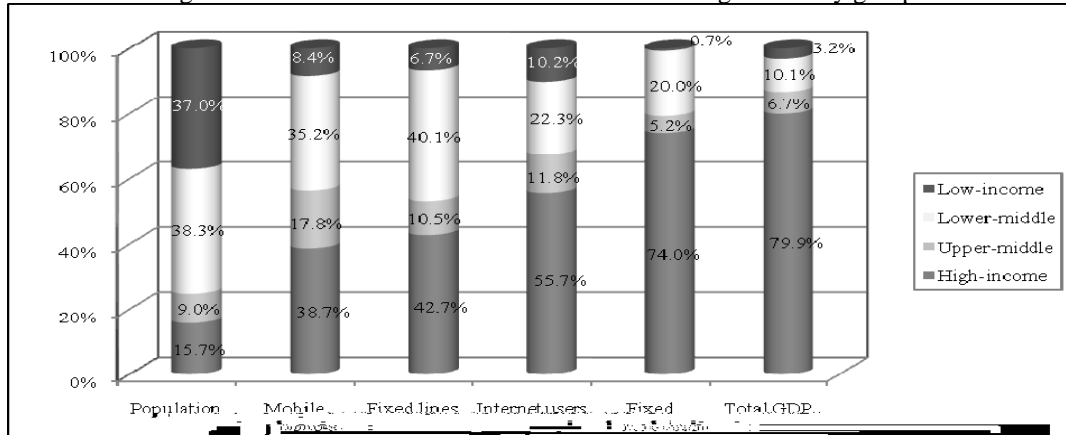
Women in the knowledge society

On the verge of finishing the first decade of the 21st century it is worth recalling that, in general, during the first half of the last century, the world economy was divided in three major sectors: agriculture; industry, and services. In those years, countries exporting their agricultural products experienced times of great prosperity while classical economic models seemed have adapted quite well to reality. Several countries in this region enjoyed rich farming and animal husbandry activities, became self sufficient in terms of food and even exported great shares of their overall agricultural production, and thus strengthened their economies. Many factors began to change, however, when new technologies emerged and evolved.

With the introduction of technology in most production processes during the 1960s, the structure of the global economy began to change quantitatively and qualitatively. Despite soil exhaustion, global climate change and problems arising from a shortage of water or from flooding, agricultural production increased since crop yield also improved. Global economic output, however, fell. This shift can be explained in terms of a change in the relative value of products from different economic activities.

Indeed, in the second half of the 20th century, industry began to occupy a more prominent place in the world economy, and all services – which previously represented only a third part – became more and more important, covering around 60% of it, approximately. It is

Figure 1. Distribution of different variables according to country groups



Source: United Nations, World Information Society 2007 Report, consulted in September 2010 at: <http://www.itu.int/osg/spu/publications/worldinformationsociety/2007/WISR07-summary.pdf>.

Figure 1 shows the distribution of different types of ICTs among four country groups: low income nations, including most sub-Saharan African countries, lower-middle income countries, including some Latin American nations and China, upper-middle income countries, including the Republic of Korea and Singapore, and those with high income, including most northwestern European countries, the United States of America, Japan and a few others in Asia.

The first column displays the striking fact that more than 70% of the world's population resides in low and lower-middle income countries. Data in the remaining columns reveal that there has been a steady expansion of digital opportunities, both in terms of improved access to basic ICTs and also in terms of growth in access to high speed, fixed and mobile network technologies. Doubtless, the number

Latin America has many assets and characteristics that could position it in a privileged situation with a high potential to become a competitive niche. Indeed, while it has made progress in the so-called "Western knowledge" through a small but high-quality S&T community, there is increasing awareness of the importance of knowledge originating from indigenous practices and local traditions.¹ While this knowledge has often been despised or undervalued; there is abundant evidence of the comparative advantages that this type of knowledge can provide in a highly globalized world. By properly assessing it, we will be able to overcome values attached to consumer societies which are constantly sending messages through the mass media, where "how much you own" has higher value than "how much you know".

