



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA

Regendering Science. For an inclusive research environment

PLOTINA Final Conference  
BOOK OF ABSTRACTS



Promoting gender balance and inclusion  
in research, innovation and training



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of the European Union

## **Project coordinator: Alma Mater Studiorum - Università di Bologna**

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# INTRODUCTION

**Tullia Gallina Toschi, Angela Balzano, Francesca Crivellaro**  
University of Bologna

This E-book is a result of the H2020 PLOTINA project<sup>1</sup> Final Conference, *ReGendering Science. For an inclusive research environment*, held in the Università di Bologna (27th-28th of January 2020, <https://www.plotina.eu/plotina-final-conference/>). It includes the abstracts selected thanks to the call for abstracts that the Consortium – in collaboration with scholars from different European institutions<sup>2</sup> – launched in October 2019.

Consistently with the **European Research Area (ERA) key priorities on gender equality**, the PLOTINA Project aimed at identifying and addressing the obstacles hampering gender equality in Research Performing Organizations (RPOs). Specifically, PLOTINA aimed at removing barriers to recruitment, retention and career progression of female researchers, addressing gender imbalances in decision making and strengthening the gender dimension in research. These are the key challenges to be addressed, in order to end the waste of talent that Europe cannot afford, and to diversify the views and methodologies, so as to increase the quality, the methodological accuracy and relevance of research.

PLOTINA addressed these challenges by supporting a process of sustainable, integrated and systemic structural change in RPOs and by fostering excellence and the social value of research and innovation. In particular, the project was structured around three main objectives:

- preventing underutilization of qualified female researchers, by removing barriers to recruitment, retention and career progression, allowing the EU to benefit from the talent of all its researchers, thus elevating its international competitiveness;
- improving decision making by addressing gender imbalances to meet new opportunities for scientific innovation, excellence and productivity;
- incorporating the sex/gender dimension in research, when applicable, especially in the STEM disciplines where it is traditionally not applied.

In order to address these objectives, the project workplan was centred around the **elaboration, implementation and monitoring of self-tailored Gender Equality Plans (GEPs) in the RPOs involved** (five Universities and one Research Centre). The main tools elaborated within the Project framework, such as the Formative Toolkit (a step by step guide facilitating the process of GEPs elaboration and implementation), the Library of Actions (containing the actions

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1 PLOTINA (Promoting gender balance and Inclusion in Research Innovation and Training, G.A. 666008) is an H2020 Project, started in February 2016 and concluded in January 2020. PLOTINA Consortium, under the coordination of the University of Bologna, brought together five Universities (University of Bologna, Italy; University of Warwick, United Kingdom; Lisbon School of Economics and Management, Portugal; Mondragon University, Spain; Özyeğin University, Turkey), one research centre (National Institute of Chemistry, Slovenia), three professional associations (Centro Studi Progetto Donna e Diversity MGMT, Italy; Elhuyar-Zubize SLU, Spain, Elhuyar KOM, Spain), one not for-profit research organisation (Centre for Social Innovation, Austria).

2 The elaboration of the call and the selection of the proposals received was carried out by academics from the PLOTINA Consortium and experts from different universities and research centres (Università Cattolica del Sacro Cuore, Italy; University of Florence, Italy; University of Bergamo, Italy; Department for General Psychiatry and Psychotherapy, Wunstorf Clinic, Hannover Region Clinics, Germany).

implemented in the GEP by each RPO and a detailed description of best practices) are available in a downloadable format on the PLOTINA website (<https://www.plotina.eu/>).

As a Coordination and Support Action, PLOTINA could not fund research activities. Nevertheless, one of its main goals was to integrate the gender dimension into the design, evaluation and implementation of research, so as to enhance its quality and relevance and to foster both excellence and the social value of innovations. To this end, PLOTINA RPOs decided to dedicate a full workpackage (WP4) to the development and the spreading of a more gender aware-science. The end goal of WP4 (*Implementing GEPs: Gender-aware science*) was to develop a Library of Actions, addressing the whole process of scientific knowledge-making, from teaching to research to innovation, devoted to:

- 1) spreading in the RPOs' settings a gender/sex aware approach;
- 2) enhancing commitment of female scientists: i) as evaluators of research (editors, referees) and ii) as producers of knowledge (researchers/principal investigators) in considering gender/sex analysis in scientific research and publications;
- 3) including gender/sex approaches in the background of the next generation of researchers by targeting different individuals (BA students, MA students, PhD scholars, senior researchers and research groups, publishers, referees and editors; high-level research management in charge for the internal allocation of research funding within RPOs).

Several public deliverables are available on the PLOTINA website; we sincerely hope that they will facilitate the work of other RPOs. For instance, the deliverable *Publication of a collection of short briefs from the gender-aware research and teaching Case studies provided as part of the PLOTINA Library (D.2)* includes all the case studies realized by PLOTINA RPOs. The PLOTINA case studies cover many different disciplinary fields, nevertheless they all aim at the integration of the sex and gender dimensions in research<sup>3</sup> and they represent an additional spark and some practical exercises in this direction.

For the PLOTINA Consortium, the project Final Conference was an opportunity to further commit in the promotion of the integration of sex and gender in research and to foster the debate on those issues that were core to the project. PLOTINA commitment for the integration of sex and gender in research is mirrored by the Final Conference Program. *ReGendering Science. For an inclusive research environment*<sup>4</sup> allowed the possibility for scholars, students, policy makers and representatives from NGOs to contribute to 4 topics (see Figure 1) and to share case studies, experiences and best practices in the parallel sessions.

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<sup>3</sup> The term 'gender dimension' was developed within the European Commission and means integrating sex and/or gender variables and analysis into research. According to Gendered Innovations (European Commission, 2013b), 'sex' refers to the basic biological characteristics of females and males, while 'gender' refers to cultural attitudes that shape 'feminine' and 'masculine' behaviours, products, technologies, environments and knowledge. See also the PLOTINA Lexicon (<https://plotina.eu/plotina-lexicon>).

<sup>4</sup> <https://www.plotina.eu/plotina-final-conference/>



Figure 1. PLOTINA Final Conference Call for Contributions

The second parallel session, in particular, was fully devoted to the inclusion of sex/gender variables in research and it was articulated in the following six disciplinary parallel sub-sessions:

- Mainstreaming diversities in agro-food research
- Gender in social sciences and humanities
- Economics, Business and Finance
- Design and Engineering
- Gender-inclusive material sciences and engineering
- Gender and (mental) health

In order to allow the organization of the parallel sessions, the PLOTINA Consortium – in collaboration with academics belonging to different institutions – launched a call for contributions<sup>5</sup> (abstracts and posters) aiming not only at mainstreaming other RPOs’ gender sensitive research experiences and projects, but also at maximizing the impact of the event. More than 75 contributions were received from scholars with different disciplinary background and coming from institutions based in in different countries (Austria, Eire, Germany, Italy, Portugal, Serbia, Slovenia, Sweden, Ukraine, United Kingdom, United States). The different parallel sub-sessions were highly and actively participated, proving the interests towards the gender-aware research approach.

The abstracts selected for the Final Conference – and included in the present publication – represent a various range of fields of studies and an excellent starting point for *re-gendering research*. In line with the Responsible Research and Innovation (RRI) future scenario<sup>6</sup>, the publication of these preliminary research works, case studies and critical analysis of adopted positive actions (e.g. teaching) aims at providing examples and different methods to favour a non-neutral inclusive and sustainable research.

The integration of the gender/sex dimension as a “cross-cutting issue” has anticipated the mandatory need of responsibility drivers in research. In the European Union framework, it is still pivotal to foster a gender/sex-aware research. As demonstrated by the She Figures Report 2018, studies that integrate a sex or gender dimension in their research content account for

5 <https://www.plotina.eu/final-conference-call-for-papers/#call2>

6 The EU definition of RRI is «an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation» (European Commission, <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation>)

approximately 1.8 % of all research studies in the EU-28 (She Figures, 2019: 175)<sup>7</sup>. With this publication, we hope to contribute at the increasing of this value.

In the following pages, the readers will find the abstracts presented and discussed during the PLOTINA Final Conference, divided per parallel sessions and sub-panels. As well explained by the Gendered Innovation Team, it is impossible to provide a unique methodology for the gender and sex analysis in research, since every field of study has its own peculiarities. Thus, we will not try to summarize the insights provided by the speakers with their contributions. Here is more useful to report a set of suggestions and tips for encouraging researchers to make their project more gender-aware. The PLOTINA RPOs embraced the approach proposed by Gendered Innovation in the development of their case studies. In particular PLOTINA RPOs suggest starting a gender-aware case study by asking the following questions proposed by Gendered Innovation:

- What is the current state of knowledge on sex and gender (norms, identity and/or relationships) in your area of research?
- Have the sex and gender variables been sufficiently taken into account by previous research in your own field? How have they influenced research?
- Have the hypothesis of previous research in your field been supported by evidence or were they the result of bias/assumptions?
- Do research questions cover all groups of potentially relevant stakeholders (female animals, men in osteoporosis research, women in heart attack research) or is someone excluded<sup>8</sup>?

Other useful recommendation proposed by Gendered Innovation and embraced by PLOTINA RPOs are the following:

- Distinguish and mention the sex/gender of the subjects and/or users of the research.
- Identify and explain the differences between groups of females and males (in case of animal samples) and women and men.
- Collect and report data on factors that intersect sex/gender in research subjects or users/consumers.
- Collect, analyze and report the results disaggregated by gender<sup>9</sup>.

By adopting such recommendations, scholars can improve the quality of research as well as its innovation potential, since gender bias in science also leads to missed market opportunities. Innovation comes with differences and a “gender-blind research” can only miss its objective: knowing the reality to improve it for the benefit of all. On the contrary, embracing a more gender-aware research will also contribute to the achievement of the United Nations Millennium Sustainable Goals, in particular of the goals number 5 and 10, respectively Gender Equality and Reduced Inequalities<sup>10</sup>. We believe all the contributions collected into this book of abstracts can contribute to these aims.

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7 European Commission, *She Figures 2018*, Publications Office of the European Union, Luxembourg, 2019. Available at: <https://publications.europa.eu/en/publication-detail/-/publication/9540ffa1-4478-11e9-a8ed-01aa75ed71a1/language-en>

8 <http://genderedinnovations.stanford.edu/methods/questions.html>

9 <http://genderedinnovations.stanford.edu/methods/sex.html>

10 <https://site.unibo.it/almagoals/en/goals>

# PARALLEL SESSION 1

## STRUCTURAL CHANGE: GENDER EQUALITY PLANS AND EFFORTS

**Session chaired by Charikleia Tzanakou, Tullia Gallina Toschi**  
University of Warwick, University of Bologna

### **Enhancing gender equality in STEM research Institutions: some experiences across Europe**

Maria Nadia Postorino<sup>1</sup>

#### **Aims of the contribution**

GEECCO project (financed the EU Horizon 2020 research and innovation programme, grant agreement 741128) focuses on establishing tailor-made Gender Equality Plans (GEPs) in four European Research Performing Organizations (RPO) and to implement gender dimensions in two Research Funding Organizations (RFO). One of the main features of GEECCO is that all participating RPOs are STEM institutions, where gender equality is still a serious problem. This presentation wants to contribute to gender issue discussion in STEM fields by summarizing successes and failures encountered by the partners during the implementation period.

#### **Description of the experience**

While most of the gender issues are similar among the GEECCO RPO partners (e.g., gender imbalance at high decision-making levels, poor female involvement in the academic life, scarcity of specific rules/commitment to obtain effective results for female career advancement), their experiences in implementing GEPs, though tailored on their specific needs, are rather different as actions and practices adopted by a RPO cannot be *sic et simpliciter* adopted by another RPO, although sharing the same problems, because the cultural context and the regulatory context are different.

GEPs are a well-known tool used to define a set of actions to obtain gender balance, or at least reduce gender imbalance, in a given context. In GEECCO, GEPs are designed in order to consider the specific features – both the external cultural contexts and the internal context – of the STEM institution through a process that includes:

- 1) awareness and knowledge on gender equality issues;
- 2) communication processes within and beyond the implementing institutions;
- 3) improvement of gender equality in human resource management (e.g. career development, staff retention and training) and decision-making processes;
- 4) introduction or strengthening of gender equality dimensions in teaching and research activities.

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<sup>1</sup> Department of Civil, Chemical, Environmental, and Materials Engineering (DICAM, )University of Bologna.



Some of the involved RPOs had to set their GEP for the first time, while some other had already adopted a GEP, which should be improved and updated. The different GEP implementation steps represented a good opportunity for the RPOs to exchange experiences and to learn from one other. From one side, results – included suggestions on dos and don'ts - obtained by RPOs that had already established at least once their GEP were used by RPOs that had never implemented a GEP. On the other hand, the need to adapt their GEP to (mainly) internal contexts represented a challenge for all the RPOs. This important step has been encouraged, supported, and evaluated, in a trial-and-error approach, by the *facilitators*, which are also partners of the project.

Their role has been not only the one of supervisors, they have been also actively interacting with the RPOs by providing both general and customized training sessions, adapted to the RPOs main needs.

As the goal of the project is to start structural changes, the RPOs have been encouraged to develop their own training sheets, prepare materials, organize the training and possibly act as trainers.

This trainer experience is particular important for RPOs with no GEPs or gender offices, because it could represent the first step for a structural change within the institution.

Two important elements of the GEP strategy at the RPOs, as planned in GEECCO, are the communication activity and the required commitment by the high-level decision makers.

Communication, not only at external events but mainly within the institution, has contributed to increase awareness about gender issues. On the other hand, commitment by high-level decision makers has been required and stimulated during the implementing step. Commitment is one of the most important aspects for starting structural changes and the role of the facilitators in supporting the RPO GEECCO team in soliciting commitment at their institution has been crucial.

As GEECCO is still ongoing, it cannot be said which are the final results of the GEP implementation process. However, some intermediate results are encouraging, above all at the RPOs that faced gender issues for the first time and have been forced to use a systematic approach that involved several levels – from decision making bodies and process to recruitment procedures and introducing gender aspects in research and teaching. This holistic approach is proving to be positive for starting changing people attitude towards gender issues at the involved STEM institutions.

## **GEARING-Roles: OBU experience with co-creative techniques in participatory gender audits**

Kate Clayton-Hathway<sup>1</sup>, Anne Laure Humbert<sup>1</sup>, Charikleia Tzanakou<sup>1</sup>

### **Aims of the contribution**

To provide an insight into methodologies used to collect qualitative data to understand gender equality situation in an institution and inform a gender equality plan

### **Description of the experience**

#### **Introduction**

A plethora of data is required to understand which challenges prevent institutions from becoming inclusive workplaces. Gender equality is a complex phenomenon and requires expertise and different types of methods and data to identify challenges and interventions. There has been a lot of focus on analysis of quantitative data in relation to staff and student numbers in different levels, which provide an important wider context and big picture. An increasing body of qualitative data is collected in institutions to get an insight into the experiences and perceptions of the people on the ground that can inform and consult gender equality efforts. We are presenting part of the work undertaken in Oxford Brookes University (OBU) as part of the H2020 Project GEARING-Roles which aims at developing, implementing and evaluating six Gender Equality Plans (GEPs) aiming at transforming gender roles and identities linked to professional careers, and working towards real institutional change. We present one of the ways we collected qualitative data with OBU staff to understand the challenges and identify solutions in relation to leadership perspectives on career paths, and part-time/flexible working.

#### **Materials and methods**

The OBU-GEARING research team experimented with two techniques to facilitate Participatory Gender Audits (PGAs) with academic and professional services staff at OBU to collect data on their views, perceptions and recommendations that would help address challenges regarding key issues identified through an institutional assessment. These techniques comprised a 'persona' technique, which was used as a warm up exercise, enabling the group to work together and project some of the issues in relation to the main themes; and a 'lotus blossom' exercise which enabled participants to identify challenges and work together to provide recommendations. These techniques derived from an elaborate training session delivered by Yellow Window on co-creation techniques as part of the GEARING-Roles project.

#### **Results**

Four Participatory Gender Audits were conducted where 44 participants contributed to addressing two key challenges: part-time/flexible work and leadership perspectives on career paths. The research team analysed the data and identified the main themes. Interestingly, there were common themes in relation to care responsibilities, development and training and HR processes. There were also themes that were particular to the challenges: value/visibility, trade off in relation to part-time/flexible working and confidence and motivation issues in relation to leadership.

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<sup>1</sup> Oxford Brookes University.

## **Conclusions**

The 'persona' and 'lotus blossom' techniques have been useful to understand better staff views and perceptions in relation to specific institutional issues. Co-creative techniques for data collection can be very useful and refreshing for participants who might be tired of responding to survey and interview questions and reinforce the importance of working together, collectively in groups to identify and address challenges if we want to build an inclusive, collegial and fulfilling workplace for all.

# **SAGE: Meeting the Challenges and Providing the Winning Strategies for Structural Change in RPOs**

Professor Eileen Drew<sup>1</sup>

## **Aims of the contribution**

This paper sets out the objectives, methods and achievements of the SAGE Project in addressing the challenges and bringing about structural and cultural change in project consortium institutions.

## **Description of the experience**

### **Introduction**

Despite improvements in the representation of women in HEIs across the EU, fundamental barriers exist that prevent: the fullest integration of all genders in leadership and decision-making; equitable and transparent advancement through the academic pipeline; and the inclusion of a sex/gender dimension into research and innovation. Tailored Gender Equality Plans (GEPs) were designed/adapted for implementation, to match the cultural and structural realities and barriers in partners' institutions.

### **Materials and methods**

Drawing upon the practical experience of SAGE Project partners, the presentation utilises the framework of fixing the: numbers, women, institution and knowledge to illustrate the holistic approach to structural and cultural change within institutions, spanning 7 European countries: Ireland, France, Portugal, Italy, Bosnia & Herzegovina, Turkey and UK.

### **Results**

The paper sets out the achievements of SAGE partners spanning the quadrants of the SAGE Gender Equality Plan (GEP) Wheel (see Figure 1): Institutional Governance; Career Progression; Work-Life Balance; and Engendering Knowledge. It provides evidence of the importance of gender disaggregated data to underpin and drive the Gender Equality Plans (GEP) actions and illustrates how the SAGE Wheel framework guided partner institutions towards structural and cultural change. Important to this imperative was the evolution of a change management model (see Figure 2) to guide the process towards gender equality.

In tandem with a SAGE Day and issue of a SAGE Pin, project partners launched the SAGE Charter of Principles for Gender Equality in Higher Education, for adoption in European RPOs, thereby signifying their support for the 12 fundamental principles underlying the Charter.

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<sup>1</sup> Director, Trinity Centre for Gender Equality and Leadership, Trinity College, University of Dublin, Ireland.

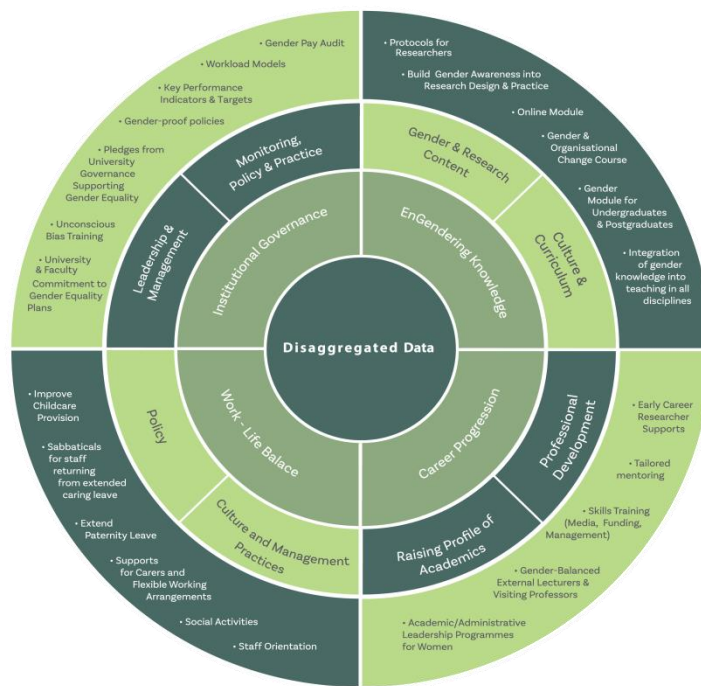


Figure 1 The SAGE GEP Wheel

Another legacy is the SAGE Toolkit to facilitate the process of designing GEPS in HEIs, using a four-step approach: Plan, Do, Check and Act. All SAGE institutions contributed to promoting the gender dimension in research through gender courses at undergraduate and postgraduate level; dedicated workshops, a winter school and seminars. A further legacy of the SAGE Project was the design, testing and introduction of Online courses: Change Management for Gender Equality; Unconscious Bias; and the Gender Dimension in Research.

The results and outputs of the SAGE project were disseminated across many conferences, seminars, via publications and social media. A book “*The Gender Sensitive University: A Contradiction in Terms?*” will be published by Routledge and launched at the 11<sup>th</sup> Gender Equality in Higher Education (GEHE) Conference in Madrid in September 2020, to accompany further exploitation of SAGE outputs.

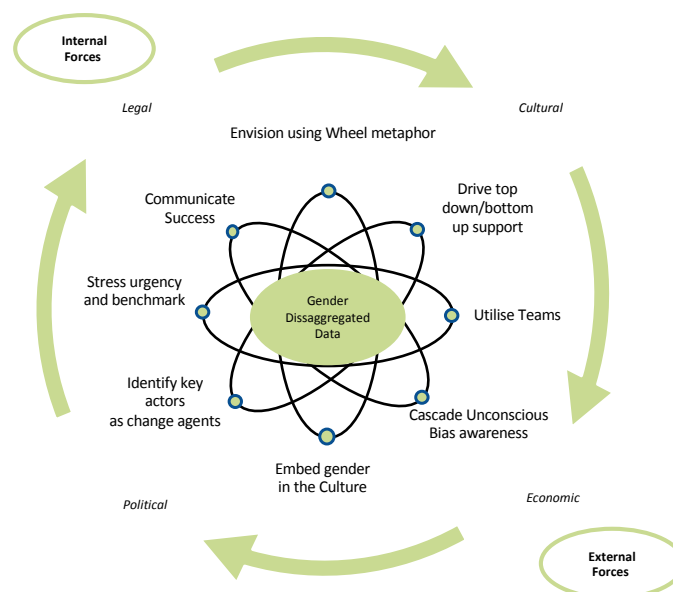


Figure 2 The SAGE Change Management Model

## **Conclusions**

Arising from the SAGE project it is evident that structural and cultural change for gender equality requires a multi-faceted approach envisioned in all quadrants of the SAGE GEP Wheel and concerted actions supported by the SAGE Change Management Model. Not all SAGE implementing institutions could assume top level buy-in at the outset – indeed three experienced a change of Rector (two of whom were new women appointees) during the lifespan (3 years) of the project. Hence, a bottom-up and top-down commitment required constant efforts. This was helped by the formation of, and consequent contributions by, institutional SAGE teams. All SAGE partners were supported in the provision of Unconscious Bias awareness training and tailored the other capacity building interventions to their individual needs. Cultural changes were important through changes and additions to the university curriculum and training of researchers. SAGE consortium members acted as key agents of change in driving the SAGE GEP actions and celebrating successes (e.g. through the SAGE Day and launch of Charter). The coordinating (TCD) and Evaluating (QUB) partners facilitated the benchmarking of SAGE actions to address sustainable structural and cultural change that will continue for many more years, beyond the end of the SAGE project.

## **References**

Drew E. and Bencivenga R. (eds.), (2017). “Gender in Horizon 2020: The Case of Gender Equality Plans”, in «AG - About Gender International Journal of Gender Studies»,. 6,. 12, pp. 326-355.

## **Acknowledgements**

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## **Pilot experiences in implementing GEPs: the R&I PEERS project**

Ilaria Di Tullio<sup>1</sup>

### **Aims of the contribution**

Achieving Gender equality in science and in research is considered one of the key enabling factors for the innovation and competitiveness in the globalised scenario. In order to favour the goal, European Commission funds projects aiming at supporting research organization and universities in implementing Gender Equality Plan, one of those is the H2020 - R&I PEERS project.

The contribution aims at sharing first results of the H2020 RI-PEERS project concerning pilots' experiences in implementing Gender Equality Plans (GEPs) across research organisations and universities.

It will be particularly focussed on the process toward the provision of Gender Equality tailored indicators and how to identify them.

### **Description of the research**

#### **Introduction**

The H2020 - R&I PEERS project, across heterogeneous Mediterranean consortium aims at implementing Gender Equality Plan in seven Piloting partner pursuing three-fold objectives: reducing gender gap, improving gender awareness, test the impacts of the measures implemented through GEPs

Within the R&I PEERS project, National Research Council, as a partner of the consortium, created a List of GEPs Monitoring Indicators (LGMI) in order to improve practice and to support R&I PEERS piloting partners in implementing GEPs. The objectives were defining the tailored indicators; identifying the monitoring procedures and for each GEP with the aim to characterise and measure the specific situation related to gender equality of the piloting partners of the R&I PEERS project.

#### **Materials and methods**

The LGMI is based on the analysis of information on the framework variables (cultural, legislative, political and economic) which may affect gender equality in research at each piloting partner "Country" and on a selection of best practices of GEP improvements strategies to be applied by our piloting organisations for improving their customised GEPs. The LGMI follows a two-fold objective in supporting piloting partner in implementing GEP: the first is about framing the status quo within institution; the second is about choosing appropriate gender indicators useful to fill gender gaps.

In order to follow these two objectives we provide the "Template for data Collection", a framework to collect sex-disaggregated data from secondary sources, such as administrative databases and human resources department information systems (aiming at collecting demographic data,

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<sup>1</sup> National Research Council - Institute for Research on Population and Social Policies (CNR-IRPPS).

education and qualification information, the progression of the career path, the work organisation and the research outputs).

Secondly, we provide seven Gender Equality Indicators Boxes aiming at: identify which measures are closer to their needs; providing a user-friendly reference document to explore possible areas to take into consideration in order to fill the gender gap. The boxes served as a basis to build a platform in order to evaluate the impact of the measures implemented.

The methodology used in order to provide gender equality indicators, is based on the *Lazarsfeld conceptual model*, centred to: conceptual representation of the concept, the selection of the specified dimensions; the identification of the appropriate gender indicators for each dimension.

## **Results**

R&I PEERS piloting organisations have used the LGMI as a reference to measure the different dimensions of gender equality in their institution. Each piloting partner developed a GEP taking into account instruments and measures suggested in the LGMI. Since the formal adoption of the GEP, they have been started collecting facts and figures for the monitoring and the evaluation of the impacts.

## **Conclusions**

The project is still in progress, we are at the beginning of the second year of a four-year project but several results have been already achieved.

## **References**

Ri-PEERS project website: <http://ripeers.eu/>.



## Best practice mapping for RFOs

Donia Lasinger<sup>1</sup>, Elisabeth Nagl<sup>1</sup>

### Aims of the contribution

Up-to-date best practice mapping of existing knowledge, experience and input from RFOs (research funding organisations) in respect to gender equality plans and efforts

### Description of research

#### Introduction

The best practice mapping is based on an intensive knowledge exchange among mainly European RFOs on their common practice in regard to gender equality plans and efforts. The results were generated via an EU funded project named GEECCO that aims to establish tailor-made Gender Equality Plans (GEPs) in four European RFOs (research performing organisations) and to implement the gender dimension in two RFOs that are located mainly in the STEM (Science, Technology, Engineering, and Mathematics) field.

#### Materials and methods

The main collection of existing practices in RFOs was done via a structured questionnaire that covered next to general characteristics of RFOs four main areas: 1. internal sphere (strategies, budget, goals...), 2. funding activities (general and specific funding programs), 3. evaluation process (instruments, criteria,...) and 4. interconnectedness with RPOs. The responses of 19 RFOs were augmented by internet research.

#### Results

The sample included a variety of different RFOs, be it in size, legal status, public or private, nationality or budget. This wide variety gave the possibility to map a number of best practice examples in regard to funding activities, evaluation processes as well as internal factors like dedicated installed structures.

Besides the collection of existing examples on how RFOs can gender mainstream their funding procedures, some general observations could be made as a result of the analysis:

1.) Gender mainstreaming in RFOs focussing on applied research and in RFOs focussing on basic research faces different challenges. While in the first case it might be easier to relate to gender mainstreaming in the content (as the research is applied and humans are very likely to be involved) the challenge there is that companies are often involved, and the awareness of GM is generally lower there. In the second case, the opposite is the case: the awareness of GM in academia is usually there, but in basic research it can be more challenging to see the relevance of gender mainstreaming in the research content.

2.) The political background seems to be crucial precondition for a comprising inclusion of gender mainstreaming in the funding cycle. This seems to be the case for the Northern countries such as Sweden (with the examples Vinnova, SRC). On the one hand the direct influence of the governance plays a role, such as in the situation in Sweden, that all Governmental agencies have a governmental assignment to foster gender mainstreaming. On the other hand, there are also the

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<sup>1</sup> WWTF - Vienna Science and Technology Fund.

more general aspects that contribute to the acceptance of the topic in the society in general. Again the Swedish case is a good example here, where gender mainstreaming has been on the agenda of governments since the mid 1990ies and has also been institutionalized with and within governmental offices, policies and ministries.

If gender mainstreaming is a topic which is considered as relevant from the highest political level “downwards”, the premises are good that it can be implemented properly in all institutions and at all levels.

3.) That this positively influences the development and the progress of gender mainstreaming in RFOs, is only logical. Besides the “support”-aspect of the political background, there is also the “time”-aspect: gender mainstreaming takes time. This observation is also not a very surprising one, but it has to be kept in mind when assessing the status of gender mainstreaming in different RFOs. The more time that has passed since the beginning of gender mainstreaming office, the further the progress (in terms of institutionalization as well as implemented actions and measures).

4.) Directly linked to that is the observation that implementing gender mainstreaming measures is a matter of learning by doing, or even trial and error. As there are so many facets to this matter, it can be noted that many – well conceived – measures are implemented even if they are not uncontested. It can be stated that is an important act to start engaging in gender mainstreaming for an RFO, even if “the perfect” actions is not (yet) found. This also clearly has to do with the high variety of RFOs and that there is no one-fits-all solution which can be easily transferred between different institutions.

5.) Gender mainstreaming is a permanent process of trying and adapting ideas and instruments. Apart from the above mentioned experimentation with different measures, it is also the requirements and challenges that change. Gender mainstreaming today comprises many more aspect than it did 20 years ago, and the same development will be true in the future. RFOs which are beginning to engage in GM have to be conscious about this fact.

