

“SCIENCES ACADEMIES IN SOCIETY”

SYMPOSIUM

Title of the talk: *Towards gender equality in scientific activity: Challenges and achievements of the Mexican Academy of Sciences.*

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1.Introduction

In this lecture I will talk about the way that the Mexican Academy of Sciences (or AMC,

for short) has, fifty years after its founding, fostered efforts to contribute to gender equality and parity in Mexico's scientific activity, as a condition for both the advancement of the various fields of inquiry and for that of our society in the 21st century. The AMC, presided over by a woman for the first time in the half century of its existence, has carried out actions to foster in particular projects undertaken by women researchers in fields that have been traditionally male-dominated; develop mechanisms that ensure numerical equality in the presence of women in hierarchical positions at science and technology institutions, academic events, evaluation organizations and peer review

panels; promote the analysis of the organization of scientific work and equal opportunities and possibilities for both genders; and succeed in having science and technology institutions provide services that favor the permanency and development of its women researchers, such as child day-care, among others.

It is currently of special importance for our organization to undertake continuous public information and awareness campaigns with three basic goals: (a) to publicize the contributions to science by noted Mexican women; (b) to revert gender stereotypes that make invisible or distort the intellectual and academic abilities of women; and (c)

motivate and sensitize girls and young women towards scientific knowledge and careers in the sciences as an option for their personal development and realization.

To accept and recognize the existence of inequality, investigate its causes, measure its socioeconomic impact and take the necessary actions to resolve it means to enrich science using its own creativity and to improve the quality of life of people, taking into account the needs of all, male and female. It is, in this sense, to adopt a new outlook on society and on science.

The AMC also believes it is necessary to undertake the analysis of teaching materials

and educational textbooks to prevent, detect and eradicate the establishment of sex-based stereotypes in school; to design and implement distance learning programs with a gender perspective, focused towards subjects of special interest to women; foster the commitment of all States in the continent towards the establishment of science and technology programs with a gender perspective; and ensure that all national and regional scientific information systems generate relevant indicators and data bases regarding the differentiated participation of men and women in science and technology.

Another matter of equal priority is the analysis of the insufficient feminine presence

in the sciences, especially the exact sciences, and the scarce recognition of contributions made by women in these fields. To this end, it is necessary to study possible means for the inclusion of women, both in the academies and in the government agencies related to the development of science and technology.

Finally, to develop the capacity of the AMC in driving gender equality, and to enhance its leading role in the inclusion and appraisal of women in Mexican science, its relations with government and its interaction with the media, education and the general public must become closer, and its active participation with international organizations must be enhanced.

Government policies on research and development have not considered up to now the specific needs of women in this sphere. But if an improvement in the scientific and technological development of the country is in fact desired, an important part of the challenge is to take measures to face feminine underrepresentation and generate a balance between the sexes in the realm of research.

The place that women in science currently occupy poses several questions on which to reflect. One of the most significant would be perhaps the one regarding the insufficiency of feminine presence in the so-called “hard” sciences to which I already have alluded. The

problem has its origin in the socialization and education that take place from infancy, and that translate into mechanisms of vocational orientation.

As a consequence, during youth there arise difficulties for access, permanency and development in the academic preparation of women. Even though women equal or exceed the masculine enrollment in various areas of higher education in our country, many of them abandon the professional scientific career at some stage, and thus women investigators valuable to Mexican science are lost. As is the case in the country's institutions of higher education, public and

private entities employing scientists lack programs or plans to reconcile the personal, family, professional and work lives of women in order to attain equality between both sexes. The double burden women bear and the multiplicity of roles that are required of us to overcome the obstacles that hinder our academic development are simply ignored. The enormous feminine contribution to human knowledge does not seem to have been assimilated. Even less recognition is given to the construction and transcendence of feminism, a philosophy that has allowed the world, since the twentieth century, to open its eyes to all branches and specialties with a new perspective, destined to bring

about revolutionary changes not only in knowledge, but also in the way knowledge is created, developed, applied and transmitted.

Thus, it is imperative to bring about a modernization in Mexico that allows the implementation of scientific, educational and labor policies that have a gender perspective and, on its part, the AMC has assumed an ethical and co-responsible role.

Overall, the idea is to propose innovative academic, political and funding criteria that, when put in practice, guarantee equality between men and women in scientific activity.

A reflection of Mexico's iniquity is the fact that from more of 2000 AMC's members, only 22.4 % are women. At present, women represent 13.86% of the 1046 members dedicated to Exact Sciences; 25.82 of the 697 working on Natural Sciences, and 40.24% from those dedicated to Social Sciences and Humanities.

