MASTERCLASS IN ONCOLOGIA

LEADERSHIP DECLINATA AL FEMMINILE: LA GESTIONE DEI CONFLITTI **18 GIUGNO 2019, ROMA** UNAHOTELS HOTEL DECO'



Elisa Giovannetti

Pisa





WOMEN FOR

ONCOLOGY

An ESMO Initiative





ARE THERE MORE BAD PEOPLE IN THE WORLP, OR ARE THERE MORE GOOD PEOPLE?

Incipit



"Two X chromosomes represented an insurmountable barrier to enter university and realize my talents" **R. Levi-Montalcini** Nobel prize 1986



"Physics invented and built by men, it's not by invitation. Curie etc. welcomed after showing what they can do, got Nobels... A. Str...., CERN October 2018

...if we want to get science out there and improving people's lives, that needs to have contributions from both men and women







Pisa, 2016

My grandmother was the first who taught me life lessons about the importance of studying...

Despite significant improvements in recent decades, education is not universally available and **gender inequalities persist**

The 2030 Agenda for Sustainable Development, adopted by the United Nations (UN) General Assembly in September 2015, calls for a new vision to address the environmental, social and economic concerns facing the world today, including 17 Sustainable Development Goals (SDGs), including **SDG 4** on education and **SDG 5** on gender equality





Cracking the code:

Girls' and women's education in science, technology,

engineering and mathematics (STEM)



Only 17 women have won a Nobel Prize in physics, chemistry or medicine since Marie Curie in 1903, compared to 572 men

Today, only 28% of all of the world's researchers are women

Such huge disparities, such deep inequality, do not happen by chance

Too many girls are held back by discrimination, biases, social norms and expectations that influence the quality of education they receive and the subjects they study

Girls' under-representation in science, technology, engineering and mathematics (STEM) education is deep rooted and puts a detrimental brake on progress towards sustainable development

We need to understand the drivers behind this situation in order to reverse these trends

From "Cracking the code: Girls' and women's education in science, technology, engineering and mathematics"







The conflict

Factors influencing girls' and women's participation, progression and achievement in SCIENTIFIC education

- Individual-level factors
 Family- and peer-level factors
 School-level factors
- 4. Societal-level factors







Individual-level factors

Research on biological factors, including brain structure and development, genetics, neuroscience and hormones, shows that the gender gap in STEM **is not the result** of sex differences in these factors or in innate ability

Girls' decisions about their studies and careers are influenced to a great extent by psychological factors, which affect their engagement, interest, learning, motivation, persistence and commitment in STEM

A recent US study found that **stereotypes** associating high level intellectual capacity and 'genius' with males are internalized by children as young as six years old



Cambodian textbook illustration associates more active and creative brain functions to men







Girls have lower **self-efficacy** in science than boys, except in health-related topics



Awards for women in science are extremely Important





Family & School-level factors (Role models)



Parents, especially mothers, with higher education qualifications positively influence girls' achievement in science. 35 OECD countries. Data source: PISA 2015 (OECD countries)¹⁷ Female teachers have a positive effect on girl's enrolment in STEM while male teacher have a negative effect







Societal-level factors

VIDEO CHERCHEZ LA FEMME – Donne & MEDIA

100 donne contro gli stereotipi

https://www.produzionidalbasso.com/project/cherchez-la-femme-100-donne-contro-gli-stereotipi/







Interventions that help



International Day of Women and Girls in Science, 11 February

- Individual level: interventions to build children's spatial skills, self-efficacy, interest and motivation among girls to pursue STEM studies and careers;
- Family and peer level: interventions to engage parents and families to address misconceptions about sexbased, innate abilities, to expand understanding of STEM educational opportunities and careers, and to connect families to educational advisers to build STEM pathways, as well as peer support;
- School level: interventions to address teachers' perceptions and capacity, to develop and deliver gender-responsive curricula, to implement genderneutral assessments;
- Societal level: interventions to social and cultural norms related to gender equality, gender stereotypes in the media, and policies and legislation.





The career path

A key figure presented at CERN was the total number of citations that researchers accumulate since the publication of their 1st paper:







... but if we plot the number of citations for active researchers only (i.e., authors who have >5 papers in total, and who have published a paper in the last 3 years), we see no noticeable difference between men and women (backreaction.blogspot by Sabine Hossenfelder)

This is in agreement with the well-known fact that the majority of physicists drop out of academic careers and women are more likely to drop out (the "leaky pipeline")





Facing the Old Boys' Network

"Let me tell you about my trouble with girls. Three things happen when they are in the lab: you fall in love with them, they fall in love with you, and **when you criticize them they cry**"

Sir Tim Hunt (Nobel prize in Medicine in 2001), resigned from UK University after this talk (Singapore, 2015)



Italy vs. Netherlands





Data from the Dutch Network of Women Professors (Landelijk Netwerk Vrouwelijke Hoogleraren – LNVH), a network of over 1300 female professors which aims to promote the proportionate representation of women in academia.

In oncology



Contribution (number of publications) of Dutch men and women to international literature on oncology





Development of impact scores (average of normalized journal impact) of contributions by men and women to Dutch oncological literature



... my way ("not really rocket science", but hopefully some useful tips...)

I have always felt strongly that work must be as rewarding as the other life components. My career was based on enthusiasm, hard work and luck

To achieve balance between the workplace and home, my husband and I share responsibility for the care of our child. In this way we have both continued to develop our careers

(By chance) I had a child after I had gained some funding, publications and a research group. This worked well for me because I was initially spending long hours in the laboratory. Now I spend most time managing my research group, writing proposals and publications (experimental work is not as flexible as managing. Writing, planning, etc.. can be done at all times of day and night)

Throughout my career, one of my greatest pleasures has been in working with students, post-docs and colleagues, seeing them develop and enjoying the science they generate

When I am facing a conflict I always think that I will find a solution (alone... but I am aware that "working together would bring to the POLITICAL SOLUTION")





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