## **References**

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# Dissemination of PLOTINA and its Gender Equality Plans Manex Urruzola

## Manex Urruzola<sup>1</sup>

### Aims of the contribution

Description of the communication and dissemination activities carried out to contribute to give more visibility to the PLOTINA Project and its Gender Equality Plans.

### Description of the experience

#### Introduction

A combination of online and offline dissemination activities has been carried out combining the update of the project webpage, creation of an online database, use of social media channels, production of videos, newsletter, press kits, organisation of seminars and workshops to contribute to give more visibility to the project achievements throughout EU countries, thereby helping to deepen knowledge on the importance of the implementation of GEPs within research organisations to target audience such as decision makers at highest management level, research funding staff, technical and administrative staff, research managers, RFOs and RPOs, researchers and teachers.

#### Materials and methods

- *Website and the social media:* constantly updated with news items, photos, videos, tools and other resources.
- *Online dissemination* of relevant information and project results has been carried out through emailing, newsletter, web-news, videos and social media.
- *Press office activities* have been carried out in order to get coverage in the international media.
- *PLOTINA Online Database of Good Practices and Formative Toolkit.* The database includes: i) Actions already undertaken by RPOs partners and the GEPs available in the public domain in Europe; ii) the online Library of Actions developed by each PLOTINA RPOs during the project; iii) the PLOTINA Good Practice Guide accompanied by a formative toolkit for the RPOs at the starting stage in the setting-up their gender equality plans; iv) the monitoring software. The site has been shaped as a practical guidebook for creating and implementing a tailored GEP.
- *Creation of promotional video and videos illustrating Best practices:* 9 videos have been produced. One of them is a promotional video clip to raise awareness about the importance of the implementation of GEPs and the structure, the work in progress and the potential impact of PLOTINA project in designing and implementing GEPs. Four videos illustrating Best Practices from RPOs have also been produced. A tutorial video for the Monitoring Tool has also been produced, as well as a video about the PLOTINA Summer School “How to be a peer reviewer?”. Two additional videos have been published answering to the following questions. “Why is it important to have a Gender Equality Plan?” and “Why is it important to include the dimension of gender in scientific research?”. All the videos have been disseminated through the project newsletter and made available through the project website, social media profiles, as well as in YouTube.

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<sup>1</sup> ELHUYAR.

- *National dissemination events: good practices and lessons from PLOTINA.* Conferences, workshops and training sessions have been organized in six different countries (Italy, Slovenia, Spain, Portugal, Turkey and UK) by Partner RPOs. The aim has been dissemination of PLOTINA project results among other stakeholders, in particular Universities, RPOs and RFOs to establish a wider community who will use the output methodologies of PLOTINA in their own institutions.
- *Participation in open events and conferences.* Partners have participated in national and international events and conferences in different cities (Berlin, London, Amsterdam, Brussels, Rome, Prague, Bologna, Warwick, Istanbul, Ljubljana, Vienna, Bilbao...) to present the project working in synergy with other major events and other EU projects in order to maximize the impact during this second reporting period.
- *Synergies with other similar initiatives.* Contacts have been established with other EU platforms (e.g., GenPORT, ACT and GENERA). These synergies gave to the different projects the possibility to find new canals for their survey, research and contents and helped in the best practices exchanges among similar projects.

## Results

- *Website and the social media:* More than 11,000 visits to the website, Twitter accumulates 250 tweets and 525 followers, and Facebook activity results 130 posts and 285 followers.
- *Press office activities:* PLOTINA project has received press coverage in the Turkish national media, Spanish newspapers, Basque public TV and the Austrian Press Agency.
- *PLOTINA Online Database of Good Practices and Formative Toolkit:* The website has been shaped as a practical guidebook for creating and implementing a tailored GEP and accumulates more than 11,000 visits.
- *Creation of promotional video and videos illustrating Best practices:* The promotional video clip to raise awareness about the importance of the implementation of GEPs and the structure, the work in progress and the potential impact of PLOTINA project in designing and implementing GEPs has had 1,500 views. And *the Research Executive Agency of the European Commission, on the occasion of the International Women's Day, highlighted the PLOTINA video produced by cartoons to illustrate the Good Practice from UNIBO that provides guidance on how contrasting unconscious gender biases in the evaluation and recruitment of professors and researchers.*
- *National dissemination events: good practices and lessons from PLOTINA.* Around 50 conferences, workshops and training sessions have been organized in six different countries (Italy, Slovenia, Spain, Portugal, Turkey and UK) by Partner RPOs.
- *Participation in open events and conferences.* Partners have participated in more than 50 national and international events and conferences in different cities (Berlin, London, Amsterdam, Brussels, Rome, Prague, Bologna, Warwick, Istanbul, Ljubljana, Vienna, Bilbao...) to present the project working in synergy with other major events and other EU projects in order to maximize the impact during this second reporting period.
- *Synergies with other similar initiatives.* Several contacts have been established with other EU platforms.

## **Conclusions**

Project Officer, 2nd Review Report:

“The set of dissemination and communication activities are well thought, consistent with the scale and the objectives of the project and aimed at different types of stakeholders.”

“The beneficiaries have indeed already produced many interesting and sensible toolkits (...) to disseminate their work. The website is very well done, informative and rich in content. It is a very valuable dissemination channel and it shows the commitment of being of help to other in replicating similar interventions.”

“The beneficiaries (...) have a rich and fine-looking website, with interesting multimedia contents. They are now using more intensively the social media, with the twitter account that has more than doubled the number of followers and with a much more intense posting activity. The newsletter and videos are openly accessible. Videos are of high quality and they got a good number of views. The beneficiaries improved the offline profile of the project with a set of press office activities.”

“Project has delivered exceptional results with significant immediate or potential impact”

# Gender Bias in Academic Promotions in Italy after the Berlinguer's and Gelmini's reforms

Massimiliano Coda Zabetta<sup>1</sup>, Aldo Geuna<sup>2,3</sup> Cristina Solera<sup>1,2,4</sup>

## Aims of the contribution

By drawing from two primary sources (MIUR and the bibliographic Web version of Elsevier Scopus database), the aim of this paper is to explore the effect of Berlinguer's reform in 1998 and of Gelmini's reform in 2010 on gender differences in promotions.

## Description of the case study

### Introduction

In Europe women account for 46% of PhD graduates, 37% of associate professors and only 20% of full professors. The situation in the Italian academia is not that different. There are several possible explanations for the persistent underrepresentation of women in top positions in academia. Gender differences in promotion rates might reflect differences in productivity, perhaps due to the gender allocations of family responsibilities or the lack of female mentors and role models; or differences in the propensity to apply for promotions, maybe due to different preferences for competitive environments or bargaining abilities in the labor market. Moreover, women seem to devote more time to tasks that are socially desirable but less taken into account in promotion decisions. Others authors have moved the focus from "women's fault" to "cultural barriers", seeking to reveal the enduring gender bias, preconceptions and stereotypes on which also academic careers, notions and practices of leadership and of "excellence" are constructed. These problems have reached policy makers in many countries, including Italy, which in fact applied profound modifications to the Italian academic recruitment system over the past two decades, with the objective of increasing transparency and meritocracy.

### Materials and methods

By drawing from two primary sources (MIUR and the "bibliographic" Web version of Elsevier Scopus database), the aim of this paper is to explore the effect of these reforms on gender differences in promotions. First, we focus on the impact of the Berlinguer's reform in 1998, with a decentralization of the Italian university system that should reduce the incentives for candidates to produce international research outcomes and/or to submit papers to higher quality scientific journals: more local recruitment management could generate the expectation that less stringent requirements will be applied. Since in our data we just observe the outcome of promotion (we do not have any information on who was actually a candidate), in a quasi-experimental research framework we apply matching techniques (Propensity Score and Coarsened Exact Matching) to select two balanced groups of academics: one including researchers who faced the prereform institutional setting, and the second with researchers who faced the decentralized mechanism. Then, within a Difference-in-Differences (DiD) framework, we measure the average impact of the policy change on women promotion chances.

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1 GREThA UMR CNRS 5113, University of Bordeaux.

2 Department of Economics and Statistics "Cognetti de Martiis", University of Turin.

3 Collegio Carlo Alberto, Torino.

4 Department of Cultures, Politics and Society, University of Turin.

Then we turn the attention to the 2010 Gelmini's reform which introduced in Italy a national habilitation for university professors, following the model of several European countries. For this reform, we analyze the gender differences in the probability of taking part and being selected using information on the first round of the Italian national scientific habilitation which took place in 2012. Thus we have information both on who was a candidate for habilitation (with, of course, the outcome of the evaluation procedure) and who could have been a candidate. More precisely: first, we consider what determines success in the habilitation concourse conditional on being a candidate; second, we examine the determinants of the likelihood of entering the habilitation concourse; third, we test for network differences among men and women being the cause for the lower propensity of the latter to enter the concourse.

## Results

Results of the DiD estimator show that the probability of women being promoted after Berlinguer's reform is higher than in the previous recruitment mechanism, with the reform thus having a positive impact.

After Gelmini's reform, results on what determines success in the habilitation concourse show a stronger selection for those who are not following the conventional university track (i.e. apply to habilitation holding a position in Italian academia). Furthermore, for this subgroup, there is a negative and significant difference across genders in the probability of being habilitated. Splitting the academic subsample in two groups according to the rank of the habilitation exam (habilitation for associate or full professorship) we find a lack of evidence of discrimination against women in the habilitation process for full professorship only.

Next, examining the determinants of the likelihood of entering the habilitation concourse, we also find that females are less likely than men to enter the contest. This could be due to the fact that women believe that they will be discriminated against and hence decide not to enter the competition or that they care more about university quality so, since promotion often implies mobility for university professors, they may choose not to apply for habilitation in order to stay in a top university. Results show that being in a top university does not affect the likelihood of female academics to apply, while it seems to matter a great deal for male university professors. Finally, the test for network differences among men and women show that, although statistically significant, these differences in size and genders are probably minor and do not have an impact on the magnitude of the other gender coefficients.

## Conclusions

Gelmini's reform in 2010 introduced a two-step procedure, in line with other European academic systems, with a national scientific habilitation at which the researchers have to qualify before taking part to local concourses. Results show that gender has a significant negative effect on candidates' habilitation rate only in the case of associate professor positions and considering those researchers who do not follow the conventional academic track (i.e. apply for habilitation from outside Italian academia). Results also show that women are less likely to seek promotion than men. This is in line with experimental evidence that highlights male overconfidence, but it leaves its roots. Future research should better address the interplay between individual preferences and perceptions of adequacy and cultural and structural definitions of excellence.

# Sexual Harassment and Gender-Based Violence – a Neglected Topic in GEP Implementation Projects?

Jennifer Dahmen-Adkins<sup>1</sup>, Astrid Schulz<sup>1</sup>

## Aims of the contribution

Our paper will discuss how the topic of sexual harassment and gender-based violence has been addressed so far in EU funded structural change projects which aim on implementing gender equality plans.

## Description of the case study

Starting in Framework Programme (FP) 5 to FP 6 and FP7 and now Horizon 2020, the EU has funded research as well as coordination and support actions to identify gender inequalities in different academic sectors and subjects, always with the aim to set up (policy) recommendations to improve the situation (Dahmen-Adkins, Karner and Thaler, 2019). Since 2010 the EU explicitly undertakes efforts to foster structural change in order to improve gender equality in European science and research, thus the focus shifted from “fixing the women” to “fixing the institutions”, by questioning existing structures and practices. Until 2019 in total 23 projects have been funded to support research performing organisations (RPOs) as well as research funding organisations (RFOs) with implementing institutional gender equality plans (GEP). Around two years ago, facilitated by the worldwide #metoo movement, also the abuse of power relations in academic field became the focus of interest (Anitha and Lewis, 2018; Fernando and Prasat, 2019; Lipinsky, Farneti and Pantelmann, 2019). A closer look revealed that especially in Europe there is a lack of current differentiated research data dedicated on this topic and which examines the phenomenon of sexual harassment in academia comprehensively (Bondestam and Lindqvist, 2018).

This observation sparked our interest and we wanted to know, to what extent gender-based violence (GBV) and sexual harassment have been addressed in GEPs of funded EC projects. In our paper we will present the result of this explorative research, which is mainly based on web research on project websites. Through the information gathered we identified in how many GEPs these topics were included, and if so, how they were addressed and what kind of activities were developed and realized. Our underlying assumption was, that if there are implemented activities or policies they focus primarily on the prevention of GBV, while practices to protect the victims of GBV and/or the prosecution of perpetrators are less seldom to find.

Through the systematic examination of whether and how GBV is addressed in these project related GEPs so far, we constructively point out the gaps that still need to be closed in order to counteract GBV and sexual harassment in higher education and research organisations.

## References

- Bondestam F. and Lundqvist M. (2018). *Sexual harassment in academia. An international research review*, The Swedish Research Council.
- Dahmen-Adkins J., Karner Sandra and Thaler A. (2019). “Co-Producing Gender Equality Knowledge in a European Project”, in Conference Proceedings of the STS Conference Graz 2019, Critical Issues in Science, Technology and Society Studies, 6 - 7 May 2019 , pp. 50-65.

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<sup>1</sup> Institute of Sociology, RWTH Aachen University, Germany.



Dulini F. and Prasad A. (2019). "Sex-based harassment and organizational silencing: How women are led to reluctant acquiescence in academia", in «Human Relations», 72, 10, pp. 1565-1594.

Lipinsky A., Farneti A. and Pantelmann H. (2019). "Gender-based violence in academia - from practical interventions to research and back", in «CEWS Journal», 120, pp. 31-36.

Sundari A. and Lewis R. (eds.) (2018). *Gender based violence in university communities. Policy, prevention and educational initiatives*, Bristol, Bristol Policy Press.

## **Preventing and contrasting harassment and gender discrimination at work**

Paolo Mora<sup>1,2</sup>, Chiara Cretella<sup>3</sup>, Daniela Di Nicolantonio<sup>1</sup>, Sabrina Colombari<sup>4</sup>, Luisa Capasso<sup>5</sup>

### **Aims of the contribution (poster)**

Preventing and contrasting harassment and gender discrimination at work.

### **Description of the case study**

The Guarantee Committee for Equal Opportunities, Employee Wellbeing and Non-Discrimination at Work – CUG of the Rizzoli Orthopaedic Institute, in collaboration with the Guarantee Committee for Equal Opportunities, Employee Wellbeing and Non-Discrimination at Work – CUG of the Azienda Ospedaliero Universitaria di Bologna Policlinico di Sant’Orsola and of the Azienda Unità Sanitaria Locale di Bologna, realized during 2019 a training activity that dealt with the important and delicate thematic area of prevention and combating harassment and gender discrimination at work. In this context, a free distribution brochure was also created: a brief guide that illustrates how harassment is a collective problem that affects not only the work environment, but also the society that tolerates, minimizes or hides them. These phenomena, just like gender-based violence, are structural in our societies because they are the direct consequence of a cultural system that has not yet been questioned.

### **Introduction**

Since 2017, also thanks to the media coverage of the #MeToo movement, we have been talking about the problem of gender discrimination and sexual harassment at the workplace on a global level. There are still no definitions shared by all at the international level, nor a single legislative framework. Furthermore, in Italy there are no specific laws, nevertheless there are many laws with which these behaviors can be punished and many useful tools for prevention and support of those who report.

With the transposition of European and international directives, it has begun to be understood that discrimination and harassment should not be seen as a private problem between two people, but concern employers, who are obliged to guarantee not only safety (physical integrity) but also the dignity of the employees, by using the means of prevention and training. Discrimination and harassment are now considered a risk factors for working well-being.

### **Materials and methods**

Specific training for Personnel.

Production and distribution of brochures.

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1 Rizzoli Orthopaedic Institute.

2 Department of Biomedical and Neuromotor Sciences (DIBINEM), University of Bologna.

3 Department of Education Studies (EDU), University of Bologna.

4 Azienda Unità Sanitaria Locale di Bologna.

5 Azienda Ospedaliero Universitaria di Bologna Policlinico di Sant’Orsola.

## Results

It is believed that the training activity carried out has achieved the educational objectives identified in the planning of the event by providing participants with the knowledge necessary to develop and / or strengthen the ability to read and manage the dynamics related to situations of harassment and of gender discrimination at work in view of an effective prevention and contrast to these phenomena through the use of appropriate methods and tools. The booklet was appreciated by the staff. It has been studied with a focus on gender communication: by answering simple questions, as happens in the rules of the construction of a journalistic inquiry, the phenomenon has been illustrated in order to be able to recognize it and therefore communicate it without victimization and stereotypes.

## Conclusions

The specific training and dissemination of the booklet have allowed a first action of information, training and awareness aimed at the staff of the Rizzoli Orthopaedic Institute, Azienda Ospedaliero Universitaria di Bologna Policlinico di Sant'Orsola and Azienda Unità Sanitaria Locale di Bologna, which have intended to launch a strong signal with a view to preventing and combating harassment and gender discrimination at work.

## References

- Bevilacqua J. (2000). *Le molestie sessuali nei luoghi di lavoro: USA, Europa, Italia*, Milano, Franco Angeli.
- Cordignani G. (1996). *Molestie sessuali e "in"certezza del diritto*, Milano, Franco Angeli.
- Costantino C. and Francesca C. (2000). *Colleghi: uomini e donne nei rapporti lavorativi*, Milano, Franco Angeli.
- Grisendi A. (1992). *Giù le mani: storie di donne (e di uomini): le molestie sessuali sul lavoro*, Segrate, Mondadori.
- Guariniello R. (2018). *Molestie e violenza anche di tipo sessuale nei luoghi di lavoro*, Milano, Wolters Kluwer.
- Hirigoyen M.F. (2000). *Molestie morali: la violenza perversa nella famiglia e nel lavoro*, Torino, Einaudi.
- Istat (1998). *Molestie e violenze sessuali*.
- Istat (2018). *Le molestie e i ricatti sessuali sul lavoro anni 2015-2016*.
- Izzi D. (2005), *Eguaglianza e differenze nei rapporti di lavoro. Il diritto antidiscriminatorio tra genere e fattori di rischio emergenti*, Napoli, Jovene.
- MacKinnon C. (1979). *Sexual harassment of working women: a case of sex discrimination*, New Haven, Yale University Press.
- Pasquini F. (2002), *Il buon lavoro: salute, sicurezza, molestie e mobbing*, Roma, Ediesse.
- Regione Emilia-Romagna (1995), *Codice di condotta contro le molestie sessuali*.

Rubenstein M. and Ineke P. (1993). *How to combat sexual harassment at work: a guide to implementing the European Commission code of practice*, Office for Official Publications of the European Communities.

Russell D.E.H. (1984). *Sexual exploitation: rape, child sexual abuse, and workplace harassment*, Thousand Oaks, Sage Publishing.

Smuraglia C. (2005). *Le discriminazioni di genere sul lavoro: dall'Europa all'Italia*, Roma, Ediesse.

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Direzione Generale, Azienda Ospedaliero Universitaria di Bologna Policlinico di Sant'Orsola;

Direzione Generale, Azienda Unità Sanitaria Locale di Bologna.

# Gender Bias Training in Academic STEM

Colleen Cuddy<sup>1</sup>

## Aims of the contribution

This paper provides an introduction to interventions that have had a positive impact on the careers of women faculty in academic STEM (Science, Technology, Engineering, Mathematics and Medicine). Elements of successful gender bias training interventions are shared so that they can be utilized to create new training and expand upon existing interventions.

## Description of the research

### Introduction

Career progression and success is problematic for women in academic STEM. Female STEM faculty worldwide are less successful than their male peers with regards to promotion and tenure, publications, grant awards and other leadership opportunities.

Research has pointed to the male dominated work environments of academic STEM and a culture of sexual discrimination as a driving factor in limiting the careers of women in academic STEM (Howe-Walsh and Turnbull, 2016; Roos and Gatta, 2009). Gender discrimination and harassment continue even as institutions put policies and procedures in place to eliminate such behavior. What can academic institutions do to increase career success for female STEM faculty?

Initiatives directed at women, such as leadership training (Debebe, 2011; Van Oosten, Buse and Bilimoria, 2017) and values affirmation and belonging interventions (Casad et al., 2018; Walton, 2014) do not address the systemic problems arising from gendered STEM disciplines. Effective training targeting the dominant male population is needed to mitigate gender bias and discrimination of female faculty in academic STEM. There are examples of gender bias training interventions (Jackson, Hillard and Schneider, 2014; Moss-Racusin et al., 2018, 2016) from which we can begin to determine those elements which help reduce bias and begin to create a more inclusive culture.

### Materials and methods

The author searched Google Scholar, SCOPUS, Web of Science, and PubMed for publications that discussed gender bias training interventions for academic faculty. The author focused on empirical studies utilizing interventions based on behavioral change methodologies rather than diversity training that teaches compliance. Twelve articles were retrieved. After eliminating multiple articles that discussed a single study, six interventions were reviewed.

### Results

*Course content:* Most of the STEM interventions reviewed for this paper attempted to alleviate both implicit and explicit bias but failed at moving the mark on explicit bias. Focusing on mitigating implicit bias may be a more obtainable outcome. Explicit bias may be one area better handled by policy and procedures at an institutional level.

Interventions that use an inclusive focus, looking at all marginalized groups as a whole were viewed more positively than those that focused on just one group, for example, women. Pulack and

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<sup>1</sup> Fielding Graduate University, Santa Barbara, CA and Stanford University, School of Medicine, Stanford, CA.

Green identify several prejudice reduction intervention approaches that are supported by experimental evidence from both the field and laboratory. They are (1) cooperative learning, (2) entertainment, (3) peer influence/discussion/dialogue, (4) contact theory, (5) cross-cultural /intercultural training (Paluck and Green, 2009).

These approaches bear out in the gender bias intervention studies in STEMM as all relied on one or more of these approaches to develop content. Most interventions used social learning experiences that enabled cooperative learning, utilized research of peers to stimulate dialogue and discussion, employed the tenants of contact theory to create situations where both majority and minority groups worked together, and focused on cultural differences on multiple levels. The most innovative study employed an entertainment approach utilizing a game to teach the cumulative effects of unconscious bias, followed by a facilitated discussion (Shields et al. 2018).

*Mandatory Vs. Voluntary Attendance:* An extensive study on best practices of diversity training in companies and academic institutions found no effect on the learning outcomes if the sessions were voluntary versus required participation (Bezrukova, Jehn and Spell, 2012). However, in academic STEMM making the training optional and not mandatory seems an important consideration. (Carnes 2012; Jackson, Hillard and Schneider et al., 2014). All training interventions reviewed for this article relied on voluntary participation. One of the problems with voluntary training is self-selection. Faculty who are most interested in changing the organizational culture, i.e., women, are most likely to attend voluntary sessions. It is not surprising that even though men outnumber women in STEMM faculty, more women than men attended the gender bias interventions reviewed in this paper.

*Teaching men and women together:* Mixed-gender environments appear to have better outcomes for gender bias training. All of the interventions reviewed taught men and women together, with the interventions designed to acknowledge that everyone is susceptible to implicit bias (Jackson, Hillard and Schneider, 2014). The percentage of the overall faculty population that attends training also has an effect. Carnes et al. (2015) found that departments that had 25% or more faculty participate in the training saw an increase in self-reported action to promote gender equity three months after the training interventions.

*Delivery method:* Delivery method is an important consideration for any gender bias training. Five of the six interventions used in-person trainers. One intervention used video. While the video approach initially showed promise and addressed the need to scale the training to larger groups, researchers had to modify the video content in order to mitigate an unintended consequence of presenting gender bias as something that is insurmountable (Hennes et al., 2018).

*Intervention approach:* Integrated diversity training conducted as part of a systematic development effort is viewed more favorably than standalone training (Bezrukova et al., 2012). However, all of the case studies found in STEMM are presented as standalone inventions, and there is no indication that they are part of broader institutional initiatives. This seems to indicate that although it may not be optimal, standalone training does provide benefits.

## **Conclusions**

Three elements appear to be important considerations for future effort: 1) to focus training on implicit bias; 2) to focus on improving individual behaviour, not an institution-wide policy; and 3) to employ concepts of intergroup contact theory training men and women together. Standalone gender bias training interventions, while not optimal, have positive and what appear to be lasting effects on addressing gender bias, although further longitudinal studies will bear this out.

Table 1: Intervention Summary

Author	Format	Length	Course Content	Behavioral Method
Carnes	In-person workshop	150 min	written commitment to change, IAT test	self-reflection, problem-solving, habitual behavior change, contact theory
Girod	In-person presentation	30 min	Summary of research lit, gender data, strategies for hiring	Cultural training, peer influence/discussion
Jackson	In-person workshop	20 min	Data, research on implicit bias, persuasion research, trait study	Cultural training
Moss-Racusin	In-person workshop	120 min	Empirical literature, presented diversity as a shared goal, difficult conversations	Cultural training, active learning, peer influence/discussion, contact theory
Pietri	video	30 min	Peer-reviewed studies on gender bias	Cultural training, entertainment
Shields	In-person game followed by a facilitated discussion	75-90 min	Cumulative effects of minor biases	Experiential learning, entertainment, cooperative learning, contact theory

## References

- Bezrukova K., Jehn K.A. and Spell C.S. (2012). "Reviewing diversity training: Where we have been and where we should go", in «Academy of Management Learning & Education», 11, 2, pp. 207-227.
- Carnes M., Devine P.G., Manwell L.B., Byars-Winston A., Fine E., Ford C.E. and Sheridan J. (2015). "Effect of an intervention to break the gender bias habit for faculty at one institution: A cluster randomized, controlled trial", in «Academic Medicine: Journal of the Association of American Medical Colleges», 90, 2, pp. 221-230.
- Carnes M., Devine P.G., Isaac C., Manwell L.B., Ford C.E., Byars-Winston A. and Sheridan, J. T. (2012). "Promoting institutional change through bias literacy", in «Journal of Diversity in Higher Education», 5, 2, pp. 63-77.
- Casad B.J., Oyler D.L., Sullivan E.T., McClellan E.M., Tierney D.N., Anderson D.A. and Flammang B.J. (2018). "Wise psychological interventions to improve gender and racial equality in STEM", in «Group Processes & Intergroup Relations», 21, 5, pp. 767-787.
- Debebe G. (2011). "Creating a safe environment for women's leadership transformation", in «Journal of Management Education», 35, 5, pp. 679-712.
- Hennes E.P., Pietri E.S., Moss-Racusin C.A., Mason K.A., Dovidio J.F., Brescoll V.L. and Handelsman J. (2018). "Increasing the perceived malleability of gender bias using a modified Video Intervention for Diversity in STEM (VIDS)", in «Group Processes & Intergroup Relations», 21(5), pp.-788–809.
- Howe-Walsh L. and Turnbull S. (2016). "Barriers to women leaders in academia: Tales from science and technology", in «Studies in Higher Education», 41, 3, pp. 415-428.

Jackson S.M., Hillard A.L. and Schneider T.R. (2014). "Using implicit bias training to improve attitudes toward women in STEM", in «Social Psychology of Education», 17, 3, pp. 419-438.

Moss-Racusin C.A., Pietri E.S., Hennes E.P., Dovidio J.F., Brescoll V.L., Roussos G. and Handelsman J. (2018). "Reducing STEM gender bias with VIDS (video interventions for diversity in STEM)", in «Journal of Experimental Psychology: Applied», 24, 2, p. 236.

Moss-Racusin C. A., van der Toorn J., Dovidio J.F., Brescoll V.L., Graham M.J. and Handelsman J. (2016). "A 'scientific diversity' intervention to reduce gender bias in a sample of life scientists", in «CBE Life Sciences Education», 15,3, pii: ar29.

Paluck E.L. and Green D.P. (2009). "Prejudice reduction: What works? A review and assessment of research and practice", in «Annual Review of Psychology», 60, pp. 339-367.

Roos P.A. and Gatta M.L. (2009). "Gender (in)equity in the academy: Subtle mechanisms and the production of inequality", in «Research in Social Stratification and Mobility», 27,3, pp. 177-200.

Shields S.A., McCormick K.T., Diccico E.C. and Zawadzki M.J. (2018). "Demonstrating the cumulative effects of unconscious bias with WAGES-ACADEMIC (Worksoip Activity for Gender Equity Simulation): Short- and long-term impact on faculty and administrator" in «Journal of Women and Minorities in Science and Engineering», 24, 2, pp. 147-163.

Shields S.A. (2011). "The impact of the Workshop Activity for Gender Equity Simulation in the Academy (WAGES–Academic) in demonstrating cumulative effects of gender bias", in «Journal of Diversity in Higher Education», 4, 2, pp. 120-129.

Van Oosten E.B., Buse K. and Bilimoria D. (2017). "The Leadership Lab for Women: Advancing and retaining women in STEM through professional development", in «Frontiers in Psychology», 8, p. 2138.

Walton G.M. (2015). "Two brief interventions to mitigate a 'chilly climate' transform women's experience relationships, and achievement in engineering", in «Journal of Educational Psychology», 107, 2, pp. 468-485.

Walton G.M. and Cohen G.

L. (2011). "A brief social-belonging intervention improves academic and health outcomes of minority students", in «Science», 33, 6023, pp. 1447-1451.



## **Diversity@work videogame**

### Work Wide Women

#### **Aims of the contribution**

Our vision is to develop a work environment as inclusive as possible. We focus our daily effort on creating a world in which differences are fully considered, diversities become a link among people and opportunities are equally achievable by anyone.

#### **Description of the experience**

##### **Introduction**

Is it possible to be a true and trustable landmark for women and companies in creating opportunities for inclusion, growth and jobs? Yes. By increasing the variety of working population, which improves the corporate performance and the competitiveness of the enterprises.

Diversity stimulates innovation by 20%, reduces risk by 30% and the cash flow per employee (over a three-year period) is 2.3 times higher. Source: Deloitte

Of the 10,000+ workers in the EU and the UK, employment discrimination is down by 4% to around 30%, age being the most common reason for discrimination (9%), followed by gender (7%). 1 in 10 women claim to be discriminated against compared to 3% of men. Source: Opinion Matters' Workforce View in Europe 2019 on behalf of ADP

Main levers for the adoption of D&I policies: 95% improved corporate climate, 84% promotion of D&I on all hierarchical levels, 71% thought differences in decision-making criteria, 61% decrease in turnover costs. Source: Istud Business School and Wise Growth

In 2017, a female Italian worker, depending on her work classification, earned on average between €9k and €2.5k less per year than her male colleague (up to 24% less). Source: Job Pricing Gender Pay Gap Report

3 out of 4 Italians choose inclusive brands that invest in these issues. Source: Diversity Brand Index of Focus Management.