This disparity is present in other Academies around the world too. At the London Royal Society, from 1327 members, around 5% are women; the United States National Academy of Sciences serves to 2006 members and only 7% are women; in Brasil, from 694 Academy of Sciences members, 11.4% are women; at the Chilean Academy of Sciences, they

represent 10%; at the Science Council of Japan, 20.5%, and at the Spain Royal Academy of Exact, Physics and Natural Sciences, 3.7%.

This has to do, certainly, with the fraction of academic women who have the conditions to work in scientific research. In the regional comparative Report of the UNESCO Iberoamerican Project on Science, Technology and Gender (GENTEC–UNESCO) for the year 2004, it is shown that of the total of doctoral graduates, the percentage of women that obtain the doctoral degree is greater. In spite of that, the number of women who enter the workforce as investigators in the various fields of

knowledge is lower. In Argentina, Brazil, Spain and Mexico, the average of doctoral women graduates is approximately 55.6%, but those who work in research areas constitute an average of 36.4%, with Mexico being the country with the lowest percentage of women doctors that work in the scientific sector as researchers.

Considering this trend, while it is true that attempts are made to favor the incorporation of women into scientific production, it is necessary to increase the number of programs that aid in fighting the factors influencing gender inequality. For this reason, the AMC, L'Oréal-Mexico and the Mexican

Commission for Cooperation with UNESCO created in 2007 prizes consisting in fellowships for four Mexican women doctors every year. In addition, the Academy is currently working on the establishment of a new prize for women, similar to the aforementioned, but focused on the Humanities, which shall be awarded together with the Institute of Science and Technology of the Mexico City Government.

Another program to favor recognition of their scientific work has consisted in increasing the maximum age up to which women can aspire to the prizes the AMC awards. Thus, for the Prizes for Research in the areas of Exact Sciences, Natural Sciences, Humanities,

Social Sciences, and Engineering and Technology, the age limit is 40 years for men and 43 years for women. For the Prizes to the best doctoral theses in Social Sciences and Humanities, the maximum age is 38 years for men and 40 for women. For the Weizmann Prizes to the best doctoral theses in Exact Sciences, Natural Sciences, and Engineering and Technology the maximum age is 35 years for men and 38 for women. As for the previously cited L'Óreal Prizes to Women in Science, the age limit for candidates is increased, starting in 2010, from 38 to 40 years.

A sample that attests to the resolute drive for the search of strategies in favor of gender

equality was the Symposium of the Interamerican Network of Academies of Sciences (IANAS), with the theme of women in science, organized by our Academy in April of 2009. The symposium was organized thanks to the support of the InterAcademy Panel on International Issues (IAP), Mexico's National Council of Science and Technology, and the Regional Office for Latin America and the Caribbean of the International Council for Science (ICSU-LAC).

With the understanding that the low regional representation of women in science and engineering constitutes an obstacle to the

regional development of capabilities in science and technology, the discussions at the symposium focused on the analysis —from a regional point of view— of the political, legislative and cultural factors that limit and/or foster access for women to science and technology. Successful experiences that have favored gender equality in research and development were also presented, and a document containing a set of actions and recommendations was prepared, which is directed at the Academies of Sciences and Engineering in the region, and which points out the gender inclusion and trend in the Americas.

It is important to repeat here the recommendations issued at that time to promote affirmative actions that pertain to the Academies of Sciences of the continent:

- Incorporate the gender issue as a priority in their agenda.
- Foster relations with the Third World Organization for Women in Science (TWOWS), the Gender Advisory Board (GAB) of the United Nations Commission on Science and Technology for Development, and other organizations related to gender, science and technology.

- . Pursue the presence of women in advisory and evaluation committees for the awarding of prizes.
- . Create prizes for women in science, especially for those involved in education.
- . Establish prizes or fellowships so that young women scientists develop research.
- . Demand that national funding agencies include women in their decision-making committees, and that they support conferences that include a representative number of women in their organizing committees and panels of speakers.

- . Promote abilities for the transforming leadership of young women scientists.
- . Require that national funding agencies and governments grant maternity leave to women students in masters and doctoral programs, as well as post-doctoral fellowships. Demand that they take into account, for promotions, evaluation and renewal of economic incentives, the time that women are absent due to maternity or care-giving for the elderly. In summary, to extend these periods to compensate for such activities.

- . Foster the participation of women scientists who are active in gender studies.
- . Promote transparency in the processes of admission to the academies.
- . Incorporate on-line teaching materials that promote gender equality.
- . Promote a campaign that eliminates the stereotype of male domination in science.
- . Prepare books, materials and documents, or facilitate on-line access to biographies of prestigious and exemplary women scientistts.

- . Foster the establishment of links with traditional wisdom, with emphasis on the ancestral contribution of women.