Among all the actions that should be undertaken to reduce the digital divide between developed and non-developed countries, we shall mention the following:

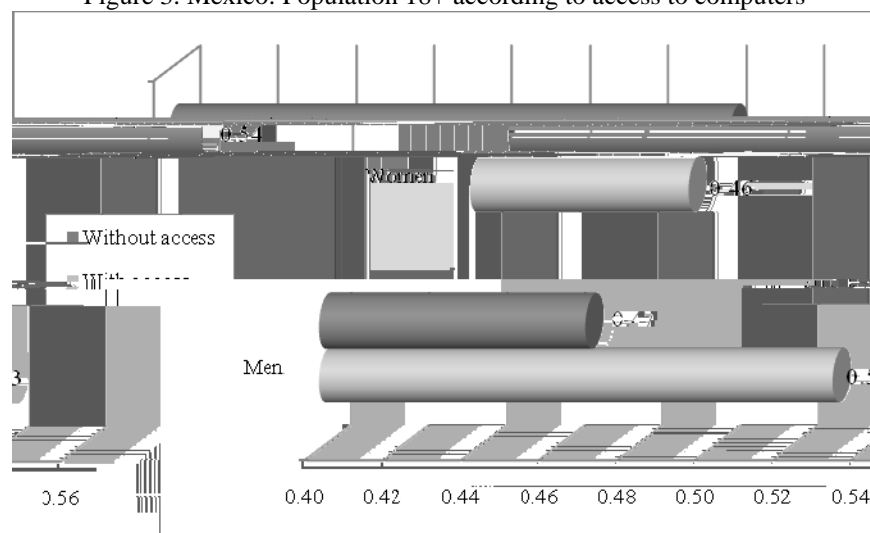
Age is a variable that generates some differences in the population. Figure 2 clearly shows that the older the population, the larger is the technological gap between youngsters and adults. Most members of the younger group have access to a computer, while among the eldest, the ratio does not even reach 15%.

Related literature suggests calling these two groups "digital natives" and "digital migrants". The former are those who were born in the computer era, while the latter are those who had to make an effort to overcome the transition into the current digital age. If the potential of young adults to access computers decreases, they will be totally excluded from the highly competitive labor market in the near future.

The negative impact on the well-being of the population is undeniable. We have to consider that young adults are in the productive and reproductive ages of their lives; but also that the number of single parent households has been growing in recent years.³

Unfortunately, Mexico – like many other countries in the region – is still an example of long-standing inequalities between men and women in many arenas. When it comes to higher education, to remunerated and well-paid employment and to access to knowledge, the gap broadens. With fewer opportunities, women are more vulnerable to poverty.

Figure 3. Mexico: Population 18+ according to access to computers



Source: INEGI / CONACYT: Encuesta sobre la percepción pública de la Ciencia y la Tecnología en Mexico, 2009.

If Latin America really wants to increase its competitiveness, it is essential to overcome these gaps and train human capital to meet the global economy's demands. Along with education, stronger efforts are needed to design and implement policies and normative frameworks portraying gender equality as their ultimate objective, as well as those related to

³ Single parent households are commonly headed by women who usually work double or triple shifts as they are mothers and constitute the sole economic support for all members of the household.

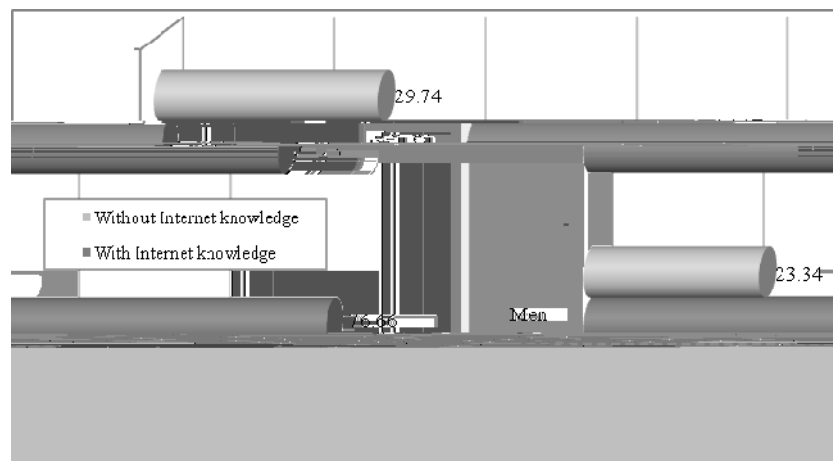
enforcing the law. Brazil, incidentally, is one of the few countries in the region that has improved its educational system, particularly with regard to enrollment in postgraduate studies and high graduation rates in doctoral programs.