##### **Materials and methods**

Scenario: during years 2018-2022 the employment requirement of the Italian economy is estimated at 2.756.200 units.

Our videogame is proposed especially to large companies that need to convey the principles of diversity & Inclusion within the company population.

Diversity@Work is an innovative tool designed to think about diversity management and player's reactions in situations where there's a chance of falling into automatism and stereotypes. A B2B edutainment instrument to sensitize management and workforce on topics of diversity by fostering positive behaviours and by diffusing a new corporate culture.

The videogame is a highly scalable product in terms of market and possible applications. Once the engine on which the software runs is developed it's very easy to change the contents and think about new areas of application. We are already producing the English version of the demo version

in order to be able to propose it also for the foreign branches of large companies in foreign Countries.

## Results

The videogame is available:

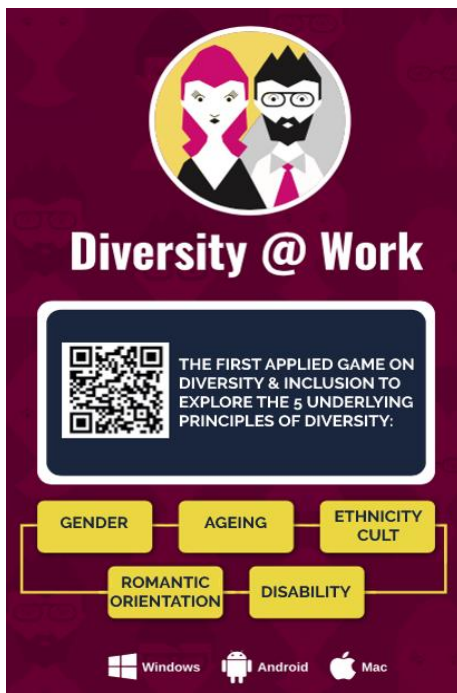
Single distribution via Web or Mobile App

Group usage in the classroom through workshops guided by a coach.

Many Italian companies is already using our videogame, for example:

- GRUPPO HERA > 14th place on “Diversity & Inclusion Index”, standard version of Diversity@Work;
- BNP PARIBAS > 26th place “Diversity & Inclusion Index”, custom version of Diversity@Work;
- CAMST > Videogame Training of 30 Managers through Diversity@Work: using a customized version of the applied game on the themes of gender gap in the advancement of women in career.

*The “Diversity & Inclusion Index” sets the D&I rating based on ESG data from Thomson Reuters, designed to measure companies' performance against factors that define inclusive workplaces in a transparent and objective manner.*



## **Conclusions**

The videogame and also the videogame training in classroom was very much appreciated because all D&I issues, always treated in a heavy or self-referential way, become innovative and dynamic through a gaming experience, and also become an engaging experience to all levels. This is because Diversity@Work is not an assessment or a test, so the player does not feel judged.

## **References**

The macro indicators which are used for the parameters are referable to the first EU checklist on diversity management, published in 2012 and lately updated.

[https://www.wko.at/site/Charta-derVielfalt/Service/publikationen/checklist\\_diversitymanagement\\_en.pdf](https://www.wko.at/site/Charta-derVielfalt/Service/publikationen/checklist_diversitymanagement_en.pdf)

# Do women feel to be fully entitled as leaders in higher education or do they still feel to be *the Others* in the sector?

Susi Poli<sup>1</sup>

## Aims of the contribution

This presentation aims to highlight the key findings of a doctoral thesis investigating women's career paths in leadership in a pool of countries in Europe. The key research question leading the study was: Do women feel to be fully entitled as leaders in higher education? Do these women accept to be second or minor players in their career in today's universities?

Starting from an overview of key results, the aim is to display the variety of results and contrast these with further, updated findings drawn from the literature on the same topic. Among others, my key results help shed light on the structure of the HE sector still over-challenging women through barriers more likely to take the shape of forms of misogyny and sexism; the shining role for women's leadership played by and within their family, even in regard to their daughters; the importance of academic credibility, age, women as friends or foes, and much more.

## Introduction

*And she [the woman] is nothing other than what man decides ... she is determined and differentiated in relation to man, while he is not in relation to her ... He is the Subject ... She is the Other (De Beauvoir, 2010:6)*

In this quotation from *The Second Sex*, De Beauvoir points to women's subordination to men and acceptance to be second or minor players in life and career. Thus, beginning from this thesis primary findings, the study moves on to investigate the problem of the under-representation of women as leaders in Higher Education institutions in three European countries, England, Italy and Sweden. To do so, it focusses on a group of women in professional services – being heads of administration or comparable top posts - and their career experiences in becoming institutional leaders.

## Materials and methods

Methodologically, the study uses Giddens' interrelated concepts of structure and agency to look at the factors influencing women's careers while focusing on how these women have responded to structural barriers encountered. How far do women strengthen their agency in order to succeed in their career and become entitled to top roles?

Semi-structured interviews were carried out and thematic analysis was the qualitative method that helped highlight and select codes and themes out of the data. As a result of that, categories of practices, career strategies, and styles of leadership emerged and were fully described.

## Results and Conclusions

The primary findings report four categories of practices that women opt for to succeed in their career, while further findings shed light on eight areas of influence where it is more likely to find key factors personally and professionally, from the dynamics of sector and institutions to age and academic credibility. Further analysis point to how hard it is to be a woman in HE and how much

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<sup>1</sup> UCL Institute of Education, WHEN Equality.

easier would conform to men's behaviour for all those women aspiring to be leaders. While the conclusions show that some exceptionally talented women have become accustomed to being key players in the sector as if this had been overtime belonged to women. Nevertheless, they understand that men are still more likely to rule the most important choices even those affecting their careers as leaders so to confirm women's otherness described by De Beauvoir.

Recommendations point to the importance of networking; skills that go far beyond soft ones, for instance, resilience and happiness; and that of woman-led associations as safe havens of collective learning, unlearning and personal growth; all these to be regarded as the weapons to be equipped with to make a real impact on social and organizational structures, while reinforcing women's self-confidence and strengthening mutual trust in working collaboratively.

### **Acknowledgements**

Dr Celia Whitchurch and Dr Vincent Carpentier (at UCL Institute of Education).

### **References**

De Beauvoir S. (2015). *Extracts from The Second Sex*, London, Vintage Classics.

Morley L. (2013). *Women and Higher education Leadership: Absences and Aspirations – 2013*, London, Leadership Foundation for Higher Education.

Poli S. (2018). *Professional women in higher education management – Practices, career strategies and approaches to leadership*, University College London, London, UK (Doctoral dissertation). Retrieved from <https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.747399> .

# Sources of power in the modern economy as incentives to reduce gender inequality

Brankica Todorovic<sup>1</sup>

## Aims of the contribution

1. One of the key issues of modern economies is the faster introduction of gender equality. This is why the Gender Equality Index is quantitative and qualitative in terms of growth and/or reduction of inequalities in the areas of knowledge, work, money, time, power and other segments. Unfortunately, in 2018, gender equality in the EU increased by only 1 index point compared to 2017 (the index is below 60% for almost half of the members). At the top of the list are Sweden and Denmark. France is the only country where 40% of both genders are represented on the boards of companies (economic power). Therefore, special attention is given in the paper to the analysis of political and economic power.

2. The importance of the EU accession process, especially because of the need to fulfilment obligations in terms of reducing gender inequalities which indicates the EU's commitment to reducing gender inequalities and realizing the rights guaranteed by international and regulatory EU. Every year, the European Commission controls gender equality in the two chapters 19 and 23 (in my country-Republic of Serbia). It will be also analysis the recommendations of the European Commission in the field of gender equality, as well as, the highest success in terms of gender equality has been achieved in the domain of national level power (shows that quotas for women's political participation increasing).

3. Practical measures and activities for improving gender equality, emphasizing the importance of entrepreneurship where through self-employment women's employment is facilitated. In addition, the development of digital skills has enabled the development of digital entrepreneurship, which can enable home-based work, flexible working hours ... Given the large number of men in the IT sector, it is very important to educate women for this sector, employment and equal pay as men. Generally, it is important to emphasize the need for easier access to credit sources, incentive measures for entrepreneurship, training and mentoring and other measures.

## Description of the experience

Increasing the gender equality is one of the key postulation in the development of modern economies. The institutional and legislative framework in the form of Conventions, Directives, Agendas and national legislation clearly defines the equality of women and men in all areas of activities. The field of gender equality is viewed from different aspects: employment of the men and women, working hours, wages, flexible working conditions, availability of education and work for certain occupations, as well as, other segments. In addition to the EU's efforts to increase gender equality, these requirements are tied to candidate countries. In the process of accession to the EU member states have obligations related to gender equality, as well as, principles adopted by the key international framework. The European Commission monitors these commitments and provides guidance on how to improve and improve gender equality.

The aim of the analysis in the paper is to identify:

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<sup>1</sup> School of Economics Uzice, Serbia.

1. Gender equality segments that are enhancing based on Gender Equality Index analysis and comparison with previous years,
2. The impact of power on women's economic empowerment in EU countries and candidate for accession (power as political: share of ministers, share of members of parliaments and members of regional assemblies and economic power) and
3. The role of entrepreneurship and digital skills education in reducing gender inequalities while analysed the importance of traditional and digital entrepreneurship for women's economic empowerment where the role of entrepreneurship and IT education is emphasized.

The paper highlights potential sources of power and ways to reduce gender inequality with the rapid development of new technologies and the Internet spurring change in the fields of work, employment and entrepreneurship.

## **Conclusions**

In the process of accession of the EU member states have obligations related to the gender equality and principles adopted by key international framework. European Commission control the fulfillment of obligations related to gender equality in two Chapters 19 and 23, and give recommendations, every year. In addition, the domestic institutional framework shows the involvement and implementation of gender equality in the national economy. The National Strategy for Gender Equality envisages the advancement of a culture of gender equality, increased equality between women and men through the implementation of equal opportunities policies and measures, and the systematic introduction of a gender perspective in policy making, implementation and monitoring.

The sources of power in the context of gender equality indexes are in the domain of economic power (increased participation of women in boards of the largest companies in the stock market) and political power which has been influenced by the prescribed quotas for minimum participation of women in government bodies. In subgroups social and political power is higher than the EU average. Also, increase participation of women on boards of broadcasting organizations but there are no women on the boards of research funding organizations.

Although there is some progress in the field of gender equality, it is necessary to include a gender perspective in the Strategy for Scientific and Technological Development in the future. In addition, there is a need to increase the visibility and activity of women in political parties at national and local levels, including members of vulnerable groups. It is important to introduce a compulsory gender-sensitive and anti-discriminatory educational program and curriculum at all levels of education, including adult education and education of media professionals. In this sense, it is necessary to revise teaching content and textbooks to eliminate gender stereotypes, discriminatory content and discriminatory language. In line with EC recommendations, it is necessary to adopt action plans for the implementation of the Gender Equality Strategy.

Women economic potential, improved access to modern skills and knowledge and defining a Strategy for the women entrepreneurship, for gender equality generally speaking, is also important for stimulation of the women entrepreneurship.

## References

EIGE (2017). *Gender Equality Index 2017. Measuring gender equality in the European Union 2005-2015.*

EIGE (2015). *Gender Equality Index 2015. Measuring gender equality in the European Union 2005-2012.*

EIGE (2013). *Gender Equality Index Report.*

European Commission (2018). Serbia 2018 Report, Strasbourg, [https://www.mei.gov.rs/upload/documents/eu\\_dokumenta/godisnji\\_izvestaji\\_ek\\_o\\_napretku/izvestaji\\_ek\\_o\\_srbiji\(1\).pdf](https://www.mei.gov.rs/upload/documents/eu_dokumenta/godisnji_izvestaji_ek_o_napretku/izvestaji_ek_o_srbiji(1).pdf)

Vlada Republike Srbije, Tim za socijalno uključivanje i smanjenje siromaštva (2018). *Indeks rodne ravnopravnosti u Srbiji*, [https://www.rodnaravnopravnost.gov.rs/sites/default/files/2018-12/Indeks%20rodne%20ravnopravnosti%202018\\_SRP.PDF](https://www.rodnaravnopravnost.gov.rs/sites/default/files/2018-12/Indeks%20rodne%20ravnopravnosti%202018_SRP.PDF)

Vlada Republike Srbije (2016). *Nacionalna strategija za rodnu ravnopravnost za period od 2016 do 2020 godine sa akcionim planom od 2016 do 2018.* <https://www.mgsi.gov.rs/lat/dokumenti/nacionalna-strategija-za-rodnu-ravnopravnost-za-period-od-2016-do-2020-godine-sa-akcionim>



# PARALLEL SESSION 2. THE INCLUSION OF THE SEX/GENDER VARIABLES IN RESEARCH: MAINSTREAMING DIVERSITIES IN AGRO-FOOD RESEARCH

**Session chaired by Sara Spinelli and Matteo Vittuari**

University of Florence, University of Bologna

## **Gender differences in food preferences and perception**

Sara Spinelli<sup>1</sup>, Tullia Gallina Toschi<sup>2</sup>

### **Aims of the contribution**

This contribution was aimed at presenting a review of the gender/sex variable in sensory science research. Gender differences in taste perception and sensitivity and food preferences will be discussed with results from the large-scale study Italian Taste.

### **Description of the research**

#### **Introduction**

Many factors have been found to contribute to the development of food preferences. Environment (exposure and experience) and genetic predispositions play a central role in determining food selection and diet habits, in combination with personality traits and attitudes. Gender differences have been found both in food preferences and in factor affecting food preferences such as taste acuity, psychological traits and attitudes.

#### **Materials and methods**

Responses from more than 3000 subjects were collected during the Italian Taste project (Monteleone et al., 2017). Information collected included socio-demographics, taste acuity (PROP status, fungiform papillae density), psychological traits, sensory responses to food models, familiarity, stated liking and choice of foods.

#### **Results**

Our results showed that many factors interplay in spicy food liking and choice and highlighted the role played by different personality traits in females and males. Males and females differed for frequency of chili consumption and were studied separately. Individuals low in neophobia and sensitivity to disgust (in both genders) and low in sensitivity to punishment (in females) perceived lower burning, and overall flavour intensities. Choice of pungent foods was positively correlated with liking, and negatively with burning intensity, food neophobia and disgust sensitivity. In addition, choice was negatively correlated with sensitivity to punishment in females and positively with sensitivity to reward in males (Spinelli et al., 2018).

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1 Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence.

2 Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

Gender was found to affect significantly also the choice of fat rich meat, with males that chose systematically the fattest option compared to females. Different factors by gender were found to affect choice of fat-rich meat: interest for health and light products, food neophobia, sensitivity to reward and were found to be barriers to choosing fat-rich meat only in males. Sensitivity to disgust and price were negatively correlated to choosing fat-rich meat only in females.

## **Conclusions**

Gender is one of the variables that has the largest impact on sensory response and food preferences. Research in Sensory and consumer sciences is generally gender-sensitive, adopting different strategies, such as conducting research on balanced sample, investigating “gender effect” (gender as a factor) or studying each gender as a subgroup, possible only in large samples. This last approach allows the investigation of gender differences more in depth, in order to the role of the factor that affect sensory and hedonic responses to food. Evidences recommend an increasing need to carry out studies that include and compare men and women in order to better understand similarities and differences and to be able to apply that knowledge effectively to tailor gender specific strategies in nutrition.

## **References**

Monteleone E., Spinelli S., Dinnella C., Endrizzi I., Laureati M., Pagliarini E. and Tesini F. (2017). “Exploring influences on food choice in a large population sample: The Italian Taste project”, in «Food Quality and Preference», 59, pp. 123-140.

Spinelli S., De Toffoli A., Dinnella C., Laureati M., Pagliarini E., Bendini A. and Monteleone, E. (2018). “Personality traits and gender influence liking and choice of food pungency”. in «Food Quality and Preference», 66 (January), pp. 113-126.

# Competing goals in food consumption choices: a comparative analysis of student's choices in Bologna and Belgrade

Matteo Masotti<sup>1</sup>, Nataljia Bogdanov<sup>2</sup>, Francesca Di Stradis<sup>1</sup>, Matteo Vittuari<sup>1</sup>

## Aims of the contribution

Aim of this study is to investigate the role of eight economic, cultural and behavioural macro-factors which drive the choices of millennial consumers in purchasing and managing food. To do so, an online survey has been conducted among the students of the Universities of Bologna (Italy) and Belgrade (Serbia), with the aim of understand how choices related to food are related to non-strictly economic aspects, such as nationality, gender and age

## Description of the research

### Introduction

Drivers and goals of food purchasing choices are widely debated in the scientific literature. Far from being influenced only by economic and efficiency related factors, actions related to food purchasing, management and disposal are driven by cultural, socio-economic and behavioural factors, and the consumers' final goals are diversified and often in mutual competition.

In addition, the focus of contemporary consumers in the act of purchasing food is no longer exclusively on meeting nutritional needs from a quantitative or qualitative perspective. Several studies found that people are looking for products that are able to meet new functions in terms of safety, economic and social needs- as well as environmental and ethical standards.

More specifically, literature identifies several goals underlying individuals' food purchase choices including: save money, save time, decrease the level of food waste, be a good provider, avoid health risks, care for the environment, care for social sustainability of purchasing choices, respect the religious precepts.

Considering these elements, this study aims to capture a broader perspective of the consumer behaviour at the time of purchase. A survey among Italian and Serbian "millennial" college students of the University of Bologna and of the University of Belgrade has been conducted, with the aim of understand what are the main objectives of consumers at the moment of purchasing food. Thus, an index to measure the differences among the answers provided by students of different genders will be calculated and a cluster analysis will be developed to understand the interrelations among the identified goals.

This work aligns with the sustainable development agenda 2030 of the United Nations, where the importance of a sustainable consumption is reflected in goals number 12 "Sustainable Consumption and Production" (specifically 12.3), number 2 "Zero Hunger", and number 11 "Sustainable cities and communities".

## Materials and methods

The survey has been submitted to a sample of students of the Universities of Bologna and Belgrade between October 1st 2019 and December 31st 2019. Data have been collected through an online survey submitted by a convenience sample of students, who have been involved in the

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1 Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

2 Faculty of Agriculture, University of Belgrade.

research during classes and through the diffusion of the survey through dedicated social media channels (e.g. Facebook pages and groups involving millennial students).

The questionnaire has been presented in three languages (Italian, Serbian and English), with in order to reach a broad variety of typologies of students.

At the end of data collection period, the final sample includes a total of 314 students (158 from the University of Bologna, 156 from University of Belgrade) and will reflect the gender composition of the student populations of the two Universities.

The questionnaire is made of 51 7-points likert-scale questions, divided in 6 sections, both inspired by literature and developed by the authors. The sections follow a standard sequence, instead of being organized by different competing goals, in order to reduce the potential biases of the respondents.

After a pre-test phase, which led to some reviews of the first version of the questionnaires, the survey has been submitted to the students.

Thus, a cluster analysis has been performed to identify different profiles of consumers, and a Gender Differentiation Index (GDI) has been elaborated to describe gendered differences among the answers.

## **Results**

Results of the analysis describe the role of differences, especially national and by gender, in defining the food purchasing and management behaviour of Italian and Serbian “millennials”.

A gender-focused analysis of preliminary data shows that in the Italian case study women seems to be more interested in the thematic of food. Indeed, female students declare higher degrees of interests in social aspects of food purchasing (e.g. sustainability, and being a good provider), preparation and disposal, when compared to the male counterpart. On the other side, Italian male students seems to be more interested in economic aspects of household food management.

Concerning Serbian students, results of the survey show that “millennials” from Belgrade seems to present a lesser general concern about food purchasing and preparation instances with respect to the Italian sample. Moreover, results highlight the presence of gender-related differences in the importance given to different goals.

## **Conclusions**

Results of the survey show that the impact of the 8 considered competing goals (save money, save time, decrease the level of food waste, be a good provider, avoid health risks, care for the environment, care for social sustainability of purchasing choices, respect the religious precepts) on the food purchasing decisions of “millennial” consumers depends on a variety of factors. More precisely, gender and nationality seems to have a significant role in shaping decisions related to food purchasing and management.

In conclusions, the results of the survey consolidate the idea that decisions related to food purchasing and management are of pure economic nature, but include cultural and behavioural aspects, which are strongly dependent by different factors, such as nationality and, consequently, gender.

## References

- Asif M., Xuhui W., Nasiri A. and Ayyub S. (2018). "Determinant factors influencing organic food purchase intention and the moderating role of awareness: A comparative analysis", in «Food, Quality and Preference», 63, pp. 144-150.
- Barone A., Grappi S. and Romani S. (2019). "The road to food waste is paved with good intentions": When consumers' goals inhibit the minimization of household food waste", in «Resources, Conservation and Recycling», 149, pp. 97-105.
- Gaiani S., Caldeira S., Adorno V., Segrè A. and Vittuari M. (2018). "Food wasters: Profiling consumers' attitude to waste food in Italy", in «Waste Management», 72, pp.17-24.
- Mourad M. (2016). "Recycling, recovering and preventing 'food waste': competing solutions for food systems sustainability in the United States and France", in «Journal of Cleaner Production», 126, 10, pp. 461-477.
- Parizeau K., von Massow M. and Martin R. (2015). "Household-level dynamics of food waste production and related beliefs, attitudes, and behaviours in Guelph, Ontario", in «Waste Management», 35, pp. 207-217.
- Pérez-Escamilla R. (2017). "Food Security and the 2015–2030 Sustainable Development Goals: From Human to Planetary Health", in «Current Developments in Nutrition», 1, 7, p. e000513.
- Reisch L., Eberle U. and Lorek S. (2013). "Sustainable food consumption: an overview of contemporary issues and policies", in «Sustainability: Science, Practice and Policy», 9, 2, pp.7-25.
- Stamer N. (2016). "Moral conventions in food consumption and their relationship to consumers' social background", in «Journal of Consumer Culture», 18, 1, pp.202-222.
- Worsley A., Wang W. and Burton M. (2015). "Food concerns and support for environmental food policies and purchasing", in «Appetite», 91, 1, pp. 48-55.

# The emerging discipline of precision cooking: a suitable tool for the precision nutrition

Maria Lisa Clodoveo<sup>1</sup>

## Description of the research

### Introduction

Precision nutrition aims to make dietary recommendations of a more personalized nature possible, to optimize the prevention or delay of a disease and to improve health. Therefore, the characteristics (including Sex-Gender Perspective) of an individual have to be taken into account. Nutraceuticals is the science that studies food or product derived from food source able to give extra nutritional benefits in the diet. Many health food product may lose the healthy molecules during the cooking process in a manner not always predictable.

### Materials and methods

Precision cooking is the missing link between nutraceuticals and precision nutrition. It aims to guarantee the technological transfer of the results of scientific research to ordinary citizens who buy functional foods containing healthy molecules, even certified by health claims approved by EFSA, which could be destroyed by the normal conservation and home food preparation practices (i.e. cold storage, cutting, cooking, etc.). In fact, only a systematic approach, aimed to define the different conditions employed to realise the final meal (time, temperature, pressure, ratio surface/volume of the pieces, ratio solid/liquid, osmotic pressure, pH, synergies and antagonisms between molecules, etc. etc.), combined with robust correlations with the final concentration of nutrients and functional molecules, can offer tools to predict the final composition of a meal and support an effective and efficient precision nutrition programme that can take in account the gender perspective.

### Results

The “COOKING LAB – TASTING ROOM” is a project that aims to spread the culture of healthy eating (goal 3 - Good health - 2030 Agenda for Sustainable Development) and gender equity (goal 5 – gender equity - 2030 Agenda for Sustainable Development) in the general population and in patients with chronic pathologies, with the purpose of preventing the side effects of drug treatments and guaranteeing 100% adherence to therapies. In the age of precision medicine, the care of nutrition represents one of the fine finishes of a high-tailored dress. This supports the importance of adhering to the therapies offered by the doctor, supported by a team of dieticians, biologists, biotechnologists, food technologists, food chemists and microbiologists to create network between patients and the hospital, also through digital technologies as a tool to improve dietary assistance (i.e. digital platforms, steaming and podcasts).

### Conclusions

The possibility of studying in the “COOKING LAB – TASTING ROOM” the effect of different techniques on raw materials gives the opportunity:

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<sup>1</sup> Interdisciplinary Department of Medicine, University of Bari

- on the one hand to fill the gaps in information transmitted to patients in relation to the real nutritional potential of food consumed according to the use of traditional and innovative techniques,
- on the other hand it represents an experimental space for the definition of an emerging science called “precision cooking” in which industrial process experts, doctors, dieticians, chefs, nutritionists and agro-food marketing experts can work side by side to define dietary regimes and methods of preparation and administration of meals, in respect of the gastronomic culture of each one, of the religious belief, of the ethical convictions and of the specific needs related to the genetic characteristics and lifestyle.
- It will help reduce the knowledge gap concerning the gender perspective in nutrition

## References

Codoveo M. L., Di Lorenzo L., Sabbà C., Moschetta A., Gesualdo L. and Corbo F. (2019). “The emerging discipline of precision cooking: a suitable tool for the precision nutrition”, in «International Journal of Food Sciences and Nutrition», pp. 1-4.

## **Gender variable in liking on three different new varieties of cherry. Is it relevant?**

Sara Barbieri<sup>1</sup>, Stefano Lugli<sup>2</sup>, Brunella Morandi<sup>2</sup>, Stefano Tartarini<sup>2</sup>, Lorenzo Bergonzoni<sup>2</sup>, Matilde Tura<sup>2</sup>, Tullia Gallina Toschi<sup>2</sup>

### **Aims of the contribution**

The aim of the experimentation was to evaluate a possible effect of the gender variables on the results of a questionnaire of liking of sweet cherries.

### **Description of the research**

#### **Introduction**

Product quality is evaluated in various ways, but ultimately it is judged by the consumer (Chauvin et al., 2009). In fact, sensory characteristics of food can be considered as one of the key factors in food acceptance (Laaksonen et al., 2016). Consumer evaluations of sweet cherries quality are based on the external and internal characteristics of this fruit. Visual judgement includes the presence/absence of defects, such as peel and bruising, shape, size, colour and thickness of the peduncle and unusual colouring (Chauvin et al., 2009). Previous research has pointed out that consumers prefer a dark red or mahogany (Chauvin et al., 2009). Other important factors in cherry selection include size, colour, firmness and sweetness (Sloulin, 1990). Mainly, the consumer choice and liking of cherries seems to be linked to sweetness, intensity of flavour and skin colour (Cliff et al., 1995; Crisosto et al., 2003). Moreover, it has been reported in literature that there are some differences regarding the preferences of some foods (e.g. fruit, vegetables, etc.) between male and female subjects (Logue et al., 1986). In fact, also non-sensory factors, such as gender, age, family income, educational level, health concerns, social factors and cultural and religious beliefs, influence people's consumption habits and behaviour when buying food (Lesdéma et al., 2016).

#### **Materials and methods**

Three different new sweet cherry varieties (Sweet Aryana® PA1UNIBO, Sweet Lorenz® PA2UNIBO and Marysa® PA6UNIBO), developed at the University of Bologna, Italy (Dondini et al., 2018), were evaluated by submitting an acceptance test to consumers (n=399; 180 male and 219 female).

Consumers expressed their judgement on the acceptability for appearance, taste, texture and overall liking using a hedonic scale ranged from 1 to 9 (1 = do not like at all and 9 = like very much). Concerning some selected attributes ("size", "colour", "sweetness", "acidity", "firmness" and "juiciness") they indicated their judgment on the level of intensity of the attribute using a JAR scale from 1 to 5 (1=way too less, 2=too less, 3=just about right, 4=too much, 5=way too much). No information was given on samples (blind conditions). Statistical analysis was carried out for studying i) the sensory characteristics of samples that drive the consumer liking; ii) possible differences in food perception between genders.

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1 Department of Pharmacy and Biotechnology (FaBiT), University of Bologna.

2 Department of Agricultural and Food Sciences (DISTAL), University of Bologna.



## Results

The comparison of sensory data provided for overall liking and the intensity of selected sensory attributes will allow to highlight drivers for consumer's preference; moreover the impact the gender variable will be also evaluated for possible differences in the judgements.

## Conclusions

The verification of consumer satisfaction was analysed taking into consideration the gender variable to understand if there are significant differences depending on the characteristics of the fruits (e.g. sweetness, acidity, size, texture, etc.).

## References

- Chauvin M.A., Whiting M. and Ross C.F. (2009). "The influence of harvest time on sensory properties and consumer acceptance of sweet cherries", in « HortTechnology», 19, 4, pp. 748-754.
- Cliff M.A., Dever M.C., Hall J.W. and Girard B. (1995). "Development and evaluation of multiple regression models for prediction of sweet cherry liking", in «Food Research International», 28, 6, pp. 583-589.
- Crisosto C.H., Crisosto G.M. and Metheney P. (2003). "Consumer acceptance of 'Brooks' and 'Bing'cherries is mainly dependent on fruit SSC and visual skin color", in «Postharvest Biology and Technology» 2003, 28, 1, pp. 159-167.
- Dondini, L., Lugli S. and Sansavini S. (2018). *Cherry breeding: sweet cherry (Prunus avium L.) and sour cherry (Prunus cerasus L.)*, in Al-KhayriShri J.M., Jain S.M. and Johnson D.V. (eds), *Advances in Plant Breeding Strategies: Fruits* (vol. 3), Cham, Springer, pp. 31-88.
- Laaksonen O., Knaapila A., Niva T., Deegan K.C. and Sandell M. (2016). "Sensory properties and consumer characteristics contributing to liking of berries", in «Food quality and preference», 53, pp. 117-126.
- Lesdéma A., Marsset-Baglieri, A., Talbot L., Arlotti A., Delarue J., Fromentin G. and Vinoy S. (2016). "When satiety evaluation is inspired by sensory analysis: A new approach", in «Food Quality and Preference», 49, pp. 106-118.
- Logue A.W. and Smith M.E. (1986). "Predictors of food preferences in adult humans", in «Appetite», 7, 2, pp. 109-125.
- Sloulin W. (1990). "Cherry quality survey-status report", in «Proceedings of the Washington State Horticultural Association», 86, pp. 226-227.

# Gender differences in preadolescent's selection of emojis to express emotions elicited by foods

Julia Sick<sup>1</sup>, Sara Spinelli<sup>1</sup>, Caterina Dinnella<sup>1</sup>, Erminio Monteleone<sup>1</sup>

## Aims of the contribution

This study was aimed to explore gender and age differences in the appropriateness of using emojis to describe emotions elicited by foods in pre-adolescents.

## Description of the research

### Introduction

Emojis were suggested for children to be used to measure food-elicited emotions. Different emoji lists were used in previous studies, based on lists developed with adults (Gallo et al., 2017; Schouteten et al., 2018, 2019) or through focus groups with children. However, gender and age differences have remained under-investigated. The present study was aimed to investigate the appropriateness of using emojis to describe pre-adolescents' emotions elicited by foods and to explore related age- and gender differences.

### Materials and methods

Fifty-five boys and forty-one girls aged 9-13 participated to the study. First, children were asked to recall, by means of an open-ended question, the foods they had in specific eating contexts: "Most liked food", "Most disliked food", "Breakfast", "Dinner", "Snack", "Birthday" and "Novel food". Then, they were asked to select the emojis appropriate to describe their feelings for the context-related foods by selecting from a list of 92 facial emojis (Check-All-That-Apply method). Emojis selected by more than 20% of children in at least one eating context qualified as food-elicited.

### Results

In total, 46 emojis resulted as appropriate to describe emotions in different eating contexts when both genders were taken together. The number of selected emojis varied across evoked eating contexts eliciting different foods. Pre-adolescents used mainly positive emojis, except for the context "Most disliked food", where mainly negative emojis were used. Most food-related emojis resulted from "Most liked food" and "Most disliked food", but the context "Birthday" also added some context-specific emojis. Age and gender significantly affected emoji selection across and within foods elicited by varied eating contexts, with girls and 9-11-year-old subjects selecting some emojis more frequently across all contexts, but also within contexts. Significant gender differences were also found in specific emoji frequencies describing foods evoked by each eating context, with the exception of "Novel food". Emojis with hearts and other emojis were selected more often by girls, across all and in some specific eating contexts.

The appropriateness of using emojis to describe emotions elicited by foods was also investigated by gender in order to compare the results.

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<sup>1</sup> Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence.

## Conclusions

This study demonstrated gender differences in the appropriateness of using emojis to describe the emotional experience of foods. These findings may be partially explained by the role of culture in shaping gender identity and confirm how much gender stereotypes are rooted since childhood.

Future research aimed at interpreting the meaning of facial emojis is needed and should consider age- and gender differences.

## Acknowledgements

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## References

- Gallo K.E., Swaney-Stueve M. and Chambers D.H. (2017a). “A focus group approach to understanding food-related emotions with children using words and emojis”, in «Journal of Sensory Studies», 32, 3, e12264.
- Gallo K. E., Swaney-Stueve M. and Chambers D.H. (2017b). “Comparing visual food images versus actual food when measuring emotional response of children”, in «Journal of Sensory Studies», 32, 3, e12267.
- Schouteten J.J., Verwaeren J., Gellynck X. and Almlı V.L. (2019). “Comparing a standardized to a product-specific emoji list for evaluating food products by children”, in «Food Quality and Preference», 72, pp. 86–97.
- Schouteten J.J., Verwaeren J., Lagast S., Gellynck X. and De Steur H. (2018). “Emoji as a tool for measuring children’s emotions when tasting food”, in «Food Quality and Preference», 68, pp. 322-331.

# Identification of new possible lipid biomarkers for beef meat authenticity as related to the sex of animal

Vladimiro Cardenia<sup>1</sup>, Alessia Casella<sup>2</sup>, Maria Teresa Rodriguez-Estrada<sup>2</sup>, Tullia Gallina Toschi<sup>2</sup>

## Aims of the contribution

The aim of present study was to apply analytical methods for characterizing the lipid matter of ground beef meat prepared with both male and female meat, and to use a chemiometric approach for the identification of new possible lipid biomarkers of meat authenticity as related to the sex of animal.

## Description of the research

### Introduction

Meat is one of the most widely consumed high-value foods in the world, opening it up to fraudulent replacement/substitution of some, or all, of the premium meat content with lower grade cuts of meat or meat from other species. In particular, minced meat is an easy target for food fraud because the original meat cut cannot be visibly recognized by the consumer. One of the most distinctive and quali-quantitative interesting macro components of meat are lipids, since they are linked to dietary health concerns, besides being an important flavor component. In this case, lipidomics, the global study of molecular lipids, could potentially provide an insight into the discovery of lipid biomarkers for identification of food fraud, especially minced meat. In fact, it is necessary to provide additional analytical tools for the authentication of beef meat as further support to the existing ones, in order to defeat meat fraud.

### Materials and methods

Forty-two samples (21 males and 21 females) of beef ground meat were randomly selected from 7 different retail stores. Male beef samples were homogenized with female ones at five different ratios, in order to obtain different representative treatments: 100% male (M-100), 75% male – 25% female (M-75), 50% male – 50% female (M50-F50), 25% male – 75% female (F-25), 100% female (F-100). After sampling, the lipid fraction was extracted and analyzed by gas chromatography coupled to flame ionization detector (GC-FID) and mass spectrometry (GC-MS) for the overall lipid classes profile (Gallina Toschi et al., 2014), total sterols (Inchingolo et al., 2014) and cholesterol oxidation products (COPs) (Cardenia et al., 2012), respectively.

### Results

The lipid content did not significantly change as related to the sex of animal, while some significant changes were detected in the main lipid classes. In particular, the level of free fatty acids was significantly higher in male beef meat than in female ones. A lower amount of non-esterified cholesterol was present in samples containing female meat and, as the percentage of female meat increased, the level of non-esterified cholesterol decreased; a similar behaviour was displayed by triacylglycerols. The total sterols were also determined in both lipids and meat, and the results show that, in the lipid matter, the phytosterols (sitosterol and campesterol) were present at significant levels in samples where the female meat was more than 50%. Regarding total cholesterol oxidation products (COPs), they were significantly higher in male meat, while the

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1 Department of Agricultural, Forest and Food Sciences, University of Turin.

2 Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

female-containing meat samples displayed the lowest amount. Furthermore, the principal component analysis (PCA) well separated the different five samples, especially according to sterols and COPs.

## **Conclusions**

On the basis of these results, it can be concluded that the chemiometric approach applied to lipidomics could be a useful tool for identifying the origin and authenticity of ground meat as related to the sex of animal. However, this represents a preliminary study and a bigger sampling, as well as a deeper investigation that includes other lipid parameters (such as fatty acids, phospholipids and volatile compounds), is required in order to confirm the actual data reported in the present work.

## **References**

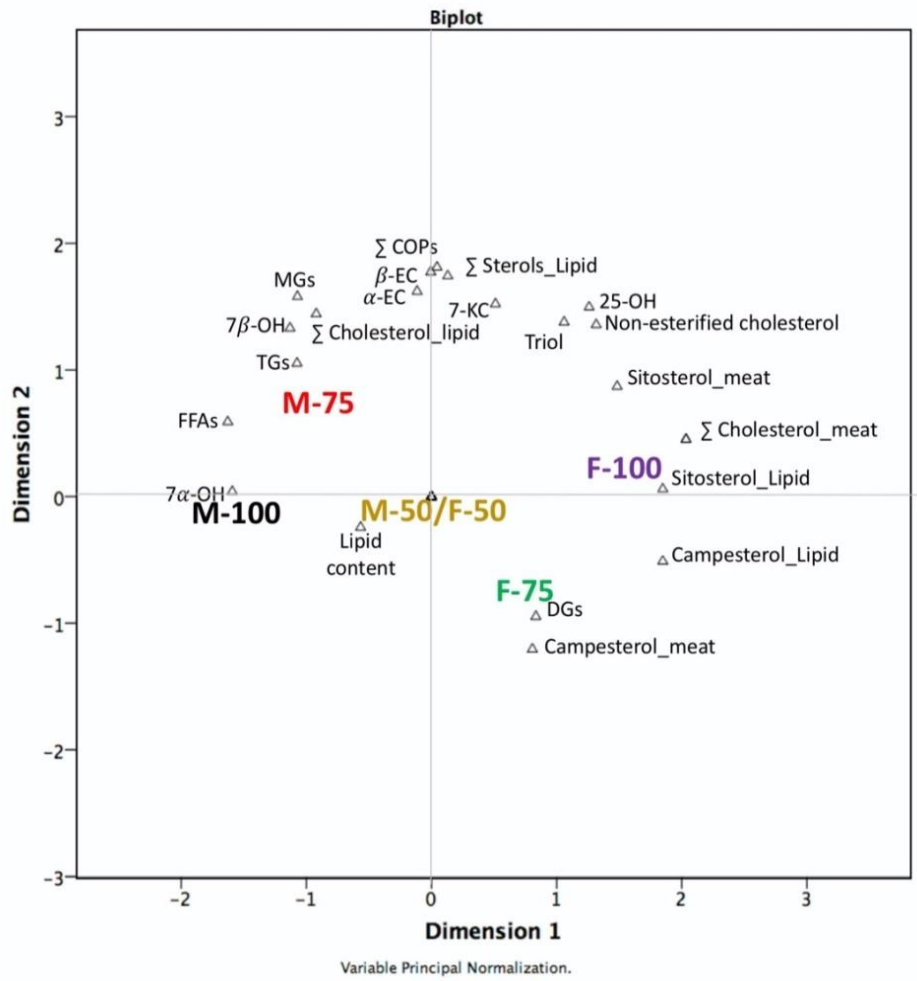
Cardenia V., Rodriguez-Estrada M.T., Baldacci E., Savioli S. and Lercker G. (2012). "Analysis of cholesterol oxidation products by Fast gas chromatography/mass spectrometry", in «Journal of Separation Science», 35, pp. 424-430.

Gallina Toschi T., Cardenia V., Bonaga G., Mandrioli M. and Rodriguez-Estrada M.T. (2014). "Coffee silverskin: Characterization, possible uses, and safety aspects", in «Journal of Agriculture and Food Chemistry», 62, pp. 10836-10844.

Inchingolo R., Cardenia V. and Rodriguez-Estrada M.T. (2014). "Analysis of phytosterols and phytosterols in enriched dairy products by fast gas chromatography with mass spectrometry", in «Journal of Separation Science», 37, pp. 2911–2919.

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# **A systematic literature review of social life cycle assessment indicators applied to agriculture and food**

Edoardo Desiderio<sup>1</sup>, Laura García Herrero<sup>1</sup>, Matteo Vittuari<sup>1</sup>

## **Aims of the contribution**

Mainstreaming sustainability in production and consumption systems represent a major challenge for modern societies. Pursuing such a goal requires assessment methods that ensure the identification of key trade-offs among economic, environmental and social impacts allowing the design of solution aimed to feed the global population without depleting resources. Beside several limitations, a major method employed to perform integrated sustainability assessments is life cycle thinking. While the tools assessing environmental and social impacts, respectively life cycle assessment (LCA) and life cycle costing (LCC) are well developed and structured, the tool focusing on social impacts – social life cycle assessment (SLCA) – is relatively recent and lacks of a consistent framework facilitating its application to real cases, from here the rationale to this study. Moreover, to make the SLCA inclusive, it is fundamental to consider some aspects, such as gender equality, to better include impacts related to vulnerable groups. This paper aims to review the development of SLCA by mapping its current application and creating the basis for the development of a consistent assessment framework. To achieve this objective, a systematic literature review is performed on SLCA case studies application. The results are a framework based on a set of indicators that assess whether a product or process is socially sustainable.

## **Description of the research**

### **Introduction**

The worsening of the global crisis has increased the awareness and the concern of the modern society towards the multiple dimensions of sustainability and stimulates the request for a new paradigm of development to promote a transition towards more sustainable production and consumption patterns.

The achievement of this goal largely depends on the ability of a society to identify solutions to mitigate the trade-offs among economic, environmental and social impacts and requires tailored methodologies that do not investigate isolated areas but that focus also on their interrelationships. Among the different methods assessing sustainability, literature suggests that life cycle thinking (LCT) approach has been widely employed, as a recent study demonstrates that more than 11,700 publications that mention LCT for the development of their researches have been published starting from the 1990s. This last 30 years of LCT can be divided in three different periods, 1990-2000, 2000-2010 and 2010-2020. The last and third “wave” of LCT is defined as decade of consolidation, in which more than half of the articles have been published (Zimek et al. 2019). LCT includes the three tools “life cycle assessment”, “life cycle costing” and “social life cycle assessment”. Life cycle assessment (LCA) addresses environmental impacts and represents a primary tool used to support decision-making for sustainable development. Life cycle costing (LCC) acknowledges economic and costing impacts and even without being recognized as a milestone in assessing sustainability as life cycle assessment, is widely employed, especially in combination with other life-cycle methodologies. Social life cycle assessment (SLCA) focuses on social impacts, whether positive or negative, but its level of development is largely fragmented and characterized by inconsistencies and gaps. Often, employed indicators are not organized in a comprehensive

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<sup>1</sup> Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

framework and targets largely on work and health without considering other relevant areas as gender or social inclusion. Since the development of UNEP/SETAC 2009 guidelines, SLCA has been applied and studied from different perspectives and through the application of different case studies in several fields (Costa, 2019; Blanc, 2019; Arcese, 2015). However, these studies do not address the implications for structuring a comprehensive framework for the analysis of agricultural and food systems while against this background, this article aims to design one.

## Materials and methods

A systematic literature review of SLCA case studies on agricultural and food systems which consider social impacts was performed. This research follows the LCA STARR protocol for literature reviews on the LCA, which is based on the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses” (PRISMA) guidelines. The literature collection was carried out by identifying relevant articles in the Scopus, Web of Science, and Google scholar databases using the following keywords: “agriculture” and/or “food” and “slca”. The inclusion criteria consisted of articles published in peer reviewed journals that include “SLCA” in their titles or as key word. Due to the subject of this research, grey literature consisting of companies reports, following the ISO standards were also considered. The exclusion criteria consisted of articles where SLCA was only mentioned or did not represented the main subject of analysis.

## Preliminary results

This hierarchical organization of indicators is based on the UNEP/SETAC guidelines. The selected stakeholders are “workers”, “local community” and “society”. “Consumers” and “other value chain actors” are not analysed due to the lack of literature. For each stakeholder, impact categories were assigned. Human rights and working conditions for the stakeholder category “workers”, life quality for the stakeholder “local community” and societal impact for the stakeholder “society”.

The following table reports which indicator belong to which impact category.

Table 1. Impact category, indicator and main sources identified per stakeholder category.

Stakeholders category	Impact category	Indicator	Source
Workers	Human rights	Gender equality* Equity** Equality*** Non-discrimination	ILO Declaration of fundamental principles and rights at work UN Declaration of Human Rights UN International Covenant on Civil and Political Rights Farm Sustainability Assessment
	Working environment	Working conditions Working hours Labour intensity Health Safety Fair wages	ILO Declaration of Fundamental Principles and Rights at Work Bonsucro Production Standard Sustainable Iowa Land Trust
Local community	Life quality	Community or neighbourhood relations	Methods, Metrics and Tools. In: EIBURS Working Paper Series, Measuring Social Sustainability; Best Practice from Urban Renewal in the EU 1
Society	Societal impact Socio-economic repercussions	Social impact of farming	Coteur I, Marchand F, Debruyne L, Bijttebier J, Triste L, Lauwers L (2014) Development and Evaluation of an On-demand Sustainability Tool in Flanders.

\*refers to the state of equal ease of access to resources and opportunities regardless of gender (Subrahmanian, 2005) \*\* refers to fairness and equality in outcomes (Cook, 1983) \*\*\*refers to the effect of treating each as without difference (Green, 1983)



From these preliminary results, the indicators that are most found in reviewed literature are the these connected with the stakeholder category “workers”, probably due to the high number of agricultural workers involved in agricultural and food production and/or processing. The two impact categories assigned to “workers” were “human rights” and “working environment”. The first impact category includes all those indicators related to the respect of gender equality, equity and non-discrimination. The source of these indicators was mostly contributed by declaration of Fundamental Rights. The second impact category contained indicator related to working conditions and safety. The stakeholder “local community” was directly connected to indicators assessing the relation the production process had with the surroundings community. To the stakeholder “society”, belong the indicator of “social impact of farming” mostly found in articles focusing on the general benefit agricultural production has on society.

## Conclusions and research implications

The ongoing study explores the main social life cycle assessment indicators applied to agriculture and food systems, with the aim of mapping and setting the most common used by researchers and standards. The preliminary results show which indicators are present to assess how production or manufacture impact different stakeholders’ category. The stakeholder category “workers” presents the highest share of indicators, probably due to the attention of workers condition and welfare of recent years. Nevertheless, the indicators that are still uncommon to find are the ones related to some aspects of human rights, which are not still considered as “basics”, but are fundamental to achieve a complete inclusion, such as the indicator gender equality. The research has highlighted a gap existing in the utilisation of these indicators, showing a preference for those who deal with the working environment, leaving behind other indicator that have a more inclusive approach to sustainability. Considering this gap, future researches should consider approaching social sustainability on the complex rather than focusing only on some aspects.

## References

- Arcese G., Lucchetti M.C. and Massa I. (2017). “Modeling Social Life Cycle Assessment Framework for the Italian Wine Sector”, in «Journal of Cleaner Production», 140 (January), pp. 1027-1036.
- Binder C.R. , Feola G, Steinberger J.K. (2010). “Considering the normative, systemic and procedural dimensions in indicator-based sustainability assessments in agriculture”, in «Environmental Impact Assessment Review», 80, pp. 71-81.
- Boström M. (2012). “A missing pillar? Challenges in theorizing and practicing social sustainability: introduction to the special issue”, in «Sustainability: Science, Practice, & Policy», 8, 1, pp. 3-12.
- Blanc S., Massaglia S., Brun F., Peano C., Mosso A. and Giuggioli N.R. (2019). “Use of Bio-Based Plastics in the Fruit Supply Chain: An Integrated Approach to Assess Environmental, Economic, and Social Sustainability”, in «Sustainability», 11, 9, p. 24-75.
- Colantonio A. (2008). “Measuring Social Sustainability: Best Practice from Urban Renewal in the EU 2008/02, in EIBURS Working Paper Series *Traditional and Emerging Prospects in Social Sustainability*.
- Colantonio A. and Dixon T.J. (2011). *Urban Regeneration & Social Sustainability: Best Practice from European Cities*, Hoboken, Wiley- Blackwell.

- Cook K. S, Hegtvedt K. A. (1983). "Distributive Justice, Equity, and Equality", in «Annual Review of Sociology», 9, pp. 217-241.
- Costa D., Quinteiro P. and Dias A.C. (2019). "A Systematic Review of Life Cycle Sustainability Assessment: Current State, Methodological Challenges, and Implementation Issues", in «Science of The Total Environment», 686 (October), pp. 774–787.
- Coteur I. et al. (2014). "Development and Evaluation of an On-demand Sustainability Tool in Flanders", in *Farming Systems Facing Global Challenges: Capacities and Strategies*, Proceedings of the 11th European IFSA Symposium, Vol. 1.
- D'Eusanio M., Zamagni A. and Petti L. (2019). "Social Sustainability and Supply Chain Management: Methods and Tools", in «Journal of Cleaner Production», 235, pp. 178-189.
- De Olde E.M., Oudshoorna F.W., Sørensen C. A.G., Bokkers E.A.M. and de Boer I.J.M. (2016). "Assessing sustainability at farm-level: Lessons learned from a comparison of tools in practice", in «Ecological Indicators», 66, pp. 91–40.
- Green T. F. (1983). *Excellence, Equity, Equality*, in Shulman L. S. E and Sykes G. (eds) *Handbook of Teaching and Policy*, New York, Longman, pp. 318-341.
- International Labour Organization-ILO (1988). *ILO Declaration on Fundamental Principles and Rights at Work*.
- Mälkki H., Alanne K. (2017). "An overview of life cycle assessment (LCA) and research-based teaching in renewable and sustainable energy education", in «Renewable and Sustainable Energy Reviews», 69, pp. 218–231.
- Murphy K. (2012). "The social pillar of sustainable development: a literature review and framework for policy analysis", in «Sustainability: Science, Practice, & Policy», 8,1, pp. 15–29.
- Schader C., Grenz J., Meier M.S., Stolze M. (2014). "Scope and precision of sustainability assessment approaches to food systems", in «Ecology and Society», 19, 3, pp. 42-57.
- Subrahmanian R. (2005). "Gender Equality in Education: Definitions and Measurements", in «International Journal of Educational Development», 25, 4, pp. 395-407.
- UN General Assembly (1966), *International Covenant on Civil and Political Rights*, 16 December 1966, United Nations, in «Treaty Series», vol. 999, p. 171.
- UN General Assembly (1948). *Universal Declaration of Human Rights*, 10 December 1948, 217 A (III).
- Zimek M., Schober A., Mair C., Baumgartner R. J., Stern T. and Füllsack M. (2019). "The Third Wave of LCA as the 'Decade of Consolidation.'", in «Sustainability», 11, 12, 3283.

# Diversity in research on Food security and risks assessment for human health in Ukraine

Lyudmyla Symochko<sup>1</sup>

## Aims of the contribution

To estimate food security in different type of agroecosystems in Ukraine and make risks assessment for human health including diversity aspects (gender and age of scientists in this field).

## Description of the research

### Introduction

Food security is associated with the social determinants of health, which are the conditions in which people are born, grow, live, work and age (World Health Organization, 2008). Social determinants are typically the source of health inequities, or the unfair and avoidable differences in health status seen within and between countries. Food security in the context of social determinants of health is interconnected with population growth, political instability, economic development, urbanization, migration, agricultural policy, and environmental factors such as land use, water scarcity, and climate change. Worsening food security conditions and hunger are seen in areas of economic slowdown, civil strife, urbanization with limited markets or inadequate housing to prepare and store food, and diminishing food access due to rising domestic food prices or lower import capacity. At the same time, food security is one of the important factors that can determine nutritional outcomes. Other such factors include educational level; gender equality, resources allocated to national policies and programs related to maternal, infant, and young child nutrition; access to clean water; explicit support for breastfeeding and timely introduction to appropriate weaning foods; basic sanitation and high-quality health services; lifestyles; the food environment; and culture (Food and Agricultural Organization, 2017). Antibiotic resistance microorganisms in agricultural production systems and food chain are major public health challenge. The World Health Organization has identified antibiotic resistance as a serious threat to human health across the world. Soils to providing humanity with 98.8% of its food (Dominati et al., 2014). The soil microbiome plays an important role in the development and spread of antibiotic resistance in humans (Symochko, 2019; Symochko et al., 2018) . There are a many scientific studies on this field, and many of them are realised from women scientists.

There is contribution is in very high level but there is a need to support them more with funds, training, equipment and involving them in decision making. In Ukraine, the ratio of women involved in science is 45%. This is the 12th place in the ranking, which includes 41 countries. But only 28% of women scientists are involved in research in the agricultural sector and age of the majority (67%) more than 45 years. What shows that there is gap between man and women participation in scientific studies on this field and also necessity to support young scientists in this area.

### Materials and methods

Materials of research were soil samples, which had been collected from different agroecosystems. Microbiological studies of soil were carried out at the Scientific Research and Educational Center of Molecular Microbiology and the Immunology of Mucous Membranes following the standard protocol (Goldman and Green, 2015). All isolated microorganisms were identified by applying of

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<sup>1</sup> Faculty of Biology, RD&Educational Center of Molecular Microbiology & Mucosal Immunology, Uzhhorod National University

appropriate biochemical test-systems LACHEMA according to the instructions. Antibiotic resistance of the identified microorganisms was analysed by Kirby-Bauer method with the aim to find antibiotic resistant strains of pathogenic microorganisms. Data were evaluated using the software Statistica 10.0. As for the women scientists contribution data are collected from statistics reports.

## Results

One of the important indicators of the ecological and sanitary state of the soil and the whole ecosystem is the presence of conditionally pathogenic and pathogenic microorganisms. Particularly dangerous are the antibiotic-resistant microorganisms, which, together with the bioproduction, can enter to the human and animal organisms from the modern agroecosystems. From different type of agro ecosystems of Carpathian region were isolated 244 dominating bacteria, among them 53 antibiotic-resistant bacteria. All isolates were multi-drug resistant, of which greater than 62,3% were resistant to 9 antibiotics. A study of soil samples from agro ecosystems of *Capsicum annum*, *Vitis vinifera*, *Rubus idaeus* L., *Petroselinum crispum* showed that the microbial community characterized by a high content of antibiotic-resistant microorganisms. From the soil of raspberry were isolated following antibiotic resistance anaerobic microorganisms: *Clostridium perfringens*, *Clostridium oedematiens*, *Clostridium difficile*. Nevertheless, the enrichments of *Clostridium* in soil which was continually treated with manure containing can be dangerous for public health. The enrichment of these bacteria, which are phylogenetically closely related to human pathogens, may improve the chance of transferring antibiotic resistance genes to human pathogens, since horizontal gene transfer is more prevalent between closely related organisms than between those distantly related (Forsberg et al., 2012). A significant number of aerobic microorganisms with multiple antibiotic resistances were isolated from the agroecosystem of raspberry: *Enterobacter cloacae*, *Enterococcus faecalis*, *Hafnia alvei*, *Bacillus megaterium*, *Bacillus mycoides*, and *Pseudomonas aeruginosa*. From the agroecosystem of parsley were isolated mostly bacteria of the genus *Bacillus*. All of them are causative agents of food borne infections.

## Conclusions

Modern agroecosystems are the source of spread of pathogenic and opportunistic microorganisms with multiple antibiotic resistances and endangering human health.

The risk to antibiotic resistance exposure via produce consumption should best be managed by ensuring that practices designed to protect bioproduction from contamination with pathogenic microorganisms are also protective with respect to exposure to antibiotic-resistant bacteria selected for in the digestive tract of animals or humans. The young women scientists can be more actively included and supported in the scientific work on this field.

## References

Dominati E., Mackay A., Green S., Patterson M. (2014). "A soil change-based methodology for the quantification and valuation of ecosystem services from agro-ecosystems: a case study of pastoral agriculture in New Zealand", in «Ecological Economy, 100, pp. 119-129.

Food and Agriculture Organization, International Fund for Agricultural Development, United Nations Children's Fund, World Food Program and World Health Organization. *The state of food security and nutrition in the world 2017: building resilience for peace and food security*. <http://www.fao.org/3/a-I7695e.pdf>

Forsberg K.J., Reyes A., Wang B., Selleck E.M., Sommer M.O.A. and Dantas G. (2012), "The shared antibiotic resistome of soil bacteria and human pathogens", in «Science», 337, pp. 1107–1111.

Goldman. E. and Green L. H. (eds), (2015). *Practical handbook of microbiology, Third Edition*. New York, Boca Raton.

Symochko L. (2019). "Food Safety in Agroecosystems-Soil Resistome", in 13th Paris International Conference (PACBES-19) Conference Proceedings– 14-16 March, 2019 Paris, France, pp. 99-102

Symochko L., Meleshko T., Symochko V. and Boyko N. (2018). "Microbiological Control Of Soil-Borne Antibiotic Resistance Human Pathogens", in «International Journal of Ecosystems and Ecology Sciences», 8, 3, pp. 591-598.

World Health Organization, Commission on Social Determinants of Health (2008). *Closing the gap in a generation. Health Equity through Action on the Social Determinants of Health*. Geneva, Switzerland.

World Health Organization. *Social determinants of health*  
[http://www.who.int/social\\_determinants/sdh\\_definition/en/](http://www.who.int/social_determinants/sdh_definition/en/)

# Holistic methodological framework for the assessment of non-conventional water resources

Laura Garcia-Herrero<sup>1</sup>, Laura Patricia Brenes-Peralta<sup>1</sup>, Matteo Vittuari<sup>1</sup>

## Aims of the contribution

This contribution aims to provide an integrated participatory framework to be applied at early stages of a wider sustainability assessment of non-conventional water resources. The method seeks to include experts on risk of vulnerability groups and technical aspects inside the methodological development, to identify main social gaps, and therefore move towards a complete sustainability. Once the methodological framework is established, other participatory moments will occur during the sustainability assessment.

Since the methodology is based on an integrated method, the incorporation of diversity, understood as gender, age, and other vulnerability indicators within the sustainability assessment would not only be part of the framework, but would try to have consequent approaches. The inclusion of experts on this matter instead of being simple recipients or executors of the sustainability assessment could help to identify improvement processes, helping in the inclusion of citizen science in this research.

The presentation of the first outcomes of this research in the PLOTINA Conference is relevant as it will allow the inclusion of gender experts' opinion into the methodological design.

## Description of the research

### Introduction

The present contribution corresponds to one task performed during the PRIMA funded the project "FIT4REUSE- Safe and sustainable solutions for the integrated use of non-conventional water resources in the Mediterranean agricultural sector" (Fit4reuse, 2019). This project explores different non-conventional water resources in selected Mediterranean countries.

The objective is to develop a specific methodological framework based on a life cycle thinking approach and cost-benefit analysis to evaluate the environmental, costing and social impacts of different unconventional water reuse practices. Three scenarios will be assessed, a scenario under FIT4REUSE proposed technologies, business as a usual scenario which involves the absence of this technology, and a theoretical sustainability improved FIT4REUSE setup called alternative scenario. The methodological framework to assess all scenarios will be composed of Life Cycle Assessment (LCA), Environmental Life Cycle Costing (E-LCC), Social Life Cycle Assessment (S-LCA), and Cost-Benefit Analysis (CBA). The development of this methodology will require a participatory approach to improve the robustness of the sustainability assessment. The participatory approach will also be part of the data collection to perform the scenarios' evaluation.

Therefore, a strong focus on decision-makers and drivers to reduce negative impacts and gaps between the society will be addressed. Other studies involving participatory approach and convincingly focusing on the role of gender and other risk vulnerability groups, evidence the positive effect their active participation. First, they could be empowered as their voice is listened and appreciated, while second, they can get first-hand knowledge about the project itself, therefore, getting informed (ACF International, 2012; Gurung and Menter, 2004; Lilja and Dixon,

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<sup>1</sup> Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

2008). This participation is especially relevant when dealing with the core element of this research: water, and all limitations caused by its absence – such as food. The accomplishment of a well-structured participatory approach will result in a strategic protocol.

## **Materials and methods**

This research covers the technical needs implied in the methodologies selected: LCA, E-LCC, S-LCA and CBA; and the designing of a participatory approach to integrate and test the coherence of proposed indicators in a certain territory, under specific socio-economic circumstances highlighting the role of certain stakeholders.