In education, another action that should be encouraged is to promote women's participation in subject areas in which they have traditionally been absent. Enrollment distribution in many countries of the region reveals high levels of horizontal segregation, with women being overrepresented in humanities and liberal arts, as well as in fields related to caregiving (children, health, etc). Unfortunately, this overrepresentation goes hand in hand with a low participation of women in exact sciences and in various branches of engineering, and other technical fields.

There is no doubt that this skewed distribution of the female student population has to be modified. Without any prejudice to the importance and transcendence of social sciences and humanities, the areas which have traditionally been linked to knowledge generation and its impact in economic values are engineering and other technical disciplines. They have proven to provide better opportunities to compete in markets associated with the knowledge economy.

The last variable to be discussed in this paper deals with knowledge (and use) of Internet, as shown in Figure 4. Once more, it is easy to acknowledge differences in data reported by both women and men; however, we must remember that this gender gap intersects with other socio-demographic variables such as age, religion, and ethnicity.

Figure 4. Mexico: Population 18+ according to Internet knowledge



Source: INEGI / CONACYT: Encuesta sobre la percepción pública de la Ciencia y la Tecnología en México, 2009.

For many countries it has not been difficult to reduce the digital divide in terms of access to computers and the Internet. The gap in technology knowledge and use among women and men, however, has proved to be more difficult to reduce. This gap arises as women and men know and use different technologies for different purposes. A few recent papers on the subject say that women's use of ICTs is limited compared to men's.

Several studies carried out in other parts of the world have shown women's limited use of ICTs. Moreover, the type of information that women are looking for on the Internet is different from that explored by males. Some authors explain these differences in terms of traditional roles that women inherit or assume, due to their potential role as mothers or to

As previously mentioned, women do not consti

ICTs are an invaluable resource to empower women in developing countries or regions where time availability is scarce, isolation is widespread, and access to knowledge is limited. Thus, it is possible to assert that these technologies are tools that can promote economic development and social change.

Access to ICTs and Internet connectivity are only meaningful if there is a process of technological appropriation, since only so can they be appreciated by future users. These tools become meaningful when efforts are made to open new educational spaces in sectors that have been traditionally marginalized from education, allowing them access to new opportunities for learning and growth.

Despite the – real or perceived – limitations that ICTs have for a new user, they have many advantages, aside from the flexibility of their use in time and space. It is worth mentioning that they facilitate access to multiple sources of information, to information itself and to knowledge. In addition, they provide additional incentives to reduce illiteracy and enhance education.

Any policy designed to contribute to narrowing the gender gap should focus on education, the labor market – with jobs associated to the skills and expertise women may acquire –, and access to and use of technologies required by these jobs.⁵

In this sense, we must insist that investments in S&T should be closely related to national development strategies, which in turn should frame all efforts to build local capacities to generate, acquire and use knowledge, derived from Western-like science, as well as from indigenous and traditional understanding.

Several examples may be drawn from other countries which have built and developed these research and development (R&D) capacities. Even though they were facing similar conditions some years ago, they managed to properly allocate resources and got ahead in their efforts to increase their well being. Indeed, they can be a source of inspiration if Latin America is to meet the challenges lying ahead.

Last but not least, attention should be paid to the legal framework, as previously mentioned. Without a doubt, appropriate normative and legal infrastructure is key for gender mainstreaming in as much as it is to develop social commitment to incorporate a gender perspective in all public policies and programs, not only those related to education. We may conclude that education is central for a systemic approach to development in Latin America as well as in other regions of the developing world.

⁵ Cf. OECD, ICTs and Gender – evidence from OECD and non OECD countries, 2007.

Training of professors should include gender sensitization, including stressing the diversity of the student population (related to social, ethnic, cultural, or sexual conditions), preventing issues associated with gender-related violence (both physical and symbolic), and developing awareness on the form and content of educational materials.

In conclusion, ICTs can promote lifelong learning for both students and professors, regardless of sex and age. Therefore, any strategy designed to promote the use of ICTs for development should explore its advantages and potential in education to narrow the gender divide.