From a technical perspective, LCA methodology considers and analyses a product over its entire life cycle to quantify its environmental impact. It is standardized by the ISO 14040:2016 which defines the principles and framework where the method should be performed (ISO, 2006, 2002). Environmental-LCC assesses costs directly covered by one or more actors during the life cycle of a product and can internalize externalities (De Menna et al., 2018; Hunkeler et al., 2008). Although this method is not standardized, it follows the LCA approach to provide an integrated outcome. Engagement of actors are crucial in terms of results, as they utilize monetization to measure the different costs occurring along the supply chain. This E-LCC will include the cost of manufacturers and users, as well as those identified externalities. S-LCA is a methodology that aims at assessing the social impacts (positive and negative) of products or services, with the ultimate goal of improving human well-being. S-LCA is still in an early stage in its development, due to the limited case studies analysed associated with the complexity of identifying appropriate and reliable social indicators. This research will rely on key stakeholders to identify and assess sustainability indicators in each scenario analysed. The combination of life cycle thinking methods are designed to provide the full outlook of life cycle sustainability assessment (UNEP-SETAC, 2009; UNEP, 2011), allowing stakeholders to take better-informed choices. Cost-Benefit Analysis (CBA) is a major instrument applied to evaluate sustainability. CBA combines prices flow analysis, environmental consequences (by including externalities), and the social perspective of different projects or policies. It mostly adopts money or welfare as a unit of reference (Hoogmartens et al., 2014). In this research the objective of the CBA is to carry out an integrated assessment of the project profitability and of the cost-benefit distribution among key actors. All four methodologies are connected with specific territories in the following countries: Italy, Greece, Turkey and Israel; allowing to cover the diversity related to country characteristics. The next technologies tested under FIT4REUSE project: aquifer recharge, desalinization, water reclamation and irrigation; will be explored. As several socio-economic aspects must be explored from different stakeholders' perspective, this research will reinforce the indicators identified during a literature review analysis with a participatory approach.

The participatory approach was carefully designed considering the available tools. In this project is expected the development of an online platform under the name Water Reuse Forum, which engage experts from the water technologies field and vulnerability risk communities and groups. To guarantee a variety of profiles to accomplish with this research, a participation protocol has been designed based on an in-depth literature review about the performance of participatory approaches involving risk of vulnerability groups. The participatory consultation and further analysis will be developed by the implementation of an Interpretive structural modelling (ISM). This method is known for identifying relationships among specific items, which define a problem or an issue (Attri et al., 2013). ISM will be conducted through consultation which will include the validation of socio-economic indicators proposed, and provide additional information on socio-economic issues, with emphasis on the guarantee of the involvement of risk of vulnerability groups during the execution

of the sustainability assessment methodologies; and the reference of stakeholders to be addressed to respond to the identified indicators.

### **Preliminary results**

Noting that this research is currently under development, there are few outcomes finalized. From the technical perspective, a first skeleton of the items to be addressed during the sustainability assessment have been identified. These are:

1. Territorial related: to be discussed its extension during the participatory approach. Under this data collection section, there are aspects such as geographical extension and beneficiary's extension of FIT4REUSE technologies (or its absence and improvement). In this definition cultural and legislation aspects would be considered.
2. Technology related: each technology has been disaggregated and specific characteristics to perform the technical methodologies have been identified. These are related to water cleaning volume, cost of maintenance and construction, regulation requirements, expected benefits for the defined community and territory and challenges; among other indicators.

The participatory approach will start by the middle of January and is expected to last two weeks. A draft protocol has been designed including the profile of participants, which will be shared with the team members to start the expert's involvement. The protocol includes the participant involvement following a snowball technique, where existing study subjects recruit future subjects from among their acquaintances. The document includes the guides to be implemented as well as a checklist of good practices to emphasize the role of women and risk of inclusion groups to be involved both, as members in the platform as well as inside the methodological framework.

### **Conclusions**

This research offers a methodological framework to assess the sustainability of non-conventional water technologies. It evidences the key areas to be analysed when an in-depth sustainability assessment wants to be performed. The methodology could be adapted to other projects or agro-food supply chains, as it presents the macro-guidelines to be tracked. The inclusion of the participatory approach is presented in this research as essential when dealing with the understanding of socio-economic characteristics. This will help to increase the scientific literature including citizen science in their methodological conceptualization. By highlighting the role of the women and another risk of vulnerability groups, it will be possible to acquire full knowledge of the technologies' application in a territorial area (geographical and social). These inclusions might allow the distinction between geographical territory and beneficiaries extension. Further research on sustainability assessment ought explicitly to incorporate the role of risk in vulnerability groups, such as women in the areas where this project was performed, as their voices will help to reduce the gender gap, for building better and more sustainable societies.

### **References**

ACF International (2012). *Participatory risk, capacity and vulnerability analysis*.

Attri R., Dev N. and Sharma V. (2013). "Interpretive structural modelling (ISM) approach: an overview", in « Research Journal of Management Sciences », 2, 2, pp. 3-8.

De Menna, F., Dietershagen, J., Loubiere, M. and Vittuari, M. (2018). "Life cycle costing of food waste : A review of methodological approaches", in «Waste Management», 73, pp. 1-13.



Fit4reuse, 2019. FIT4REUSE [WWW Document]. URL <https://fit4reuse.org/>

Gurung B. and Menter H. (2004). "Mainstreaming Gender-Sensitive Participatory Approaches", in Pachico D. and Fujisaka (Es.), *Scaling Up Out: Achieving Widespread Impact*, Cali, CIAT, pp. 257-285.

Hoogmartens R., Van Passel S., Van Acker K. and Dubois M. (2014). "Bridging the gap between LCA, LCC and CBA as sustainability assessment tools", in «Environmental Impact Assessment Review», 48, pp. 27-33.

Hunkeler D., Lichtenvort K. and Rebitzer G. (2008). *Environmental life cycle costing*, CRC Press.

ISO (2002). *International Standard Environmental Management - Life Cycle Assessment - Life Cycle Interpretation. ISO 14040*.

ISO (2006). *International Standard Assessment-Requirements and guidelines. ISO 14044 1-48*.

Lilja N. and Dixon J. (2008). "Operationalising participatory research and gender analysis: New research and assessment approaches", in «Development in Practice», 18, 4, pp. 467-478.

UNEP (2011). *Towards a Life Cycle Sustainability Assessment: Making informed choices on products*, United Nations Environmental Program (UNEP).

UNEP-SETAC (2009). *Guidelines for Social Life Cycle Assessment of Products*.

## **Inclusion of the sex/gender variables in sensory analysis of meat products: state-of-art.**

Dario Mercatante<sup>1</sup>, Tullia Gallina Toschi<sup>1</sup>, Maria Teresa Rodriguez-Estrada<sup>1</sup>

### **Aims of the contribution (poster)**

The aim of this study was to analyze and evaluate the inclusion of sex and gender variables in the sensory analysis of meat products.

### **Introduction**

Meat and meat products are among the most consumed foods in the world. Consumers' opinion is a good guide to improve meat products' quality and it is important to carry out sensory consumer tests so that they can express their preferences. Background, demographic aspects and attitude of consumers influence how they perceive meat products. However, the use of untrained consumers for assessing meat quality may produce responses that are unreliable or invalid. Sensory evaluation based on direct impressions is considered a reference method and an invaluable measurement tool in food quality assessment. If applied correctly, sensory science is a powerful tool, as it provides measures no other instrument (to date) can provide: a detailed description of how a food item is perceived by the human senses and/or how much this item is liked (Mörlein, 2019). For these reasons, it is very important that the panel, the fundamental instrument of sensory analysis, is structured correctly. Some fundamental aspects to consider for the formation of a panel are the sex and gender of its components and their age, as well as, in a second instance, the level of education. It is very important that the gender and sex of the judges is as balanced as possible, so as to obtain statistically valid data. In fact, it is well known that gender can affect food appetite, affective reaction, perception and selection. Different studies report that men have tendencies to rate sweeter foods higher, probably because women tend to care more about healthiness of food products (Michon et al., 2010). However, regarding comfort foods, women mostly choose snack foods, whereas men usually prefer hot meals (steak, soups, etc.) (Wansink et al., 2003). On the other hand, it has been shown that women are more prone than men to taste new or novel foods (Beardsworth et al., 2002), even though they are more inclined to have food rejections (Nordin et al., 2004). Other studies suggested that gender differences may be due to men focusing more on any information they receive about the product rather than in their senses and the actual sensation they experience, as women seem to actually do (Schifferstein, 2006). It is thus clear that there are relevant differences between males and females when expressing food preferences.

By analyzing the literature of the past few years, it is possible to notice how very few works dealing with meat products take into consideration the sex and gender variables in the formation of a trained panel or during the execution of consumer tests.

### **Materials and methods**

The Web of Science Core Collection (WOS) platform from Clarivate Analytics, Scopus from Elsevier and Google Scholar from Google were the databases selected. The following terms were used in the search strategy: Title and Abstract: ((meat products OR meat) AND (sensory analysis) AND (gender)). The search was carried out using title and abstract fields only, in order to increase the accuracy. The search was mainly limited to the last fifteen years, even though important and relevant earlier publications were also taken into consideration.

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<sup>1</sup> Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

## Results

By entering meat products and sensory analysis as keywords, 1517 documents came out. When the word gender was added to the keywords, there were only 12 documents, which represent just 0.79% of the whole search, the oldest being from 2004 and the newest from 2019. Of these 12 papers, only 10 have a part concerning sensory analysis and, out of these 10, only 7 use panels made up of judges of different sex. These papers analyze different meat products: meat in general (n=4, 0.26%), sheep meat (1 paper, 0.07%), pork meat (1 paper, 0.07%) and traditional meat products (n=1, 0.07%). Only 0.46% of papers take into consideration the gender variables to form the panel.

## Conclusions

From this survey, it is evident that less than 1% of the papers published on sensory analysis of meat products actually include the sex/gender variables in the formation of a trained panel or during the execution of consumer tests. A great deal of relevant information about the effect of gender on consumers' food preferences is not being collected. A greater effort should be done towards the inclusion of the sex/gender variables in this research field, as it could be useful for meat product formulation and development to further characterize and improve food preferences.

## References

- Beardsworth A., Bryman A., Keil T., Goode J., Haslam C. and Lancashire E. (2002). "Women, men and food: the significance of gender for nutritional attitudes and choices", in «British Food Journal», 104, pp. 470-491.
- Michon C., O'Sullivan M., Sheenan E., Delahunty C. and Kerry J. (2010). "Investigation of the influence of age, gender and consumption habits on the liking of jam-filled cakes", in «Food Quality and Preference», 21, pp. 553-561.
- Mörlein D. (2019). "Sensory evaluation of meat and meat products: fundamentals and applications", in «IOP Conference Series: Earth and Environmental Science», 333, 012007.
- Nordin S., Broman D.A., Garvill J. and Nyroos M. (2004). "Gender differences in factors affecting rejection of food in healthy young Swedish adults", in «Appetite», 43, pp. 295-301.
- Schifferstein H.N. (2006). "The perceived importance of sensory modalities in product usage: A study of self-reports", in «Acta Psychologica», 121, pp. 41-64.
- Wansink B., Cheney M.M. and Chan N. (2003). "Exploring comfort food preferences across age and gender", in «Physiology & Behavior», 79, pp. 739-747.

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## **PARALLEL SESSION 2. THE INCLUSION OF THE SEX/GENDER VARIABLES IN RESEARCH: GENDER IN SOCIAL SCIENCES AND HUMANITIES**

**Session chaired by Angela Balzano and Rita Monticelli**  
University of Bologna

### **Posthumanism or transhumanism? Gender and science as marker of divergence**

Angela Balzano<sup>1</sup>

#### **Aims of the contribution:**

The aim of this contribution is twofold: to show how Neo-materialist Posthumanist Philosophy deal with scientific innovation adopting a gender perspective, and to attempt a critique of transhumanism as a gender-neutral perspective. The final purpose is to clarify how Posthumanism, when adopting a feminist and a gender sensitive perspective, diverges by transhumanism for its understanding of bodies and matter, its approach to science, its objectives.

#### **Description of the research**

##### **Introduction**

Gender and science are two excellent markers of features and divergences to read the current development of Posthuman Studies and Transhumanism. In the attempt of facing the challenges of our tecno-mediated days, this contribution aims to find a bodily grounded theory that does not deny the opportunity opened by the complex tecno-scientific environment we are living in as western people, but that at the same time does not renounce to make a difference in science for the benefit of all, not only of the Human.

##### **Materials and methods**

The analysis focuses on some key figurations that can illustrate how gender and human have been historically constituted, functioning as categories that allow the exclusion both of the “second sex” and “second species”. Drawing on the methodology of cartography elaborated by Haraway and Braidotti, this contribution refers to Henrietta Lacks and Rosita to show how in the name of Man, Science and Human Reproduction, biocapitalism continuously exploit the females of the species, being them human animals or non-human animals. Rosita is a not-born cow cloned in 2011 in Argentine, where scientists inserted in her DNA human genes to produce lactoferrin, a protein that boosts the immune system, and lysozyme, an antibacterial substance, with the ultimate end to put on the shelves a cow-milk suitable for human infants. Both Henrietta Lacks and Rosita embody a new kind of otherness that we are at the same time producing and consuming.

Another pivotal figuration, material of this study, is Primo Posthuman, a guide to explore the transhumanist scenario and to prove how it is avoiding at the same time gender, class and race's

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<sup>1</sup> Adjunct Professor in Diversity Management, Università di Bologna.

questions. Primo Posthuman, a future body prototype designed by Natasha Vita More in 1996 and now part of a more complex transhumanist project titled “Future Body Design” (More 2018), was motivated by a strong interest in superlongevity and life extension.

## Results

Reading Braidotti (2013) and Ferrando (2019), that wrote accurate cartographies of Posthumanism focusing on the neo-materialist and feminist line of thought, while keeping in mind Henrietta Lacks and Rosita figurations, is possible to underline that Feminist Posthumanism is characterized by:

- a) a spinozian understanding of bodies, intended as intertwined with minds, and of matter, intended as a unique intelligent and self-organizing substance not dialectically in conflict with culture nor to technological mediation, rather in relation with;
- b) a curious but critical approach to scientific innovations, one able to grasp the potentialities of new info-biotechnologies not avoiding asking to whom is granted the access to scientific development and to whom is denied, on which bodies and how it has been carried out;
- c) a will to denounce how the notion of Human has been articulated on the notion of Man and a critical stance towards the idea that humans are a superior species in the natural order.

Exploring the transhumanist scenario, thanks to the Primo Posthuman figuration, is possible to summarize that it is marked out by:

- a) a schizophrenical reading of the body-mind nexus, where sometimes the body is the main focus of attention (bodily self-enhancement) sometimes life's mind becomes the only life that deserve to be lived and saved (mind uploading, virtual life, artificial intelligence), as well as a reductive understanding of matter and nature, too often depicted as limits and obstacles for human enhancement;
- b) a too enthusiastic welcome and a proactive contribution to scientific development accompanied by a gender-neutral gaze on technologies;
- c) the will to potentiate human performances, without taking into account the effects of this uninterrupted growth of the human is already having on the other species and on the earth.

## Conclusions

Tackling cutting-edge technologies in the framework of the current neoliberal political economic system and inquiring the role of gender norms in the knowledge construction processes enable Feminist Posthumanism to draw effective figurations of the present, offering grounded locations to orientate ourselves in the science-making projects. On the contrary, transhumanism abstracts science from its socio-political and economic system, never mentioning the intertwined development of tecnoscience and capitalism, thus providing a disembodied figuration, abstracted from matter. Rosita is more posthuman of Primo. Primo has not overcome the Human, it is just the 2.0 version of the western Vitruvian Man, an isolated self, a closed subject unable to create relationships with the Otherness not based on egoistic needs.

The consumption of otherness, in particular of women and animals, has been justified by the supremacy of the human species, a belief deeply rooted in western society that has prevented us to imagine and create an economical system that has the Earth as main stakeholder. Nevertheless, reproducing the future in the Anthropocene requires the collective elaboration of a *posthuman care of the otherness*, that means a more *zoe-geo-centered* approach rooted in embodied subjectivities willing to create cross-species alliances. Enlarging the concepts of sisterhood, going beyond the biological limits of human parenthood, Feminist Posthumanism could work as an effective philosophical framework for our schizophrenic present, a toolbox for the

shaping of a new kinship system in the Real Space-Earth (Haraway 1992), one where all living beings, organic and inorganic compounds, cyborgs and techno-others matter.

## References

Braidotti R. (2002). *Metamorphoses: Towards a Materialist Theory of Becoming*. Cambridge, UK and Malden, MA, Polity Press/Blackwell.

Braidotti R. (2006). *Transpositions: On Nomadic Ethics*. Cambridge, UK and Malden, MA, Polity Press/Blackwell.

Braidotti R. (2013). *The Posthuman*, Cambridge, Polity Press.

Ferrando F. (2019). *Philosophical Posthumanism*. New York Bloomsbury, Publishing.

Haraway D. (1992). *The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others*, in Grossberg L., Nelson C. and Treichler P.L. (eds), *Cultural Studies*. London and New York, Routledge.

Haraway D. (1997). *Modest\_Witness@Second\_Millennium. FemaleMan@\_Meets\_Oncomouse<sup>TM</sup>*. London and New York, Routledge.

Haraway D. (2016). *Staying with the Trouble, Making Kin*. Durham, Duke University Press.

More N.V. (2014). *Design of Life Expansion and the Human Mind*, in Blackford R. and Broderick D. (eds), *Intelligence Unbound: The Future of Uploaded and Machine Minds*, Wiley-Blackwell, pp. 240- 247.

More N. V. (2018). *Project Innovator: Future Body Design*. <https://natashavitamore.com/innovations/>

Turrini M., Lavitrano M., Casati S. (2012). "HeLa. Reconstructing an Immortal Bio", in «Tecnoscienza: Italian Journal of Science & Technology Studies», 3, 2, pp. 147-161.

# Theorising “Artificial” Femininities in Sex-Tech: Previous Postulations and Future Directions

Chloé Locatelli<sup>1</sup>

## Aims of the contribution

To explore which academic disciplines and theorists can shed light on the current manifestations of “Artificial Femininities” in digitalized sexual commerce, in order to elaborate on my current PhD research titled “The Future of Intimacy and Sextech: Gendered Modalities of Posthuman Technologies in Sexual Commerce”. This PhD thesis questions the nature of artificial and technologically mediated gendered-female embodiment as a conduit for intimacy, and to what extent this reflects contemporary trends in globalized sexual commerce with human agents (Bernstein, 2008).

## Description of the research

### Introduction

This research presented at the PLOTINA conference shows the theoretical arc currently being carried out for this initial doctoral research. This PhD thesis seeks to explore different manifestations of artificial female bodies in sex-tech, through an investigation of the unexplored nodes of knowledge where Lovotics, sociology, and feminist thinking meet. By exploring the limits and possibilities of a multidisciplinary approach, the research presented seeks to question how to theorise artificial femininities. Using Haraway’s Cyborg figuration as an initial platform (Haraway, 1991), and applying Braidotti’s posthuman theory (Braidotti, 2013), this work first seeks to engage with previous literature exploring gender, technology and identities. It then explores other academic disciplines’ approach to products that incorporate technological innovation into devices for sexual satisfaction, which includes, *inter alia*, sex-robots, avatars and AI sex toys, as well as their reluctance to engage in these case studies. This work hopes to draw together relevant ideas from various schools of thought, in order to best address how we could think about artificial femininities, and digitally created forms of embodiment.

### Materials and methods

This work consists of a theoretical exploration of previous literature from multiple disciplines, in order to harmonize ideas at the intersections of various works. The panoply of perspectives from different disciplines offers plenty of material to engage with, whilst at the same time creating fissures where the meeting of these ideas becomes incongruous. By critically assessing relevant ideas from previous research, this work hopes to create interdisciplinary bridges, in order to assess polemic contemporary case studies through an application of gender studies, social sciences and humanities’ theory. For the sake of the PLOTINA conference, this work centres on two case studies. RealdollX offers a product that is both a silicone doll with the potential for an AI control system, as well as an on-screen avatar for consumers to engage with. The other case study is GateboxAI’s Azuma Hikari, a voice-assistant hologram from Japan. These cases are brought to exemplify the complex factors at play when theorising and studying the significance of artificial femininities in for sexual satisfaction, and illustrate both the positive aspects and potential pitfalls of current inter/multidisciplinary thinking.

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<sup>1</sup> King’s College London.

## Results

As this research is in its initial phase, no final results can be drawn at this stage. The trajectory indicates, however, that the actuality of the case studies and topics surrounding them inevitably suffer from limitations when existing theory is applied. The current investigation alludes to a lack of gender perspective in this field, thus limiting the successful outcomes of research. The negation of gender playing a role in these artificial femininities for sextech, from the field of robotics and Lovotics especially, makes for an incomplete ethical assessment, and one that needs urgent addressing.

## Conclusions

The accelerating speed of technological developments in the field of sex-tech provides the motivation for this research, as serious investigations on the ethics and multiple manifestations of artificial femininity in technologically-mediated sexual commerce are desperately required. This field of study must grow both symbiotically and exponentially as the sex-tech industry explodes into a 30 billion-dollar market (Davis, 2018). The lack of feminist perspectives in this field, as well as the relative dearth of roboticists engaging with gender issues shows this investigation to be both time-critical and necessary. By exploring the potential, as well as the limitations, of multidisciplinary research applied to this current project, it hopes to continue exploring the traction of sexual commerce in the digital and/or virtual world, and critically reflect on which perspectives and academic disciplines we can think about “artificial femininity”.

## References

- Bernstein E. (2008). *Temporarily Yours: Intimacy, Authenticity and the Commerce of Sex*. Chicago, University of Chicago Press.
- Braidotti R. (2013). *The Posthuman*. Oxford, Polity Press.
- Davis N. (2018). “Claims about social benefits of sex robots greatly overstated, say experts” in «The Guardian». Retrieved from <https://www.theguardian.com/science/2018/jun/04/social-benefits-of-sex-robots-greatly-overstated-say-experts>
- Haraway D. (1991). *A Cyborg Manifesto*, in Haraway D., *Simians, Cyborgs and Women*, New York, Routledge, pp.149-181.
- Levy D., Cheek A. and Devlin K. (eds) (2016). *Love and Sex with Robots Second International Conference -December 19-20, 2016*, London, Springer.
- Levy D. and Cheek A. (eds), (2017). *Love and Sex with Robots Third International Conference - December 19-20, 2017*, London, Springer.



# Gender-Based and Queer Contributions in Rethinking HIV. A Political Challenge through Immunology, Public Health and Feminist Science Fiction

Elisa Bosisio<sup>1</sup>

## Aims of the contribution:

The aim of this paper is twofold: to analyze the *gender bias* in the dominant biomedical discourses about HIV - with particular interests for immunology, virology and epidemiology - , and to map the shift towards a *gender-based* re-conceptualization of the experience of the viral infection inside the laboratories just as in the public health domain and in the feminist/queer affirmative political debate.

## Description of the research

### Introduction

Following Canguilhem and Foucault's critique of the *clinical gaze*, I will pay close attention to all the biomedical disciplines as discursive practices influenced by socio-cultural imaginaries. I will argue how medicine cannot be assumed as a neutral scientific description of biologically given bodies by underlying its textual and intertextual non-referential structure functioning as a normative apparatus that reconfigures simultaneously the flashy individual bodies and the social body according to the classical analogy between the biological human organism and the political system.

I will continue analyzing how the mainstream narrative about HIV describes the virus, its features and cycle (its entry to the cell, its replication and spread within the body, etc) as human relationships from a masculine and homophobic standpoint characterized by an *immunological paranoid obsession* (Haraway, 1991; Waldby 1996; Esposito, 2002).

Considering HIV as the most political disease until now and recognizing the hyper-sexualization of the HIV discourse, I will discuss it as grounded on the paradigm of *phallogocentrism* and *compulsory heterosexuality*. I will show how in the 80s - at the beginning of HIV spread - etiology considered the *porosity* and *permeability* of female or *feminized-gay bodies* as a pivotal scientific condition for the diffusion of the virus.

My second focus will be double: on a first hand, I will report the impact of situated radical activism to obtain more scientific and medical recognition for HIV-positive woman; on the second, the reconfiguration of the *immune system* through a critical, feminist and queer perspective as a lever to rethink the HIV imaginary and to change the psycho-social impact of the infection. (Treichler, 1988; Haraway, 1991; Waldby, 1996).

## Materials and methods

I will employ the *foucauldian discourse analysis* to underline the *phallogocentric* and *heterosexual* fundamentals of mainstream immunology and epidemiology as they are assimilated by students and researchers through the academic textbooks. More detailedly, I will try to show how the obsession for the securitization of the bodies, the epidemic paranoia and the patriarchal and heteronormative ideology influence the scientific discourse about the nature of the virus, the process of its spread in the individual and social body and even the strategies of control and care against HIV and AIDS. We could see how the most prestigious and diffused anatomy textbooks

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<sup>1</sup> Master graduate student, University of Milan.

reproduced the assumption of the male phallic body as the most controllable and clean fleshy unity against the contaminated/contaminating precarious and borderless effeminate body (Waldby, 1996).

In a second moment, I will show how the progressive spread of gender-based disapproval helped to change the imaginary and the research interests in the HIV field starting from the pressure of ACT UP against USA medical institutions (Cooper and Waldby, 2014). I will take into consideration the establishment of institutions and interests whose aim is a specialized research on HIV in women and then trans people under hormonal medication. I will also argue that the main goal of this engagement was and still is a respectful inclusive but differentiated approach to male, female, trans bodies in producing and testing antiretroviral medicines.

In the third part, I will focus my attention on the radical political incentives by queer theorists or activists and by Donna Haraway in order to change the *psycho-political* approach to the virus. Firstly, I will underline how queer activism took the arrival of efficient new generation drugs to move its attention towards the hacking of the immunological stereotype of hybridity and porosity as vehicles of impurity in order to transform the political body through its “contamination” with borderless and still-alive bodies (Waldby, 1996).

Secondly, I will reason about Haraway’s intuitions about the importance of Feminist Science Fiction to dismantle the dominant ideas of healthiness as synonym of cleanliness and individual self-contained corporeality in an ontologically impure world. Following Haraway, Feminist Science Fiction can be considered an incentive to believe in the chance to live better in a world where we can go through diseased, risks and contamination, and where the *bio-info-techno* research can be used to save our lives and make them immanently pleasant even when troubled (Haraway, 1991).

## Results

At the end of my paper, I will stress how a gender-based approach to HIV changed the individual and social lives of many HIV-positive subjects in at least two ways: by permitting focused and dedicated scientific experimentations and by changing the cultural reception of the virus.

## Conclusions

The politico-theoretical aim of this paper is the fruitful fallout of a gendered political analysis of science: the traditional legitimacy of science and medicine as a transparent discipline needs to be put in trouble by a situated gaze able to question *Whose science? And for who?* in order to bring out the cultural bias that built the opaque science up and to substitute it with a differential but inclusive approach.

## References

- Cooper M. and Waldby C., (2015). *Biolavoro Globale. Corpi e Nuova Manodopera*, Angela Balzano (Ed.), Roma, DeriveApprodi.
- D.B. Gould (2009). *Moving Politics. Emotion and ACT UP’s Fight Against AIDS*, Chicago and London, University of Chicago Press.
- Haraway D., (1991). *The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse*, in *Simians, Cyborgs and Women*, London, Routledge.
- Harding S. (1986). *The Science Question in Feminism*, Ithaca-New York, Cornell University Press.

Harding S., (1991). *Whose science? Whose knowledge?*, Ithaca New York, Cornell University Press.

Treichler P., (1988) *AIDS, Gender and Biomedical Discourse: Current Contests for Meaning*, Berkley, University of California Press,

Waldby C. (1996). *AIDS and the Body Politics, AIDS and the Body Politic: Biomedicine and Sexual Difference* Routledge. <https://actupny.com/>; <https://aidsinfo.nih.gov/>

# Behind the Call for an International Commercial Surrogacy Ban: the Indian case

Sara Puccinelli<sup>1</sup>

## Aims of the contribution

The aim of this talk is to underline how ethical matters commonly used to sustain an international surrogacy ban, are hiding under humanitarian reasons the will to control women's reproductive capacity. The intention is to maintain the gratuitousness of care and reproductive labor, and to guarantee the reproduction of the mono-nuclear heterosexual family as productive unit of capitalistic States-Nations. India is taken as an exemplifying case, to show how its recent ban on commercial surrogacy doesn't improve women's conditions in clinical reproductive labor.

## Description of the research

### Introduction

In the last years, many western critics have claiming for an international ban on commercial surrogacy, a practice seen as babies selling and betraying women dignity. The ethical analysis of western critic objections will be address beginning from Satz's argumentation on reproductive labor (1992).

According to Bassan (2018), the reason why there is more pressure to regulate surrogacy markets than other markets related with reproduction, as egg market, has nothing to do with the defense of vulnerable women, but is connected with a legislative controversy. In many states where surrogacy is performed there is a lack of formal regulations about the status of the baby delivered, thus baby's nationality needs to be determined by home countries of the intended parents. However, many consumers' states refuse to acknowledge the status of baby born as a result of a transaction that does not meet the national public policy standards.

Moreover, if we have a look on the number of the states that allow surrogacy on commercial basis and the low percentage of live births from surrogacy itself, it becomes clear how there's no justification for claim to a complete prohibition of the surrogacy market instead of regulating it.

Indeed, the majority of European country explicit forbid every form of surrogacy and few others allow altruistic surrogacy with a specific legislation. Few countries in the world legally recognize its commercial form, and other, as Thailand and India, have recently released prohibitions bills on commercial surrogacy agreements. However, they still allow altruistic agreements, while restrict the access to resident-heterosexual-married couples.

## Materials and methods

Ethical objections come from western critics of commercial surrogacy will be examined and subsequently compared with surrogacy market reality and relative states' legislations. Both, theoretical and empirical analysis will focus on surrogates with the intention of verifying if surrogacy should be really conceived as necessarily detrimental for women.

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<sup>1</sup> Master graduate student, University of Pisa.

## Results

India's ART Bill of 2010, one of the most liberal surrogacy laws in the world, in sharp contrast with State's repressive approach towards bar dancing and sex working. However, since infertility – a huge stigma amongst Hindu cultural majority – is a rapidly growing problem in India, the only plausible explanation for the ART Bill was surrogacy's ultimate goal of procreation and enhancement of hetero-patriarchal family model (Kotiswaran, 2013). ART Bill 2010 was followed by other legislative proposals. Meanwhile, commercial surrogacy had become a structural reality. Indian surrogacy market was surrendered to pressure of international states for regulations concerning the interests of resulting children and their registration. Partly implemented as a result of these issues, Surrogacy (Regulation) Bill, from its first version of 2016 till the last of 2019, permits contracting pregnancy under very strict conditions and enables only married Indian couples to access.

But why have women chosen to continue offer surrogacy services despite evidence of exploitation?

Some studies (Pande, 2009a; Cooper and Walby, 2014; Parry, 2018) have shown how the exploitation of needy women isn't directly ascribable to money exchange, but instead in the lack of informed consent over medical procedures and to the very little ability of these workers to bargain for better wages or working conditions. Indeed, what an Indian surrogate earned with a single delivery was estimated to be five times the annual income of her family. Indian Surrogacy Bill, leaves the door wide open for altruistic surrogacy where no money shall be exchanged between gestational workers and commissioning parents. This will lead to a deeper exploitation of indigent women which are now more exposed to families' coercion and they are expected to labor for free (Rudrappa, 2016). Private clinics, doctors and middle-persons will continue to make money out of reproduction despite the ban, while women, who performed and embed the gestational work, are the only subjects excluded from profit.

## Conclusions

The downfall of social welfare and the growing individualization in all sectors of public life has brought to the externalization of reproductive labor, firstly social, then biological. Commercial surrogacy is just a little part of the Bioeconomy, the neoliberal process that makes profit out of the biological. In order to make a constructive critique of neoliberalism, we have to consider its connections with neofundamentalisms. As Cooper (2008) and Zappino (2016) remind us, although often presented as opposite, they are two sides of the same coin: power. I agree with Pande (2009a) in saying that, surrogacy is a structural reality with real actors and consequences, which are impossible to analyze merely through the lenses of ethics or morality. As Cooper's and Walby's analysis has shown, surrogates are not simply "renting their wombs", they're instead completely and personally involved in an embedded activity. For this reason, they should be recognized as workers. A Marxist-feminist approach has the value of recognizing women's agency and avoiding paternalism, while it denounces the alienation, exploitation and the appropriation of their generative power by the patriarchal biomedical system (Balzano, 2017). Instead of speaking for the marginalized subjects, Western societies should acknowledge surrogates' experiences and investigate better their working conditions. European States are free to allow or forbid domestic surrogacy transaction, but they should also recognize – since they refuse to supply a demand which exists – that the focus on donation and the several limitations of their laws have promoted the creation of reproductive tourism and markets. From this analysis, we can conclude that the ethical reasons put forward to ban commercial surrogacy, initially by many Western countries and

now by the Indian State, are yet another way to control women's agency and the reproduction of state's social body.

## References

- Balzano A. (2017). "In bilico tra mercificazione del biologico e autodeterminazione delle donne: oltre il divieto di surrogacy", in «Notizie di Politeia», anno XXXIII, 128, pp. 22-41.
- Bassan S. (2018). "Different but the Same: A Call for a Joint Pro-Active Regulation of Cross-Border Egg and Surrogacy Markets", in «Health Matrix Clevel», 28, 1, pp. 323–374.
- Bhattacharyya R. (2016). "Draft Surrogacy (Regulation) Bill 2016: Rhetoric or Surrogate-centric?", in «Space and Culture», 4:2, pp. 9-21.
- Carone N. (2016). *In origine è il dono, Donatori e portatrici nell'immaginario delle famiglie omogenitoriali*, Milano, Il Saggiatore.
- Cooper M. (2008). *Life as a Surplus: Biotechnology and Capitalism in the Neoliberal Era*, Washington University Press.
- Cooper M. and Waldby C. (2014). *Clinical Labor, Tissue Donor and Research Subjects in the Global Bioeconomy*, Durham, Duke University Press.
- Doshi V. (2016). "'We pray the clinics stay open': Indian surrogates fear hardship from embryo ban", in «The Guardian», <https://www.theguardian.com/world/2016/jan/03/india-surrogate-embryo-ban-hardship-gujarat-fertility-clinic>
- Kotiswaran, P. (2013). "The Laws of Social Reproduction: A Lesson in Appropriation", in Perry-Kessaris A. and Ting-Xu (eds), "Legal Appropriation: taking of and by law", «Northern Ireland Legal Quarterly. Special Issue, 64, 3, pp. 317-33.
- Pande, A. (2009a). "Not an 'Angel', not a 'Whore'? Surrogate as 'Dirty'? Workers in India", in «Indian Journal of Gender Studies», 16, 2, pp. 141-173.
- Pande, A. (2009b). "It may Be Her Egg But It's My Blood: Surrogates and Everyday form of Kinship in India", in «Qualitative Sociology», 32, pp. 379-397.
- Pande, A. (2014), *Wombs in Labor. Transnational Commercial Surrogacy in India*, New York, Colombia University Press.
- Parry, B. (2015). "May the surrogate speak?", in «Open Democracy», <https://www.opendemocracy.net/en/beyond-trafficking-and-slavery/may-surrogate-speak/>
- Parry, B. (2018). "Surrogate labour: exceptional for whom?", in «Economy and Society», 47, 2, pp. 214-233.
- Rudrappa S. (2016). *Why India New Surrogacy Bill is Bad for Women*, [https://www.huffpost.com/entry/why-indias-new-surrogacy-bill-is-bad-for-women\\_b\\_57c075f9e4b0b01630de83ad?](https://www.huffpost.com/entry/why-indias-new-surrogacy-bill-is-bad-for-women_b_57c075f9e4b0b01630de83ad?)
- Scherpe J.M., Fenton-Glynn C. and Kaan T. (eds) (2019). *Eastern and Western perspectives on surrogacy*, Cambridge-Antwero-Chicago, Itersentia.
- Shalev C. (1989). *Birth Power. The case for Surrogacy*, New Haven e London, Yale University Press.

Zappino F. (ed.) (2016). *Il genere tra neoliberalismo e neofondamentalismo*, Verona, Ombre Corte,.

# Integrating an intersectional climate justice perspective in the mainstream Anthropocene discourse through the climate change novel.

Chiara Xausa<sup>1</sup>

## Aims of the contribution

My presentation approaches the perspective of the environmental humanities as complementary to the techno-science approach in defining climate change. It will particularly highlight the gender-blind approach dominating the environmental climate sciences, and the urgent need for an intersectional climate justice perspective at the highest level of international discussion. Furthermore, it will address literature's potential to contribute to climate change discussion through stories of intersectional climate justice.

## Description of the research

### Introduction

Women bear the brunt of climate change and are more severely affected than men by eco-catastrophes; the harshest effects are felt by women in developing countries. As Greta Gaard suggests in *Critical Ecofeminism*, traditional gender roles impose duties associated with food and water collection and caregiving and set limits on women's mobility. The result is that women and children are fourteen times more likely to die in eco-catastrophes than men (Aguilar, 2007; Aguilar, Araujo and Quesada-Aguilar, 2007). Furthermore, women who survive eco-catastrophes face the likelihood of gender-based violence.

International discussions recognize that women are disproportionately affected by climate change but tend to focus on women as individuals rather than gender as a social structure causing inequalities. Women are often believed to possess an innate vulnerability as well as a unique capacity of caring for family and for "mother nature": a feminist analysis of gender inequalities has yet to enter policy-making discourses.

My presentation will discuss climate change as an issue of social justice: the climate justice perspective frames global warming as an ethical and political issue, rather than purely environmental, while stressing that those who are the least responsible for climate change are also the most affected. I will particularly highlight that climate justice also means gender justice, even though climate justice is mainly associated with the struggle of minority groups: the result is a lack of attention to gender issues. Ecofeminist perspectives are urgently needed, not only because they can shed light on the ways climate disasters impact women and girls first because of gender inequality, but also because they stress that our current socio-economic system relies on the exploitation of both unpaid labour (mainly domestic and care work) and planet.

### Results

The second part of my presentation will address literature's potential to contribute to climate change discussion through stories of intersectional climate justice. I will first focus on climate fiction by writers from the literary mainstream and the typical form of the climate apocalypse. Apocalyptic climate change fiction tends to revolve around men: humanity is most of the times saved by a white male scientist-hero, while women are a silent backdrop and a site of innate vulnerability.

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<sup>1</sup> Department of Interpretation and Translation (DIT), University of Bologna.



The representation of spectacular and sensational catastrophes may also detract attention from what Robert Nixon has termed “slow violence”, the long-term processes of environmental exploitation deriving from colonial violence, capitalism, and also gender exploitation. Slow violence means that vulnerability to climate change is intensified by colonially and capitalist induced environmental exploitation, and it means that we are not all in the Anthropocene in the same way: not all humanity has acted as equal players in altering the planetary system. Most climate change fiction, however, lacks a situated perspective and fails in representing the intersectionality of oppression.

Stories about apocalyptic environmental disasters, finally, are very often escapist: they give the reader the illusion that a techno-science approach will solve the problems of climate change without addressing social injustices and without a radical change in the way we live and we consume. Narratives of ultimate destruction are also problematic, as fear caused by implausible stories rarely galvanizes action in response to climate change. Much of the climate fiction from the literary mainstream is indeed concerned with what Roy Scranton has termed “learning to die” in the Anthropocene (2015).

The final part of my presentation will give some examples of women writers who are responding to the apocalyptic discourse of climate change: I will particularly focus on marginalized voices within the mainstream discourses on the Anthropocene and the climate change novel. These novels are narrated from a very situated perspective and represent the violence of climate crises as a culmination of historical tendencies that render some bodies more vulnerable than others. I will connect these novels with the concept of “everyday Anthropocene” proposed by Stephanie LeMenager (2017): LeMenager focuses on what it means to live, day by day, through climate crises, and through the interconnectedness of environmental degradation, racial oppression and sexism. These protagonists’ voices, as well as their stories of partial destruction, displacement and loss, are usually unheard in the mainstream Anthropocene discourse, that prefers narratives of ultimate and spectacular destruction.

Furthermore, although some of these novels are overwhelmingly dystopian, they also provide an alternative mode of resilience in the face of climate change, as the protagonists develop the capacity to cope with uncertainty. Far from being concerned with “learning to die” in the Anthropocene, they narrate what it means to live through the new geological era.

### **Materials and methods:**

The first part of my presentation will analyse the lack of a gender perspective in international climate change policies and will stress the importance of a climate justice approach. The second part will refer to environmental humanities approaches to climate change, and will set up a dialogue between literary studies on the one hand and gender studies, intersectionality and posthuman critical theory on the other.

### **References**

- Baccolini R. and Moylan T. (2007). *Utopia Method Vision: The Use Value of Social Dreaming*. Berne and Oxford, Peter Lang.
- Banerji D. and Paranjape Makarand R. (ed) (2016). *Critical Posthumanism and Planetary Futures*. New Delhi, Springer India.
- Bennet J. (2010). *Vibrant Matter: A Political Ecology of Things*, Durham, Duke University Press.

- Canavan G. and Robinson K.S. (eds) (2014). *Green Planets. Ecology and Science Fiction*. Middletown, Wesleyan University Press.
- Chakrabarty D. (2009). "The Climate of History. Four Theses" in «Critical Inquiry», 35, 2, pp. 197-222.
- Gaard G. et al. (eds) (2013). *International Perspectives in Feminist Ecocriticism*. New York, Routledge.
- Garforth, L. (2018). *Green Utopias*. Cambridge, Polity Press.
- Ghosh A. (2016). *The Great Derangement. Climate Change and the Unthinkable*. Chicago, Chicago University Press.
- Huggan G. and Tiffin H. (es) (2010). *Postcolonial Ecocriticism: Literature, Animals, Environment*. New York, Routledge.
- Johns-Putra A. (2018). "The Rest is Silence: Postmodern and Postcolonial Possibilities in Climate Change Fiction" in «Studies in the Novel», 50,1, pp. 26-42.
- LeMenager S. (2017). *Climate Change and the Struggle for Genre*, in Menely T. and Taylor J.O. (eds), *Anthropocene Reading: Literary History in Geologic Times*, University Park, PA, The Pennsylvania State University Press, pp. 220-238.
- Nixon R. (2011). *Slow Violence and the Environmentalism of the Poor*. Boston, Harvard UP.
- Plumwood V. (2003). *Decolonizing Relationships with Nature* in Adams W.M. and Mulligan M. (eds), *Decolonizing Nature. Strategies for Conservation in a Postcolonial Era*. London, Earthscan, pp. 1-78.
- Streeby S. (2018). *Imagining the Future of Climate Change. World Making through Science Fiction and Activism*, Oakland, University of California Press.

# Intersectionality as a Useful Perspective in Social Sciences Analysis. The Italian Feminist Case

Alina Dambrosio Clementelli<sup>1</sup>, Marta Panighel<sup>1</sup>

## Aims of the contribution:

This paper aims to study the application of the concept of intersectionality in the contemporary Italian feminist movement. The critical theory of intersectionality comes from the political work of black and poor women and lesbians in the US: in the light of the criticisms of the so-called "white feminism", how did this reflection travel through space and time and settle in contemporary Italian feminist discourse and practice?

## Description of the research

### Introduction

In the last three years, a new wave of feminist demonstrations has been taking place across the world: from the Argentinian movement Ni Una Menos, to the US #MeToo, from the referendum on abortion in Ireland to the protests of female workers in India. Italian feminism as well has experienced a new renaissance with the movement "Non Una Di Meno" (*Nudm*), marking a radical gap with the historical Italian feminism, which focused for a long time on sexual difference theory and on the neutral "woman" subject.

While social movements have long focused only on the class issue, Western white feminism has been criticized by Black, Chicana, decolonial and postcolonial feminists of focusing only on the gender dimension. Differently, *Nudm* is claiming struggles' intersectionality as a fundamental component of its activism and points out the structural dimension of gender-based violence. Faced with the neoliberal restructuring of work and the advancing of right-wing parties at a global level, the combined reading of gender, race and class as interconnected categories - building and enforcing each other - seemed far-sighted and necessary.

As a result, *Nudm* has created a discourse that has gone far beyond the network itself. Indeed, we believe that the interesting aspect to investigate is not the adherence of *Nudm* to the immutable concept of intersectionality: rather, through the lens of Intersectional Feminism and Postcolonial Critique, we would like to understand how intersectionality has spread in the feminist movement in general, as a definition, a tool and an horizon, and how its meaning has changed in the Italian context.

### Materials and methods

Starting from our positioning, we questioned ourselves on how to conduct a research on a movement which we are part of. At this regard, we figured out to organize the fieldwork as a particular form of focus group: self-inquiry. This method takes its origins from feminist and operaist movements (*autoinchiesta* and *inchiesta sociale*) and it's still used in contemporary queer and feminist groups.

At this regard, we have written a call based on trans/feminist activist self-definition, providing in this way a form of self-selection. Then, the participants was requested to compile a form with

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<sup>1</sup> University of Genoa.

anagraphic data and some information about their activism. The self-inquiry itself was structured by a brief introduction, followed by a brainstorming asking to define the concept of intersectionality in a theoretical way. Before a finale discussion, we used an embodied practice, called Power Shuffle, to reduce the level of tension and self-control due to the "feeling of being investigated", in order to stimulate a shift from theory to incorporation.

## Results

This paper is a part of an ongoing research work. It is too early to define any results, but we can provide some preliminary reflections.

After the first self-inquiries, self-selection was confirmed to be a good tool of research. If we have selected a "classical sample" of people to interview, the risk could have been to select and interview only the "marginalized subjectivities", fitting in the powerless categories between gender, race and class. Our aim, instead, is to deconstruct the paradigm based on the inclusion of marginalized subjectivities, to avoid the risk - very frequent in those kind of researches - of the fetishization of marginality.

On the other hand, some limits emerged: in particular we think that the set of questions for self-inquiry was too generic and the power shuffle works more on single subjectivity than on a collective group. At this regard, we had imagined this possible danger but at the same time, according to Baritono (2018), we think it is important to "criticize the liberal atomistic concept of the individual without denying the need to emphasize the individuality of women in terms of agency and freedom".

## Conclusions

As stated before, this is an ongoing work, therefore more than proper conclusions we can propose some working hypotheses.

With this research, we claim the importance to adopt an intersectional perspective in Social Sciences and Gender Studies, a perspective which considers the social categories of gender, race and class as interlocking and co-constructed. At the same time, we think a further reflection on the relationship between activism and academia, and specifically between the role of activists and those of researchers is needed.

## References

Acquistapace L.A., Busi B., Fiorilli R.O., Peroni C and Patrick D. (2015). "Transfeminist Scholars On The Verge Of A Nervous Break Down", in «Revista Feminismos», 3/1, pp.62-70, available on [www.feminismos.neim.ufba.br](http://www.feminismos.neim.ufba.br).

Ait Ben Lmadani F. and Moujoud N. (2012). "Peut-on faire de l'intersectionnalité sans les ex-colonisé-e-s?", in «Mouvements», 72, 4/11, pp. 11-21.

Baritono, R. (2018). "Intersectionality. A Buzzword or a Useful Category of Analysis?", in «Iride», 31, 84, pp. 295-305.

Bilge S. (2015). "Le blanchiment de l'intersectionnalité", in «Recherches féministes», 28, 2/9, pp. 9-32.

- Combahee River Collective (1981). *A Black Feminist Statement*, in Anzaldua G. and Moraga C. (eds), *This Bridge Called My Back. Writings by radical women of color*, London, Persephone Press, pp. 210-218.
- Crenshaw, K. (1989). "Demarginalizing the Intersection of Race and Sex: A Black feminist Critique of Antidiscrimination Doctrine, Feminist Theory, and Antiracism Politics", in «University of Chicago Legal Forum», 1, pp. 139-67.
- Davis A. (2018). *Donne, razza e classe*, Roma, Alegre.
- Farris S.R. (2019). *Femonazionalismo. Il razzismo in nome delle donne*, Roma, Alegre.
- Mohanty C.T. (2012). *Femminismo senza frontiere. Teori, differenze, conflitti*, Verona, Ombrecorte.
- Rich A. (1986). *Notes toward a Politics of Location*, in Rich A., *Blood, Bread, and Poetry*, New York, W. W. Norton, pp. 210-231.
- Saïd E. (1983). *Travelling Theory*, in Saïd E., *The World, The Text, and The Critique*. Cambridge, Massachusetts, Harvard University Press, pp. 226-247.
- Saïd E. (2001). *Travelling Theory Reconsidered*, in Saïd E., *Reflections on Exile and Other Literary and Other Essays*, London, Granata.

## Gender and displacement in Jean Rhys's *Wide Sargasso Sea*

Debora A.Sarnelli<sup>1</sup>

### Aims of the contribution:

The paper aims at reading Jean Rhys's *Wide Sargasso Sea* (1966) as a story where gender and displacement are highly interrelated. It focusses on how the patriarchal domestic space fails to provide the security and protection it claims to offer.

### Description of the research

#### Introduction

"There is always the other side, always" (WSS, p.82) Antoinette declares in Jean Rhys's postmodern rewriting of the canonical novel *Jane Eyre* (1847). Charlotte Brontë's version is only one side of the story. It is the desire to give voice to the mad woman in the attic that drives Rhys to re-imagine the story of a subaltern character, a Jamaican woman, who has never had a place in the official history. Being a woman and a creole, she is subject to a double discrimination. *Wide Sargasso Sea* is shaped as an obligation to Bertha, coming from an author who has personally experienced the drama of colonialism. Rhys moves from the Eurocentric vision of the world and tells what has been omitted in *Jane Eyre*, allowing Bertha to address the reader and to narrate her life long before the fire of Thornfield Hall.

#### Materials and methods

Starting from Edward Said's *Orientalism* as a theoretical frame in approaching the issue of the female 'other', this study examines critically *Wide Sargasso Sea*'s female protagonist as the victim of both imperialism and patriarchal domination. For Said, the Orient, and in general the non-Western Other, is constructed through a series of stereotypical images and clichés according to which Europe is rational, developed, superior and masculine, whereas the non-European Other is perceived as irrational, backward, inferior, and feminine (Said, p. 40). These latter characteristics associate the woman to the colonized land.

Antoinette is a marginalised character. She pays the consequences of the bad choices made first by her stepfather and secondly by her husband, Mr Rochester. While he is the personification of British imperialistic power, she exemplifies the colonies. They are one the opposite of the other: male/female, white/creole. Born in a society where marriage is conceived as a safe harbour, Antoinette's destiny is to marry for her security and safety. Her memories of her father, a slave owner, relate to the feeling of security: "My father, visitors, horses, feeling safe in bed – all belonged to the past" (WSS, p.5). After her father's death, the family is forced to live in misery despite the grandiosity of the estate. With her mother's second marriage to Mr Mason, the fate of the family seems to improve, but it is just an apparent serenity. Mr Mason's selfish attitude leads to the fire the slaves set to the property. Both Antoinette's and her mother's marriages prove to be the very reason of their enslavement and the starting point of their suffering and subsequent death. Both husbands fail to provide safe homes for women.

Mr Rochester is obsessed that Antoinette's ancestry may not be entirely white: "creole of pure English descent she may be, but they are not English or European either" (WSS, p. 40). As a real colonialist, he often describes the island as wild, menacing, and rich in colours "too much blue, too

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<sup>1</sup> University of Salerno, Horizon 2020 R&I PEERS.

much purple, too much green. The flowers too red" (WSS, p. 42). While Rochester feels vulnerable in such an exotic place, Antoinette's familiarity with the nature deepens the dichotomy between the two. She humanises the place: "I love it more than anywhere in the world. As if it were a person. More than a person" (WSS, p. 55). The knowledge of and the familiarity with the island provides Antoinette with the security she is not able to find in her husband. Rochester's desire to control her is exemplified in his desire to control the island. To achieve this, he must objectify the other through social annihilation. Antoinette's confinement in the attic of Thornfield Hall epitomises the ultimate act of supremacy on the woman body and on the conquered land.

Mr Rochester's oppression over his wife comes also from a linguistic point of view. Through an unwanted baptism, he renames Antoinette Bertha, forcing the creole woman to deny her identity and past: "Names matter, like when he wouldn't call me Antoinette, and I saw Antoinette drifting out of the window with her scents, her pretty clothes and her looking-glass" (WSS, p.117). The master's failure to understand Antoinette and the exotic landscape is also due to a linguistic incapacity: his language that sees the space of the Island as mappable and controllable is inevitably poor against the wilderness of the unknown. The only islander whose voice seems to stand up to the coloniser is Christophine, Antoinette's caretaker. Christophine's voice mingles English with the local dialect, the patois, as a way to denounce colonial power. However, her provocative figure as the Other, Spivak argues, is eventually removed from a novel which cannot "contain" her, because written "in the interest of the white Creole rather than the native" (Spivak, 1985, p. 253).

## Results

The issues of gender and race intermingle with a strong sense of displacement and alienation that pervade the novel since its beginning. Antoinette's alienation starts with her childhood: "They say when trouble comes close ranks and so the white people did. But we were not in their ranks." (WSS, p.5) and it continues throughout her life. Her desire for acceptance opens with Antoinette's attempt to befriend Tia, a black girl of her same age, but the friendship ends through an act of violence. She struggles to be accepted by the local community. Being a creole with white skin, she is considered neither Western nor indigenous. White cockroach or white nigger are the labels the locals use for her and her family. This condition of 'in-betweenness' continues when she marries Mr Rochester. In England, her marginalisation endures and so does her 'Otherness'. This precarious sense of belonging is epitomised by the mirror, a recurrent figure within the novel.

The space of attic of Thornfield Hall, Antoinette's prison, recalls the space of the house of her childhood. The two fires of the novel connect these places. The slaves that burn the master's property, symbol of white Western imperialism, and Antoinette's fire to Rochester's house, symbol of male domination, epitomise the longing for freedom, albeit self-destructive. Significantly, the parrot Coco dies in the fire set by the Jamaicans, not being able to escape. Mr Mason had previously clipped his wings, in the attempt to domesticate its wild nature. Likewise, Mr Rochester has attempted to domesticate Antoinette. The final fire, however, allows the protagonist to control finally her own life and destiny.

## Conclusions

In conclusion, through the retelling, from 'the other side', of a canonical English novel, Rhys encourages the readers to investigate what remained obscured in *Jane Eyre*. Rhys destroys the Victorian cult of domesticity by suggesting that Bertha's madness is due to an abusive English man. The message is clear: there are other voices besides the European ones.

## References

Gilbert S. and Gubar S. (1979). *The Mad Woman in the Attic: The Woman Writer and the Nineteenth-Century Literary Imagination*. New Haven, Yale University Press.

Maurel S. (2009). "The Other Stage: from Jane Eyre to Wide Sargasso Sea" in «Brontë Studies», 34, 2, pp.155-161.

Qawas R. (2008). "The Politics of Gender, Class and Race in Jean Rhys's Wide Sargasso Sea". in «Dirasat, Human and Social Sciences», 35.2, pp. 365-379.

Rhys J. (1997). *Wide Sargasso Sea*, London, Penguin Books.

Said E. (2003). *Orientalism*, London: Penguin Classics.

Spivak G.C. (1985). "Three Women's Texts and a Critique of Imperialism", in «Critical Inquiry» 12, 1, pp. 243-261.



## Forced gender and social roles in the reading of *mythos* – and learning to re-read ambiguity

Judith M. Crews

### Aims of the contribution:

- To observe how “texts” (specifically, traditional tales) are read and received with unconscious and largely “forced” biases concerning gendered roles, and how this reading essentially sabotages the symbolism of the text.
- To investigate a select body of texts – traditional literature, folklore, oral traditions – in order to re-examine the reading strategies that would allow the authentic gendered dynamic of the text to be released.
- To suggest a potential (but urgently necessary) new teaching of reading itself, from the earliest years with children’s readings of traditional tales, taking into consideration how implicit gendered role bias insidiously grafts itself into the interpretation of the texts to produce a false social discourse and skewed roles for all genders.

### Description of the research

#### Introduction

It can be argued that the traditional literature deriving from “μῦθος” – “mythos” as myth, fable, oral traditions, folk tales, fairy tales – springs from what C.G. Jung termed the *collective unconscious*, representing on the level of the community what the dream represents for an individual person as the expression of the her/his/their own individual unconscious. It will be useful to re-examine the way in which traditional fairy tales have been read and received as vehicles of unconscious biases concerning gendered roles, which then graft themselves onto the collective unconscious itself and continue to pervade social gender stereotypes that are false.

As early as the 6th century BCE in Greece, an individual (who may be legendary) named Aesop recited anthropomorphic fables (stories) using chiefly animals as the main actors, but there are also fantastic creatures, powers of nature or inanimate objects, used as the personae in brief moral tales intended to teach a lesson to the listeners. One may compare the fable to parables concerning the intent; this latter literary genre, however, excludes anthropomorphism and uses only *H. sapiens* as the actors. Such fables and stories are found universally among human societies and include sacred texts, morality plays, and tales that would evolve later into what we now call “fairy tales”, chiefly intended for children.

A case to be examined is the “prince/princess fairy tale”, with the seemingly rigidified gendered roles of “captive” female and “rescuing” male – everyone familiar with European literature has encountered the Knight in Shining Armor who rescues any number of victim Princesses (Snow White, Rapunzel, Cinderella, etc.) in the collections of fairy tales published by Charles Perrault in the 17th century, and the Brothers Grimm in the 18th. The tales themselves are probably far more ancient than their publication date and it can be postulated that they circulated freely throughout Europe long before.

## Materials and methods

Selected texts from Aesop's *Fables*, 6th c. BCE; Charles Perrault, 1695, *Tales and Stories of the Past with Morals (Histoires ou Contes du Temps passé)*, subtitled *Tales of Mother Goose (Les Contes de ma Mère l'Oye)*; and The Brothers Grimm, *Grimms' Fairy Tales*, originally known as the *Children's and Household Tales*, 1812, will be examined. Symbolic analysis, as elaborated by Jung, will be applied to reconstruct the feminine/masculine dynamic operating in traditional and fairy tale literature, and will be compared to the *anima/animus* anthropomorphic archetypes of Jungian theory.

## Results

A detailed "re-reading" of one selected fairy tale and applying the analytical method will demonstrate that far from being a "binary opposition", the *conjunction* and *recombined resolution* of the archetypes in what appears to be "marriage" produces a symbolic transformation at the psychic level of the individual. Other illustrations will be briefly mentioned. The societal phenomenon of keeping both gender and sexuality at bay and out of sight will be illustrated by examples drawn from Mme de Lafayette, *La Princesse de Clèves* (1678); characters created by William Faulkner and Toni Morrison in the 20th c.; and David Foster Wallace, *Infinite Jest* (1996).

## Conclusions

A "new re-reading" is proposed based on a methodological approach to the text that will, first, expose that literary studies based in the past on patriarchal definitions of fictional characters as "real people" in everyday life and on a purely surface level has produced "false texts" and strengthened gender bias (both unconsciously and very strongly consciously), and demonstrate how the literary canons set in patriarchal institutions have eviscerated the archetypal symbolism operating through the texts themselves – for good reasons, from the point of view of patriarchy, as the symbolic meaning of the texts lead to ambiguity, uncertainty and personal liberation in the form of individuation. It can be argued that a symbolic analysis at the archetypal level is necessary for all oral and traditional texts precisely to preserve their role in maintaining "difference/differance" (to use Derrida's terminology) in the transformational energy released when bringing the collective unconscious to the individual level in the construction of the Self (Jung's term) and in the transmission of true knowledge, including the dynamics, violence, and ultimately healing therapeutic values of the text freed from patriarchal interpretation. This is the ultimate interpretation of the "princely marriage" that has so often been "mis-read" (intentionally) in literary studies up to now.

## References

- Chambers R. (1984). *Story and Situation: Narrative Seduction and the Power of Fiction*. Ann Arbor, University of Michigan Press.
- Jung C.G. (1956). *Symbols of Transformation. An Analysis of the Prelude to a Case of Schizophrenia*, . 2nd ed. Tr. R.F.C. Hull., Bollingen Series XX, vol. 5. Princeton, Princeton University Press.
- Jung C.G. (1969). *The Structure and Dynamics of the Psyche*. 2nd ed. Tr. R.F.C. Hul.I, Bollingen Series XX, vol. 8. Princeton, Princeton U. Press.
- Jung C.G. (1968). *The Archetypes and the Collective Unconscious*. 2nd ed. Tr. R.F.C. Hull., Bollingen Series XX, vol. 9, part 1. Princeton, Princeton U. Press.

Jung C.G. (1977). *The Symbolic Life. Miscellaneous Writings*. Tr. R.F.C. Hull. Bollingen Series XX, vol. 18. London, Routledge & Kegan Paul.

Jung C.G. (2009). *Liber Novus (The Red Book)*, New York, W.W. Norton & Company.

# The history of Italian women between conciliation of times and welfare policies: from the end of Second World War to the present.

Maria Rosaria Pelizzari<sup>1</sup>

## Aims of the contribution

This paper aims at providing a long-term gaze at the issue of conciliation of personal, family and work life of Italian women, from the end of the Second World War to the present. In what way can the analysis of private and work times contribute to the knowledge of women's history and to contemporary history? What are the moments of continuity and the turning points? Which differences and similarities can be identified between North and South of Italy and within the various areas of the South? What are the cultural models of female work that characterized the long republican post-war period? How can the gender perspective provide an interpretation of social and cultural history that helps us to better understand our present?

## Description of the research

### Introduction

Historical research has now reconstructed a picture of work and domestic times of both women and men much more complex and articulated than the way it was analysed a few decades ago. For what concerns Italy, until the 1990s the historiographic panorama, unlike the Anglo-Saxon one, was marked by strong delays, above all on the issues of politics and women's work, despite the fact that a rich production of sociological and economic type already existed on these subjects. A growing historiographical interest began to be recorded, from the early Nineties, that analysed, above all, the methods and values of the female presence in the working world, making gender hierarchies visible and explicit.

During the twentieth century, the working world in Italy has long been declined as a masculine universe. The function of the breadwinner man has characterized the separation of gender roles within the family, generating and rooting cultural behaviors and mental attitudes, not only in the first half of the century. Even during the second post-war period, in fact, male centrality was never questioned. The long journey that led the female work to the recognized visibility, had full legitimacy only from the late 1970s, with all the contradictions and the undoubted differences between North and South. It is a story that embraces different cultures that know their specific sedimentation in time between modernity and tradition.

### Materials and methods

The study will discuss the following topics, analyzing, in the frame of the last seventy years, different areas of the Campania Region in comparison with other Southern Regions:

- The reality of the working world in the South of Italy, analogies and diversities from area to area.
- The invisibility of female work and its relationship with care work.
- Female work / male work: cultural and social specificities.
- "The work is masculine" or the man breadwinner in the tradition of some historical male factories, Ilva / Italsider in Naples and Taranto.
- The trade union culture of women's work.
- Welfare policies and its impact on families between ISTAT data and sociological surveys.

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<sup>1</sup> University of Salerno, Horizon 2020 R&I PEERS.

## Results

The issue of conciliation is an important key to understanding the social and cultural history of contemporary Italy. Only a long-term reading can enrich the analysis of the present. In this way, valid indicators are obtained to direct labour policies and those of the welfare state. The realization or not of the work-life balance has historically influenced the lives of Italian women, particularly those of Southern Italy. It has influenced, in different ways and at different times, the work culture and also men, women and families. This contribution provides an interpretation of the real repercussions of work-life balance in the organization of work, in the family structure, in mental attitudes and in the typical behaviours common in Southern Italy in relation to national welfare policies.

## Conclusions

The conclusions mainly answer the following questions: Is the work-life balance really an accelerator towards equality? In what way is the conciliation of private life and work good for families? Can it change family burdens and dynamics? If companies talk more and more about family-friendly methods, the central point is to understand not only the company's commitment in pursuing them concretely, but also the impact that these methods have on women's work. If we take into consideration the last fifteen years, we note that, within companies, it has become increasingly important to consider the issue of the relationship between personal and professional life of the employees. This trait emerged as a consequence of the following aspects: the introduction of new technologies, the collapse of traditional geographical and sector boundaries, the transition from product to service logics, the growing number of working women and the aging of the employed population. According to some analysts, the work-life balance would ultimately concern sustainability and survival, that is the value of life itself.

## References

Groppi A. (ed.) (1996). *Il lavoro delle donne*, Roma-Bari, Laterza.

Guidi L. and Pelizzari M.R. (eds) (2013). *Nuove frontiere per la Storia di Genere*, Università degli Studi di Salerno in coedizione con Libreriauniversitaria.it, 3 voll.

Chianese G. (ed) (2008). *Mondi femminili in cento anni di sindacato*, Roma, EDIESSE.

Beccagli B., Bonazzi G. and Saraceno C. (1991). *Donne e uomini nella divisione del lavoro: le tematiche di genere nella sociologia economica*, Milano, Franco Angeli.

Garofalo M.R., and Marra M. (eds) (2013). *Sentieri di eguaglianza di genere. Approcci di valutazione a confronto*, Roma, Natan.

Maggiolo V. and Gazzetta L. (1999). *Il lavoro femminile in Italia: la donna italiana nella famiglia, nella società, nel mondo del lavoro all'epoca delle grandi trasformazioni industriali*, Firenze, La Nuova Italia.

European Parliament (1995) *I diritti della donna e il trattato sull'unione europea*, BLS – CREW – SPL, Strasbourg.

European Parliament (1995). *Organizzazioni incaricate della promozione della parità tra uomo e donna negli stati membri e nelle istituzioni dell'unione europea*, BLS – CREW – SPL, Strasbourg,

European Parliament (1998). *I diritti della donna ed il trattato di Amsterdam*, BLS – CREW – SPL, Strasbourg.

Pelizzari M.R. (2013) *Equilibrismi: i tempi delle donne tra storia e cultura*, in Garofalo M.R., and Marra M. (eds), *Sentieri di eguaglianza di genere. Approcci di valutazione a confronto*, Roma, Natan pp. 234-261.

## **Brief history of an institutionalized discrimination: women's football in Italy between exclusions words of hatred and new achievements**

Stefania Lorenzini<sup>1</sup>

### **Aims of the contribution:**

The contribution aims to briefly reconstruct the history of women's podatory activity in Italy to disclose discrimination against girls and women in an area that has so far been little known. Among exclusions, contempt and words of hatred for many decades a discrimination has been consummated by law to which we are trying to remedy only today.

### **Description of the research**

#### **Introduction**

The football universe, which until now has been represented almost exclusively in the masculine, except for the composition of the supporters that also includes a female audience and for the few experts who have conquered spaces of expression on television talk shows commenting on the performances of soccer players. However, if the latter, by definition, have been conceived, presented, praised or criticized, mythologized in the masculine, in fact the football side of women has existed for some time and the world championships held in France between June and July 2019, in which it took part even the Italian women's national team showed it to most people as it hadn't happened before. Therefore, before the last international event, the players already existed, also in Italy; but they were hardly ever talked about: their absence in the media world has long condemned them to non-existence / inconsistency in the real world and in the common sense. The contribution aims to focus on the reasons for this absence despite their existence.

#### **Results**

In actuality, the figure of women footballers, especially in the Italian context, shows the aggressive consequences of "violating the taboo of strong sex taboos: football is not a sport for young ladies, it claims the male soccer world" (Aliberti, 2018). The phenomenon undergoes forms of racism and sexism that aspire to make the wall of male chauvinism, male and sometimes also female. But not only that, in fact, it reveals the history of a discrimination (Masserdotti, 2017), which could seem a trifle if compared to the dramatic conditions suffered by women in so many contexts (Lorenzini, 2017; 2018), but that is a glaring example of institutional racism and sexism that makes aversion to women an exclusion by law.

#### **Conclusions**

Recently the long awaited turnaround: women athletes for the first time will be able to officially become professional athletes also under the contractual aspect. The Budget Committee in the Senate has just approved an amendment to the maneuver that facilitates companies and sports federations in the transition to professionalism of women, equating them to male colleagues. This is an important step, however the responsibilities to which we are called on the pedagogical and educational levels are wide and require awareness, widespread, theoretical and practical commitment, to face systemic and multi-factorial discrimination, long history and deep socio-cultural rooting.

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<sup>1</sup> Department of Education Studies (EDU), University of Bologna.

## References

- Aliberti F. (2018). *Calcio femminile, il CT della Nazionale che va ai Mondiali Milena Bertolini: "Più donne allenatrici per le squadre maschili? I tempi sono maturi"*. [www.ilfattoquotidiano.it/2018/07/13/calcio-femminile-il-ct-della-nazionale-che-va-ai-mondiali-milena-bertolini-piu-donne-allenatrici-perle-squadre-maschili-i-tempi-sono-maturi/4490044](http://www.ilfattoquotidiano.it/2018/07/13/calcio-femminile-il-ct-della-nazionale-che-va-ai-mondiali-milena-bertolini-piu-donne-allenatrici-perle-squadre-maschili-i-tempi-sono-maturi/4490044)
- Bartoli C. (2012). *Razzisti per legge. L'Italia che discrimina*, Bari, Laterza.
- Bolognesi I. and Lorenzini S. (2017). *Pedagogia interculturale Pregiudizi, razzismi, impegno educativo*, Bologna, Bononia University Press.
- Burgio A. (2010). *Nonostante Auschwitz. Il «ritorno» del razzismo in Europa*, Roma, DeriveApprodi.
- Di Salvo G. (2018). *Le Pioniere del Calcio: la storia di un gruppo di donne che sfidò il regime fascista*, Torino, Bradipolibri.
- Guillaumin C. (1992). *Sexe, race et pratique du pouvoir*, Paris, Côté-femmes éditions.
- Lorenzini S and Cardellini M. (2018). *Discriminazioni tra genere e colore. Un'analisi critica per l'impegno interculturale e antirazzista*, Milano, FrancoAngeli.
- Lorenzini S. (2017). *Il colore rosa. Potere e problemi di un simbolo del femminile*, in Lopez A.G. (ed), *Decostruire l'immaginario femminile Percorsi educativi per vecchie e nuove forme di condizionamento culturale*, Pisa, ETS, pp. 21-44.
- Masserdotti F. (2017). *Il professionismo sportivo in Italia: storia di una discriminazione*. <http://www.sportallaroveschia.it/sar5/attualita-nuovi-articoli/non-una-di-meno/900-il-professionismo-sportivo-in-italia-storia-di-una-discriminazione>



# Surrogacy in Latin America: analysing regulating choices and ethical opinions on the matter

Emma Capulli<sup>1</sup>

## Aims of the contribution (poster)

The aim of this work is to share the results of the research on surrogacy in Latin America. Latin America was chosen for the variety of its regulatory frameworks, which are a useful starting point to reconsider the most important ethical issues related to the technology of surrogacy.

## Description of the case study

### Introduction

The approach chosen to tackle the reproductive technology is that proposed in Cooper and Waldby's analysis about bioeconomy. Based on these studies and on the marxist-feminist approach, an analysis of law frameworks was carried out, focused on the following aspects: how countries reacted to the possibility, brought about by ARTs and especially surrogacy, of overcoming the concept of heterosexual, single-nucleus family; what were the choices about commercial surrogacy; how was the carrier's body use seen, ethically-wise.

### Materials and methods

The process followed for this research started with detailing the law framework and cases developed in Argentina, Brazil and Mexico. Official documents have been translated and their content was reported. There has been then an attempt to understand the rationale behind laws and rulings by comparing them with the regulatory framework on body use and relevant sociological phenomena.

### Results

#### *Argentina. A gap in regulation bridged by case law*

The studies of Eleonora Lamm and other Argentinian bioethicists have led to the creation of the procreative will principle in the field of procreation. They state that the development of new technologies changed the concept of procreation «by increasing the importance of will and decreasing the value of genetic and biological heritage». In this context, where procreation is partially scraped of its biological and/or genetic association, will is the element that really matters to establish a reproductive bond.

Many laws have been proposed on surrogacy from 2007. However, none have entered into force and its regulation is currently entrusted to case law. To date, there are 40 rulings on surrogacy and so far they have been issued to: 31 heterosexual couples; 8 homosexual couples; 1 single. As for the bond between carrier and intending parents:

- in 40% of cases, there is a kinship;
- in 33% of cases, they are close friends;
- in 27% of cases, only a simple acquaintance is mentioned.

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<sup>1</sup> University of Insubria.

Rulings stress the nature of the relationship between carrier and parents, preferring the existence of a kinship, because the carrier must be moved by altruism without commercial or gainful purposes.

#### *Mexico. Heterogeneity and social conflict*

A federal law on surrogacy does not exist in Mexico. Therefore, the single States regulated it in different ways:

Coahuila and Querétaro forbade it explicitly. The research specifically analysed the State of Querétaro, trying to find the reasons behind the ban. The reason cannot stem from the need of a genetic bond between the child and the future intending parents, since the donation of sperm cells and the ovum is admitted. Neither it can be the growth of the embryo in the maternal womb, since the adoption of embryos is regulated. Therefore, the ban looks aimed to prevent the carrier and the future legal mother of the child from being separated

Tabasco and Sinaloa have legalized surrogacy. The study of surrogacy in the State of Tabasco has been helpful to further understand the practice of reproductive tourism. In fact, after Thailand and India forbade it to foreigners, the market has shifted to the State of Tabasco. Because of this, the State of Tabasco regulated the practice in these terms:

- access is limited to married and cohabiting heterosexual couples;
- all the contractors must be Mexican citizens;
- the surrogate must be a volunteer without lucrative or commercial purposes.

In the Federal District of Mexico City there is a draft law which has not entered into force yet, and establishes that: heterosexual couples, homosexual couples and singles can have access to surrogacy; the carrier must be related to one of the partners; the carrier can undergo the procedure only twice and cannot offer her ovum; the surrogate must be a volunteer without lucrative or commercial purposes.

#### *Brazil. Kinship as a guarantee of altruism*

Brazil was the first country in the world to require a kinship between future intending parents and surrogates. This regulation has been established by resolutions of the Federal Council of Medicine, and not by a legislative act: heterosexual couples, homosexual couples and singles can have access to surrogacy; the surrogate must be related to one of the partners within the fourth degree of kinship; if the surrogate is married or cohabitates, her husband or cohabitee must provide a written approval; the surrogate must be a volunteer without lucrative or commercial purposes.

### **Conclusions**

The research has shown that in Latin America the regulatory elements — which also provide the ethical connotation of surrogacy — are slowly converging towards a shared model.

As for the possibility to access to the procedure, the application of the procreative will principle leads to a significant extension for intending parents: singles, heterosexual and homosexual couples, married and unmarried, can have access to it.

On the subject of surrogate's body use, the choice to request a kinship to ensure altruism appears to be increasingly shared. The body's legal framing in Western legal systems is tied to the principle that the human body and its parts shall not, as such, give rise to financial gain. With the help of Cooper and Waldby's studies, surrogacy has been looked at by putting it into the biomarket

sociological phenomenon framework. At the end of the last century, the convergence between the change in the concept of work and biomedical development gave rise to bio-capitalism, where the body's intellectual and biological functions are tradeable goods and services and the body itself takes part in the production process as a whole.

Currently, there is a thriving global *biomarket* involving the trade of reproductive cells and tissues, clinical experimentations, genetic and pharmaceuticals data markets and fertility services. That is why in the discussion, the standings advocating that giving a trade value to the reproductive capability of a woman damages her dignity, or the standings accepting surrogacy only on a selfless base still come off as weak.

In most European countries, tissues and cells are traded under many forms of «expenses refund», which are in fact real payments. Surrogacy perfectly fits into this process and clearly shows that there is a need to reshape the legal, social and philosophical categories we use to define the body and how to “put it to use”.

## References

Ballestero M. (2016). “Percorsi della differenza di genere. La maternità delle lavoratrici da funzione essenziale a fattore di discriminazione”, in «Notizie di Politeia», Anno XXXII,124, pp. 7–18.

Balzano A. (2017). “In bilico tra mercificazione del biologico e autodeterminazione delle donne: oltre il divieto di surrogacy”, in «Notizie di Politeia», Anno XXXIII,128, pp. 22–41.

Bartolini Esparza M., Pérez Hernández C. and Rodríguez Alcocer A. (2014). *MATERNIDAD SUBROGADA: Explotación de Mujeres con Fines Reproductivos (EMFR)*, in Tapia Guitiérrez I., Tarasco Michel (eds), Early Institute, Ciudad de México.

Bruno D. et al. (2016). *Nuove genitorialità: la gestazione per altri. Temi e problemi*, in «Richard e Piggie», 24, 3, pp. 251-273.

Caporale C. et al. (2016). *Maternità surrogata: profili etici*, in «The future of Science and Ethics», febbraio,1, 1, pp. 78-85.

Carone N. (2016). *In origine è il dono, Donatori e portatrici nell'immaginario delle famiglie omogenitoriali*, Milano, Il Saggiatore.

Cooper M. and Waldby C. (2014). *Clinical Labor, Tissue Donor and Research Subjects in the Global Bioeconomy*, Durham, Duke University Press.

De Araujo N. et al. (2013). *Brazil*, in Trimming K., Beaumont P. (eds), *International surrogacy arrangements: legal regulation at the international level*, Oxford, Hart Publishing.

ECLAC (2006). *Derechos reproductivos en América Latina y el Caribe: situación actual y perspectivas*, Reunión de expertos sobre población, desigualdades y derechos humanos 27.

Fumagalli A. (2007). *Bioeconomia e capitalismo cognitivo. Verso un nuovo paradigma di accumulazione*, Roma ,Carocci.

Kemelmajer A., Herrera M. and Lamm E. (2013). “Ampliando el campo del derecho filial en el derecho argentino. Texto y contexto d las técnicas de reproducción humana asistida”, in «Revista de Derecho Privado», anno 1, N° 1, Ediciones Infojus, Ministerio de Justicia y Derechos Humanos de la Nación, marzo, 2012, p. 6, ciato in Juzgado Nacional Civil N° 86 de Ciudad de Buenos Aires.

Lamm E. (2013). *Gestación por sustitución. Ni maternidad subrogada ni alquiler de vientres*, Universitat de Barcelona, Barcelona Publicacions i Edicions.

Lamm E. (2012). "La importancia de la voluntad procreacional en la nueva categoría de filiación derivada de las técnicas de reproducción asistida", in «Revista de Bioética y Derecho», 24, pp. 76-91.

Luna F. (2012). *Y pasó un decenio: reproducción asistida y «sabor local»*. *Contexto y mujer en Latinoamérica*, in *Sobre Bioética y Género*, in Casado M. and Royes A. (eds), Barcelona, Civitas Ediciones, , pp. 215-231.

Martínez M. (2015). *Maternidad subrogada. Una mirada a su regulación en México*, in «Dikaion», 24, 2, pp. 353-382.

Quaini F. (2013). *Leading case sobre maternidad subrogada: primer fallo en la Argentina*, in «Microjuris».

# PARALLEL SESSION 2. THE INCLUSION OF THE SEX/GENDER VARIABLES IN RESEARCH: ECONOMICS, BUSINESS AND FINANCE

**Session chaired by Daniela Bolzani and Elsa Fontainha**

University Cattolica del Sacro Cuore, Milan; Lisbon School of Economics  
& Management-Universidade de Lisboa

## **Why aren't there more women in start-ups? An empirical analysis among teenagers**

Barbara Engels<sup>1</sup>

### **Aims of the contribution**

This study (work in progress) enhances the search for reasons for the female underrepresentation in the start-up world by looking at individuals that are in a phase of their life where the foundations for entrepreneurship are being laid, namely at teenagers aged 11 to 21. By analyzing how they view entrepreneurs and how they assess their skills that are relevant for an entrepreneurial spirit, this study tries to explain the discrepancy between the high general business founding and the extremely low start-up activity of women. The reasons for this discrepancy might be part of the solution to a higher innovation activity of women and hence constitute an opportunity to more thoroughly exploit the entrepreneurial potential of women.

### **Description of the research**

#### **Introduction**

Women are underrepresented in the start-up world. In Germany, only 4 percent of start-ups have been founded by women since 2008. However, the share of women that found new businesses not considered as start-ups is comparatively high, amounting to about 40 percent. In search of reasons for this imbalance, this paper examines teenagers' perceptions of founders and entrepreneurship and highlights differences in girls' and boys' assessment of their skills and self-efficacy.

#### **Materials and methods**

The analyzed sample consists of 2,221 students between the ages of 11 and 21 from all over Germany, including 1,173 girls and 1,048 boys. The average age is 16.8 years. All respondents participated in the JUNIOR program in the 2018/2019 school year. At the heart of the JUNIOR program is the creation of a student company (JUNIOR, 2019). Accordingly, the sample that participated in an online survey mostly consists of students interested in business and entrepreneurship. Besides descriptive analyses, chi-squared tests on the means of the subsamples of female and male respondents were conducted.

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<sup>1</sup> German Economic Institute.

## Results

Entrepreneurs enjoy a good reputation among the students, especially among female students (see Fig. 1). Chi-squared tests on the means of the subsamples, however, show striking differences between girls and boys (Table 1). Most remarkably, more than 50 percent of the boys can imagine having their own start-up in the future, but only about 35 percent of the girls see themselves as potential future start-up entrepreneurs. While the positive perspective on entrepreneurship is directly translated to the boys' own preferences, girls view entrepreneurship positively, but do not regard it as positive or desirable for themselves.

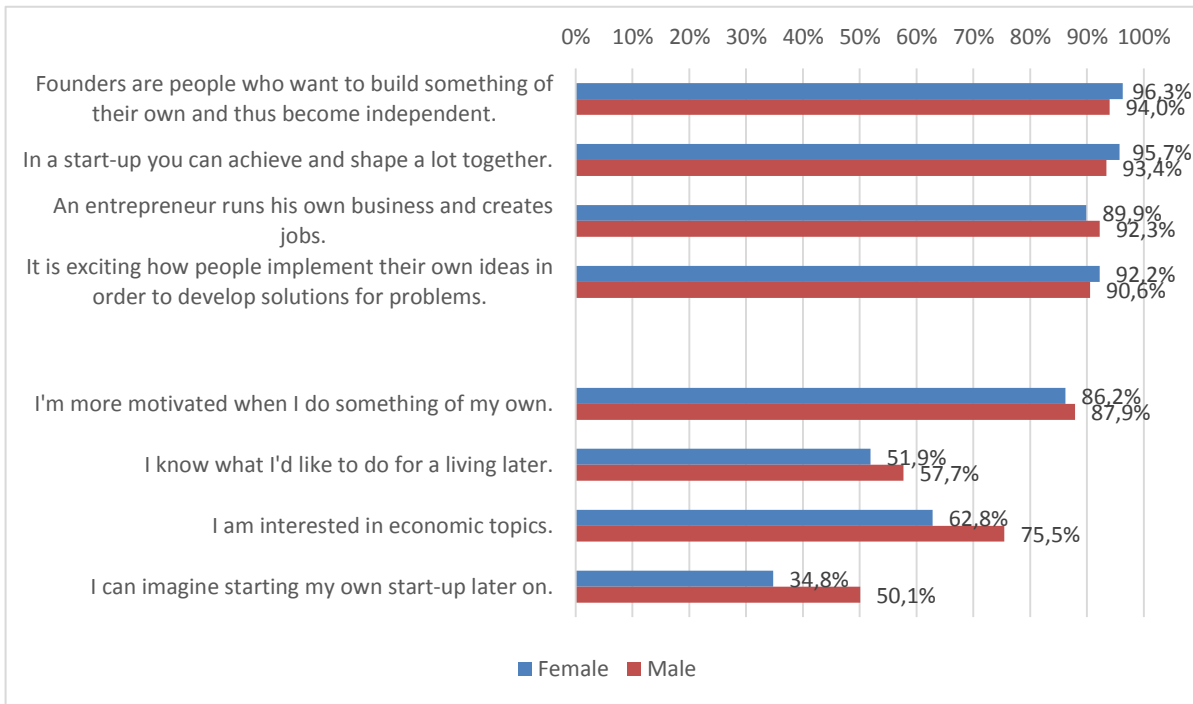


Figure 1: Views on entrepreneurship and self-reflection. Share of female/male individuals that agree with the respective statement, in percent of all female/male individuals. Source: own visualization based on JUNIOR 2019 data; n=2,221

Table 1: Entrepreneurship: females vs. males

Results of chi-squared tests; difference of the mean values of agreement to the respective statement depending on whether the respondent is female or male. A positive value indicates that the female respondents show a higher degree of agreement with the statement than the male respondents.

Statement	Difference in means
<b>Entrepreneur's reputation</b>	
Founders are people who want to build something of their own and thus become independent.	0.023**
In a start-up you can achieve and shape a lot together.	0.023**
An entrepreneur runs his own business and creates jobs.	-0.024**
It is exciting how people implement their own ideas in order to develop solutions for problems.	0.017
<b>Self-reflection</b>	

I'm more motivated when I do something of my own.	-0.017
I know what I'd like to do for a living later.	-0.058***
I am interested in economic topics.	-0.126***
I can imagine starting my own start-up later on.	-0.153***

\*\*\*/\*\*/\*: significant at the 1-/5-/10-percent level

Source: own visualization based on JUNIOR 2019 data

A multitude of factors can have an influence on the entrepreneurial spirit of an individual (Röhl, 2019; Lindquist, 2013). According to the Theory of Planned Behavior (Ajzen, 1985), the entrepreneurial spirit or attitude is formed by self-efficacy and a sufficient amount of knowledge, skills and experience (Ivanova et al, 2018, 24). Self-efficacy is the belief individuals have in their own abilities, specifically their ability to meet the challenges ahead of them and complete a task successfully (Akhtar, 2008). Differences in self-efficacy between girls and boys might hence contribute to the explanation of differences in entrepreneurial spirit and hence differences in the willingness to found a start-up identified in the underlying sample of surveyed students.

In the JUNIOR survey, both cognitive and non-cognitive skills were analyzed using several statements (Figure 2). The descriptive statistics show that students are generally confident about their skills. For each skill reflected in the statements, except for sociability, there is a majority of students that think that they are good at the respective skill. All in all, girls rate their skills better than the boys. This result is supported by chi-squared tests (Table 2). Girls state significantly more often than boys state that they are good at planning, completing, and distributing tasks, that they are entrusted with responsible tasks, that they are team works and like to approach strangers. Boys, on the contrary, more often than girls say that they have business knowledge, creativity and flexibility. It is exactly these last two dimensions that distinguish start-up entrepreneurship from general entrepreneurship.

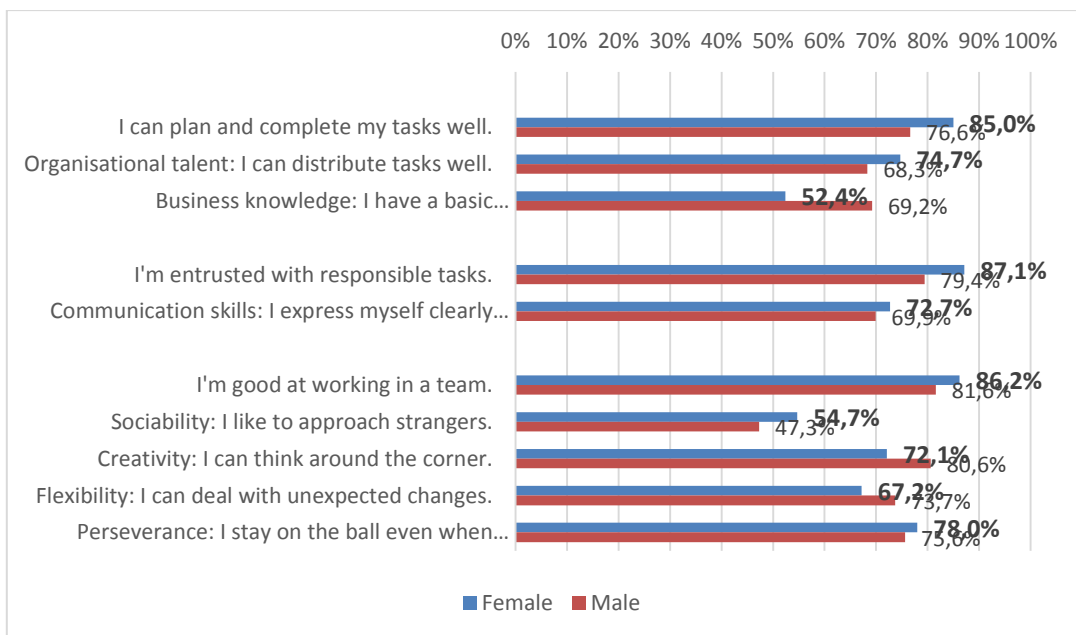


Figure 2: Self-assessment of skills. Share of female/male individuals that agree with the respective statement, in percent of all female/male individuals. Source: own visualization based on JUNIOR 2019 data

Table 2: Skill assessment: female vs. male

Results of chi-squared tests; difference of the mean value of agreement to the respective statement depending on whether the respondent is female or male. A positive value indicates that the female respondents show a higher degree of agreement with the statement than the male respondents.

Statement	Skill type	Difference in means
I can plan and complete my tasks well.	cognitive	0.084***
Organizational talent: I can distribute tasks well.	cognitive	0.064***
Business knowledge: I have a basic understanding of business.	cognitive	-0.167***
I'm entrusted with responsible tasks.	cognitive/ non-cognitive	0.077***
Communication skills: I express myself clearly and am understood.	cognitive/ non-cognitive	0.028
I'm good at working in a team.	non-cognitive	0.046***
Sociability: I like to approach strangers.	non-cognitive	0.074***
Creativity: I can think around the corner.	non-cognitive	-0.085***
Flexibility: I can deal with unexpected changes.	non-cognitive	-0.065***
Perseverance: I stay on the ball even when problems arise.	non-cognitive	0.024

\*\*\*/\*\*/\*: significant at the 1-/5-/10-percent level

Source: own visualization based on JUNIOR 2019 data

## Conclusions

The study indicates that the basic requirements for more women in start-ups are met: Girls see entrepreneurship as something desirable. Nevertheless, only one third of the surveyed girls can imagine founding a start-up, compared to half of the boys. The study's result that girls less often than boys report to have certain creativity and flexibility skills contributes to the explanation why the proportion of women that found (less innovative, less scalable) businesses is comparatively high while the proportion of women that found (more innovative, more scalable) start-ups is very low.

It is not the lack of entrepreneurial spirit as such, it is a different perception of self-efficacy and hence confidence in the areas of creativity and a flexible mindset, that leads to girls being less eager to found a start-up and hence women being less active in the start-up world. It needs to be clear, however, that these results do not fully explain the low proportion of women in start-ups. The differences between boys and girls revealed in the study are not large enough to be accountable for this imbalance – and there are many factors such as the socio-economic environment that are not considered in this study. Growing older, girls might encounter additional challenges such as reconciling work and family life (Hirschfeld et al., 2019). Nonetheless, the results point to initial starting points for the promotion of women.

In order to increase the share of women in start-ups, their confidence especially regarding these non-cognitive skills needs to be supported. Mentoring and a respective education starting at a young age could serve as possible solutions. Increasing the share of women start-ups is a necessity since economy and society are already foregoing great entrepreneurial potential.



## References

Ajzen I. (1985). *From Intentions to Actions: A Theory of Planned Behavior*, in Kuhl J., Beckmann J. (eds) *Action Control. SSSP Springer Series in Social Psychology*, Berlin-Heidelberg Springer, pp. 11-39.

Akhtar M. (2008). "What is self-efficacy? Bandura's 4 sources of efficacy beliefs", in «Positive Psychology». <http://positivepsychology.org.uk/self-efficacy-definition-bandura-meaning/>

Hirschfeld A., Mütze J. and Gilde J. (2019), *Female Founders Monitor*. [https://deutscherstartupmonitor.de/fileadmin/ffm/ffm\\_2019/studie\\_ffm\\_2019.pdf](https://deutscherstartupmonitor.de/fileadmin/ffm/ffm_2019/studie_ffm_2019.pdf)

Ivanova M., Michels J. and Mittelstädt E. (2018). *Endbericht. Unternehmergeist in die Schulen – aktuelle Trends und Entwicklungen*, Nachhaltigkeit der Projekte, Transparenz und Erfolgsindikatoren, Studie im Auftrag des Bundesministeriums für Wirtschaft und Energie, Düsseldorf.

JUNIOR (2019). *Wirtschaft erleben-in einer JUNIOR Schülerfirma*. <http://junior-programme.de/%20junior-schueler-erleben-wirtschaft/>

Lindquist M.J., Sol J. and Van Praag M. (2013), "Why do entrepreneurial parents have entrepreneurial children?", in «Journal of Labor Economics», 33, 2, pp. 269-296.

Röhl K. H. (2019). "Entrepreneurship: a comparative study of the interplay of culture and personality from a regional perspective", in «Journal of Small Business & Entrepreneurship», 31, 2, pp. 119-139.

# Job positions in entrepreneurial founding teams. The role of gender

Francesco Barbini<sup>1</sup>, Marco Corsino<sup>1</sup>, Paola Giuri<sup>1</sup>, Laura Toschi<sup>1</sup>

## Aims of the contribution

Entrepreneurship scholars have proved that gender does matter (Jennings and Brush, 2013). Our paper has two aims. First, we assess whether characteristics of founders (i.e., previous work expertise, age, educational background) and contextual factors (i.e., discipline of competence, year of inception) predict the formation of entrepreneurial teams with a predominance (or not) of female entrepreneurs. Second, we analyze the internal structure of entrepreneurial teams, in terms of job positions by women entrepreneurs in order to assess the presence of a gender bias in the allocation of female roles within ETs.

## Description of the research

### Introduction

Entrepreneurial team (hereafter ET) is a central phenomenon in entrepreneurship research (Cole, 1959) with about 80% of new ventures founded by groups of two or more individuals (Aldrich et al., 2004; Kollman et al., 2017; Lechler, 2001; Ruef, 2010; Watson et al., 1995). Extant literature indicates that ventures founded by teams perform better (in terms of survival rate, growth and innovation) than those started by single founders (Cooper and Gimeno-Gascon, 1992; Lechler, 2001; Stam and Schutjens, 2006; Yang and del Carmen Triana, 2017; Zhou and Rosini, 2015). This is explained by a high degree of variety of resources and capabilities of team members (Kamm and Nurick, 1993; Sandberg, 1992).

If previous works have focused on the outcome implications of ETs, limited knowledge is still available on the process of team formation. When co-founders come together to build a new venture an important choice they are asked to take is deciding how to structure the organization by formalizing task positions (Jung et al., 2017). The identification of task-roles and responsibilities (Pugh, et al., 1968) and the allocation of job positions among founders are, thus, important aspects of structuring new organizations.

With our paper, we intend to join this conversation, by introducing the gender lens in order to assess if venture creation and job roles allocation within new organizations are associated to particular behavioral and sociological characteristics of individuals.

### Materials and methods

Our empirical analysis is based on data about proponents and entrepreneurial ideas submitted to Nuove Idee Nuove Imprese (NINI), an Italian business plan competition organized by an association comprising local Chambers of Commerce, industrial associations, bank foundations, and universities located in the Province of Rimini and the Republic of San Marino. Since its foundation in 2002, NINI has gathered 400 business plans and awarded more than €500,000 to 43 projects. For the purpose of our paper, we exploit a dataset of 161 new business ideas (and 560 team members) presented at the NINI competition from 2010 to 2017 .

The empirical investigations of this paper rely on variables at the project and individual levels. We conduct a quantitative analysis using data about the entrepreneurial ideas retrieved from the accompanying business plan submitted at the NINI call for ideas. We integrate these data with the

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<sup>1</sup> Department of Management, University of Bologna.

characteristics of the proponents codified from their CVs: gender, age, citizenship, education, professional experience and roles within the entrepreneurial team.

To address our research question, we first provide a set of descriptive statistics and, then, we draw on a methodology used by Ellison and Glaeser (1997) to analyse geographic industry concentration and adopted by Kaiser and Muller (2015) to study the composition of new venture teams and the presence of a gender bias. According to this approach, we compare the degree of heterogeneity computed for the actually observed teams in the sample with a benchmark, namely, a “random matching” generated through simulations, comprising a random assembly of startup teams among the participants we observe in our data. Such a comparison enables us to establish if “the observed degree of heterogeneity is statistically significantly different from the degree of heterogeneity in a situation where teams are randomly assembled. Thus, our benchmark is a situation where founders do not systematically look for teammates” (Kaiser and Muller, 2015, p.793).

## **Results**

Our preliminary results show that 32.68% of teams are founded by female entrepreneurs. In terms of distribution, there is not a clear trend over time for the participation of women in venture creation, with values ranging from 23.8% to 46.3%. In terms of team size, instead, our findings show a lower share of women in larger teams (those composed by five and more individuals). When we analyze the distribution of female entrepreneurs in terms of educational level, lower shares of women with bachelor degrees (25%) and PhD (23.33%) characterize our sample, with the highest value (60%) for the secondary school. In terms of disciplines of education, the majority of female entrepreneurs of our sample belong to humanities and natural sciences, while ICTs and engineering are the less represented. Finally, when we consider the effect of other mechanisms in support of entrepreneurship, we find a lower share of women in projects in incubators and a lower share of incubated projects with women in the ET.

The next steps of the analyses will require the cleaning of data for professional background in order to assess, first, how actual and previous job experiences can be antecedents to ET formation with women presence and, second, whether the distribution of job positions in the ETs of our sample is different from a random distribution.

## **Conclusions**

Entrepreneurship needs to be contextualized and gender provides a way of understanding the role of sociocultural dynamics in business ventures and team dynamics (Welter, 2011). Women have diverse experiences, expectation, motivations that are reflected in their entrepreneurial activities (Henry et al. 2016). The goal of the paper is to investigate the existence of a gender bias within entrepreneurial activities and to highlight which factors may explain the role of females in entrepreneurial teams. The paper has important policy implications related to the role of female in entrepreneurial teams.

## **References**

Aldrich H.E., Carter N. M. and Ruef M. (2004). “With very little help from their friends: Gender and relational composition of nascent entrepreneurs’ startup teams”, in «Frontiers of Entrepreneurship Research», pp. 156-169.

Cole, A. H. (1959). *Business enterprise in its social setting*, Cambridge, Harvard University Press.

- Cooper A. C. and Gimeno-Gascon F. J. (1992). *Entrepreneurs, process of founding and new firm performance*, in Sexton D. L. and J. D. Kasarda D. L (eds), *The state of the art of entrepreneurship*, Boston, PWS-Kent, pp. 301-340.
- Ellison G., and Glaeser E.L. (1997). "Geographic concentration in US manufacturing industries: a dartboard approach", in «Journal of Political Economy», 105, 5, pp. 889-927.
- Henry, C., Foss L. and Ahl H. (2016). "Gender and entrepreneurship research: A review of methodological approaches", in «International Small Business Journal», 34, 3, pp. 217-241.
- Kaiser U. and Müller B. (2015). "Skill heterogeneity in startups and its development over time", in «Small Business Economics», 45, 4, pp. 787-804.
- Kamm J. and Nurick A. (1993). "The stages of team venture formation: A decision making model. Entrepreneurship", in «Theory and Practice», 17, 2, pp. 17-27.
- Kollman T., Stöckmann C., Meves Y. and Kensbock J.M. (2016). "When members of entrepreneurial teams differ: linking diversity in individual-level entrepreneurial orientation to team performance", in «Small Business Economics, 48, 4, pp. 843-859.
- Kollman T., Stöckmann C., Meves Y. and Kensbock J.M. (2016). "When members of entrepreneurial teams differ: linking diversity in individual-level entrepreneurial orientation to team performance", in «Small Business Economics», 48, 4, pp. 843-859.
- Jennings J.E. and Brush C.G. (2013). "Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature?", in «The Academy of Management Annals», 7, 1, pp. 663-715.
- Lechler T. (2001). "Social interaction: A determinant of entrepreneurial team venture success", in «Small Business Economics», 16, pp. 263-278.
- Pugh D.S., Hickson D.F. and Turner C. (1968). "Dimensions of organization structure", in «Administrative Science Quarterly», 13, 1, pp. 65-105.
- Ruef M. (2010). *The entrepreneurial group: Social identities, relations, and collective action*. Princeton, Princeton University Press.
- Sandberg W.R. (1992). "A strategic management's potential contributions to a theory of entrepreneurship", in «Entrepreneurship Theory and Practice», 16, pp. 73-90.
- Stam E. and Schutjens V. (2006). *The fragile success of team start-ups*, in Oakey R., During W. and Kauser S. (eds), *New technology-based firms in the new millennium (Vol. V)*, Oxford, Elsevier Science. pp. 219-233.
- Watson W.E., Ponthieu L.D. and Critelli J.W. (1995). "Team interpersonal process effectiveness in venture partnerships and its connection to perceived success", in «Journal of Business Venturing», 10, 5, pp. 393-411.
- Welter F. (2011). "Contextualizing Entrepreneurship—Conceptual Challenges and Ways Forward", in «Entrepreneurship Theory and Practice», pp. 165-184.
- Yang, T. and del Carmen Triana M. (2019). "Set up to fail: Explaining when women-led businesses are more likely to fail", in «Journal of Management», 45, 3, pp. 926-954.

Zhou W. and Rosini E. (2015). "Entrepreneurial Team Diversity and Performance: Toward an Integrated Model", in «Entrepreneurship Research Journal», 5, pp. 31-60.

# Gender and crowdfunding: How role congruity affect the attraction of local and distant backers

Vincenzo Buttice<sup>1</sup>, Cristina Rossi Lamastra<sup>1</sup>

## Aims of the contribution

Overall, prior studies on gender gap and crowdfunding are consistent in affirming that female entrepreneurs in crowdfunding achieve either better or similar performance to their male counterparts. However, so far, little research has studied the boundary conditions of the association between gender and crowdfunding performances and no prior study has considered how this association varies depending on both entrepreneurs and campaigns characteristics. In this paper we aim at contributing to this debate.

## Description of the research

### Introduction

Research on the financing of small business has shown that female entrepreneurs typically suffer from a disadvantage in gaining access to funding compared to male entrepreneurs with similar skills and experience levels (e.g., Bigelow et al., 2014; Buttner and Rosen, 1988). Despite this dynamic has been supported by a number of studies in the context of venture capital, business angel, private equity, and debt financing, more recent studies suggested that gender differences in obtaining financial capital are diminishing thanks to the digital revolution, which has allowed new financing means to emerge. In this scenario, a number of studies has shown that crowdfunding, i.e., the collection of small monetary contributions from a crowd of users/investors (Butticè et al., 2018), may represent a valuable solution to reduce the gender gap in entrepreneurial finance (Cumming et al, 2019). A seminal work by Greenberg and Mollick (2017), for instance, demonstrated that female entrepreneurs have an advantage in crowdfunding, because, according to the activist homophily choice, female backers disparately support campaigns launched by female entrepreneurs. In another study Johnson et al. (2019), confirmed a funding advantage for female entrepreneurs. Moreover, they find a causal mechanism for this advantage: women are perceived more trustworthiness by potential backers, hence they are able to attract a larger crowd of funders.

In this paper, we aim at deepening this relationship by focusing on two aspects that have been neglected by prior literature on gender and crowdfunding performance, i.e. the geographical location of the entrepreneur and the nature of the crowdfunding campaign. In line with prior studies, we argue that, compared to male entrepreneurs, female ones are able to attract both more proximate and distant backers. Accordingly, they are more likely to obtain crowdfunding. However, consistent with the role congruity theory (Eagly and Diekmann, 2005), we argue that this advantage disappears if the female entrepreneur presents a crowdfunding campaign which is agentic in nature. Indeed, women are supposed to be communal and expressive in nature, while men are typically thought to be agentic (Williams & Best, 1990). By presenting an agentic campaign, a female entrepreneur violates the female's expected social role (Eagly and Diekmann, 2005). As such, backers penalize her behavior and avoid financing her campaign. This dynamic is clearly based on the stereotype according to which women "should be nice" (Rudman and Glick, 2001, p. 744). Consistently, this dynamic should occur when backers rely on stereotype in making their investment decisions. Since the literature has shown that reliance on stereotype is more likely

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<sup>1</sup> School of Management, Politecnico di Milano.

when investors have little access to information (Tosi and Einbender, 1985), we argue that the negative moderation of presenting an agentic campaign occurs only for distant backers. Indeed, these backers are less likely to have personal contact with the entrepreneur and are, thus, likely to fall back on stereotypes when making funding decisions. Our hypotheses are schematized in figure 1.

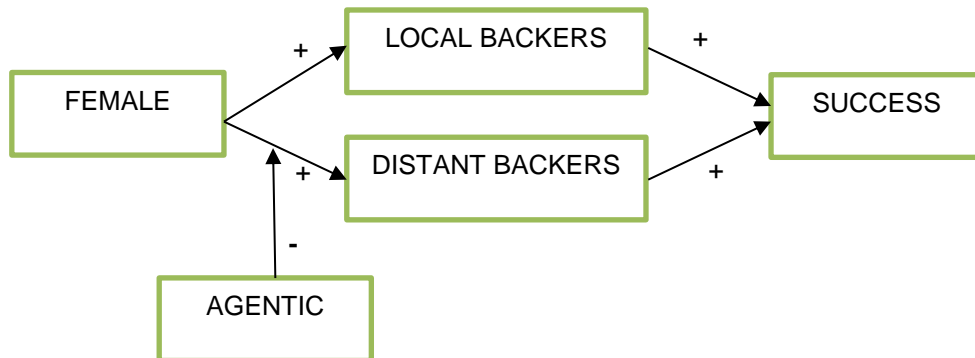


Figure 1: Hypotheses

## Materials and methods

We test our theory in the context of reward-based crowdfunding. Specifically, we created a database containing all the crowdfunding campaigns launched on Kickstaer.com between 2016 and 2017. We applied a content analysis methodology to identify the gender of the entrepreneur and to assess whether the campaign s/he presented agentic or not.

## Results

The results are in line with our expectations. Female entrepreneurs are more likely than male entrepreneurs to raise successfully capital through crowdfunding. This association is mediated by both the number of local backers and the number of distant backers, so that female entrepreneurs attract both more local and distant backers. However, the association between female entrepreneurs and the number of distant backers is negatively moderated when the female entrepreneur presents an agentic campaign. In this case, male and female entrepreneurs have the same likelihood of raising capital through crowdfunding. We did not find any evidence of the negative moderation for local backers.

## Conclusions

Our study makes several contributions to the entrepreneurship literature. First, by introducing gender role congruity theory within crowdfunding research, we demonstrate that the advantage in crowdfunding for female entrepreneurs only exists if the campaign presented is compliant with female's expected social role (Eagly and Diekmann, 2005), i.e. if the female entrepreneur does not present an agentic campaign. Second, we contribute to the role congruity theory by highlighting a boundary condition which have not been discussed by former studies. Particularly, we take advantage of the crowdfunding setting, which allows to engage local and distant investors, to show that role congruity theory applies only to backers distant from the entrepreneurs, while it disappears for geographically proximate backers. We speculate that this dynamic is due to the higher information asymmetries that characterized distant investment (Cumming and Dai, 2010).

Finally, we provide evidence of the role congruity theory in a setting favorable to women. This theory has been typically applied in settings characterized by the presence of prejudice toward women (e.g. women discrimination in teaching, in the workspace, or in politics). Our study is the first advancing that the theory applies also in context where female entrepreneurs are preferred over male counterparts.

## References

Bigelow L., Lundmark L., McLean Parks J. and Wuebker, R. (2014). "Skirting the issues: Experimental evidence of gender bias in IPO prospectus evaluations", in «Journal of Management», 40, 6, pp. 1732-1759.

Buttner E. H. and Rosen B. (1988). "Bank loan officers' perceptions of the characteristics of men, women, and successful entrepreneurs", in «Journal of Business Venturing», 3, 3, pp. 249-258.

Butticè V., Franzoni C., Rossi-Lamastra C. and Rovelli P. (2018). *The road to crowdfunding success: A review of extant literature. Creating and Capturing Value Through Crowdsourcing*, Oxford, Oxford University Press.

Cumming D., Meoli M. and Vismara S. (2018). "Does equity crowdfunding democratize entrepreneurial finance?", in «Small Business Economics», pp. 1-20.

Eagly A.H. and Diekmann A.B. (2005). "What is the problem? Prejudice as an attitude-in-context", in Dovidio J. F., Glick P. and Rudman L. A. (eds), *On the nature of prejudice: Fifty years after Allport*, Blackwell Publishing pp. 19-35.

Greenberg J. and Mollick, E. (2017). "Activist choice homophily and the crowdfunding of female founders", in «Administrative Science Quarterly», 62, 2, pp. 341-374.

Johnson M.A., Stevenson R. M. and Letwin C. R. (2018). "A woman's place is in the... startup! Crowdfunder judgments, implicit bias, and the stereotype content model", in «Journal of Business Venturing», 33, 6, pp. 813-831.

Rudman L.A. and Glick, P. (2001). "Prescriptive gender stereotypes and backlash toward agentic women", in «Journal of Social Issues», 57, 4, pp. 743-762.

Williams J.E. and Best D.L. (1990). *Cross-cultural research and methodology series, Vol. 6. Measuring sex stereotypes: A multinational study (Rev. ed.)*, Sage Publications Inc.



# Leaving the floor to the “invisibles”. Barriers and resources for highly-skilled migrant women with a STEM background in Italy

Daniela Bolzani<sup>1</sup>, Francesca Crivellaro<sup>2</sup>, Rosa Grimaldi<sup>3</sup>

## Aims of the contribution

Adopting an intersectionality approach, this work illuminates the macro, organizational, and individual-level barriers that prevent highly skilled migrant women with a background in STEM finding a job that is up to their qualification level and sector, and the resources available to them to overcome these barriers.

## Description of the research

### Introduction

The last decade has testified an increasing demand for highly-skilled professionals by territorial systems willing to increase their competitive positioning in the global economy, which has been described as a global “race for talent” (e.g., Frank et al., 2004; Shachar, 2006) or “research for the best and brightest” (e.g., Kapur and McHale, 2005; O’Leary et al., 2002). Many European countries have thus deployed skill-selective labor migration policies targeting workers in the science, technology and engineering sectors (European Migration Network, 2007; Kofman, 2014; Isaakyan and Triandafyllidou, 2016).

Despite policymakers seem to recognize the importance of highly-skilled migrants in host countries’ knowledge economies, there is increasing evidence that some of these countries are failing to fully leverage on the availability of talented foreign human capital (e.g., Beckhusen et al., 2013; Tesfai, 2017). This is particularly salient for migrant women—according to Eurostat (2011), almost 30% of all tertiary-educated migrants in Europe (around ten million people) are over-qualified and de-scaled women in their working age. More specifically, in this paper we are interested in highly-skilled migrant women with a science, technology, engineering and mathematics (STEM) background, who represent 10%-30% of highly-skilled migrants in several countries (e.g., European Migration Network, 2007; Jungwirth, 2011; Kofman, 2014; Raghuram, 2008).

Highly skilled migrant women with a STEM background offer an important, yet overlooked context to study how the many forms of social differentiation (e.g., gender, migrant status, occupational sector) operate in conjunction to shape labor market participation and outcomes (Mahler and Pessar, 2006; Raghuram, 2008). In this paper, we adopt the intersectionality (Crenshaw, 1989; Spivak, 1999; McCall, 2005) and relational approach (Al Ariss et al., 2012) to study the following research question: what are the barriers and resources for skilled employability of highly-skilled migrant women in STEM that arise at multiple levels (macro, organizational, and individual level) from meaningful inter-categorical inequalities at the intersection of gender, migration, and professional background?

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1 Department of Economic and Management Sciences, Milan Università Cattolica del Sacro Cuore.

2 Department of Education Studies (EDU), University of Bologna.

3 Department of Management (DISA), University of Bologna.

## Materials and methods

Given the explorative nature of our research question and the “invisibility” of our target group (Kofman, 2000), our research design is built upon rich qualitative evidence gained through interviews and focus groups with 12 highly-skilled migrant women with a STEM education and 12 professionals interacting with them (e.g., career advisors; social workers) (see Figure 1 for research design). We undertake our study in Italy, which is an interesting context with regard to highly-skilled migration, because at present the country adopts several policies to attract foreign talents, but the public debate is polarized around the issue of undocumented migrants.

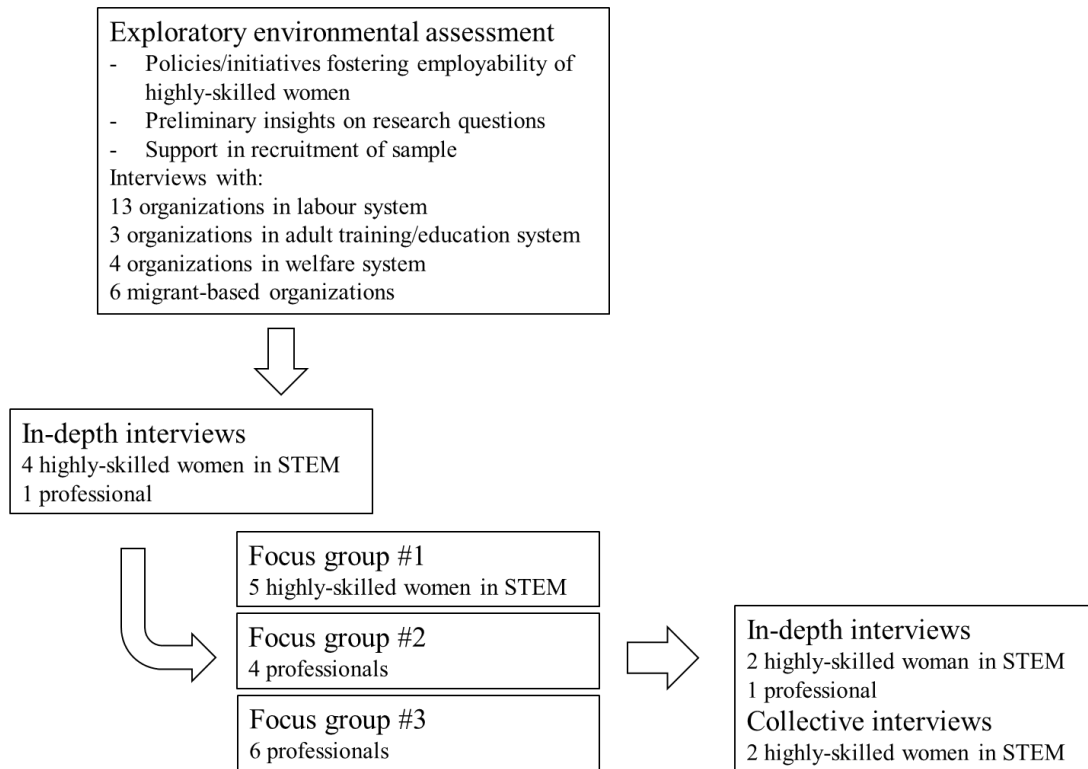


Figure 1: Overview of the data collection design

## Results

The results of our exploratory research show specific barriers hampering the possibility to find jobs consistent with migrant women’s educational background. These can be grouped into three main categories:

- Macro level structural barriers: encompassing bureaucratic constraints, such as the more and more restrictive immigration laws regulating people’s juridical status and their position within the receiving country; the laws regulating migrants’ possibility to be formally acknowledged as “highly qualified” instead of low skilled labour force; the economic contingency determined by the persisting effects of the global crisis that makes the Italian labour market poor in terms of qualified job opportunities; mutually reinforcing gender, generational and ethnic discriminations in the labour market.
- Meso level organizational barriers: relating to employers’ selection criteria towards potential candidates with a foreign origin and to the extent they are influenced by previous experiences with migrants, prejudice, organizational needs, structures and strategies.
- Micro level individual barriers: accounting for personal difficulties specifically emerging in the migratory experience (e.g. poor mastery of the local language, lack of knowledge of the

local context, lack of horizontal networks supporting work-life balance and job search); individuals' attitudes and psychological capital (e.g. low levels of self-efficacy, pessimism, lack of a proactive approach to problems, discouragement stemming from repeated negative experience).

At the same time, we could detect some factors enhancing women's chances to (re)gain a qualified position as STEM workers, including:

- context resources, such as co-national and native horizontal networks acting as “brokers” in the receiving country or organizations specifically supporting migrant women socio-economic inclusion in the receiving country;
- organizational resources, such as the implementation of recruitment, selection, and retention policies based on the evaluation of hard and soft competencies rather than recommendations by networks of trusted alters;
- individual resources such as the determination in pursuing one's own goals “against all odds”, the ability to adapt to a new context and to different cultural norms, a proactive and creative approach in finding solutions to overcome temporary difficulties, and social capital both in the home and in the host country.

Acknowledging that barriers and resources associated to gender, migrant status, and male-dominated STEM sectors do not operate in any simple additive manner (Raghuram, 2008), we reason that, whereas some barriers are specifically targeting migrants (e.g., ethnic/racial prejudice) or women (e.g., maternity leaves), the majority of barriers and resources can be found at one of the possible intersections among migration, gender, and affiliation to the STEM sector (see Fig. 2).

	Migrant	Woman	STEM sector
<b>Structural-level barriers</b>			
A. Gender norms			
B. Lack of job opportunities			
C. Non-recognition of qualification			
D. The cost of re-qualification			
E. Racial/ethnic discrimination			
F. Legal status and residence permit procedure			
<b>Organizational-level barriers</b>			
G. Employers prefer men			
H. Employers apply stringent selection criteria			
I. Employers' racial/ethnic prejudice			
J. Mistrust based on experience			
K. Limited job positions, competition and work conditions			
<b>Individual-level barriers</b>			
L. Family duties and work-life balance			
M. Command of Italian language			
N. Lack of host-country social capital			
O. Age and health issues			
P. Lack of psychological capital			
<b>Structural resources</b>			
Q. Co-national and local organizations			
<b>Organizational resources</b>			
R. Recruitment based on hard and soft competencies			
<b>Individual-level resources</b>			
S. Perseverance, ability to adapt, proactivity			
T. Social capital			

Figure 2: Intersectionality of structural, organizational, and individual barriers and resources

## Conclusions

This study answers to calls for research on the labour market outcomes of highly-skilled migrant women in Western societies (Kofman, 2000), in particular providing insights on migrant women, coming from a variety of countries (e.g., Latin America and Africa), in male-dominated sectors, in a country (Italy) which is dealing with important socio-economic challenges (e.g., increasing migration flows, slow recovery from the recent economic crisis, declining fertility rates, and high unemployment rates for young and skilled people) (Pagano, 2018).

While highly-skilled migrant women in STEM sectors represent a narrow target, largely neglected by host country's organizations and policymakers, they represent an extremely relevant talent pool which can be key for innovation and growth (Iredale, 2005). From the policy point of view, this paper is valuable, as it offers an in-depth understanding of barriers that generate "brain waste" in highly-skilled migrant women and of actionable resources to alleviate this problem.

## References

Al Ariss A., Koall I., Özbilgin M. and Suutari, V. (2012). "Careers of skilled migrants: towards a theoretical and methodological expansion", in «Journal of Management Development», 31, 2, pp. 92-101.

Beckhusen J., Florax R. J., Poot J. and Waldorf, B.S. (2013). "Attracting global talent and then what? Overeducated immigrants in the United States", in «Journal of Regional Science», 53, 5, pp. 834-854.

Crenshaw K. (1989). "Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics", in «University of Chicago Legal Forum», pp. 139-167.

European Migration Network (2007). *Conditions of Entry and Residence of Third Country Highly-Skilled Workers in the EU: EMN Synthesis Report*. [http://emn.ie/files/p\\_20100716103748Conditions%20of%20entry%20synthesis%20report.pdf](http://emn.ie/files/p_20100716103748Conditions%20of%20entry%20synthesis%20report.pdf)

Eurostat (2011). *Migrants in Europe. A statistical portrait of the first and second generation*. <https://ec.europa.eu/eurostat/documents/3217494/5727749/KS-31-10-539-EN.PDF/bcf27a60-7016-4fec-98c5-e8488491ebbd>

Frank F.D., Finnegan, R.P. and Taylor C.R. (2004). "The race for talent: Retaining and engaging workers in the 21st century", in «Human Resource Planning», 27, 3, pp. 12-25.

Iredale R. (2005). "Gender, immigration policies and accreditation: Valuing the skills of professional women migrants", in «Geoforum», 36, 2, pp. 155-166.

Isaakyan I. and Triandafyllidou A. (2016). *Female high-skill migration in the 21st century: The challenge of the recession*, in Triandafyllidou A. and Isaakyan I. (eds), *High-skill migration and recession*, London, Palgrave Macmillan, pp. 3-21.

Jungwirth I. (2011). *The change of normative gender orders in the course of migration: highly qualified migrant women in Germany*, in Nowak M. and Nowosieslski M. (eds), *(Post)transformational Migration: inequalities, welfare state and horizontal mobility*, Frankfurt, Peter Lang Verlag, pp. 225-250.

Kapur D. and McHale J. (2005). *Give us your best and brightest: The global hunt for talent and its impact on the developing world*, Washington, Center for Global Development.

Kofman E. (2000). "The invisibility of skilled female migrants and gender relations in studies of skilled migration in Europe", in «International Journal of Population Geography», 6, 1, pp. 45-59.

Kofman E. (2014). "Towards a gendered evaluation of (highly) skilled immigration policies in Europe", in «International Migration», 52, 3, pp. 116-128.

Mahler S.J. and Pessar P.R. (2006). "Gender matters: Ethnographers bring gender from the periphery toward the core of migration studies", in «International Migration Review», 40, 1, pp. 27-63.

McCall L. (2008). "The complexity of intersectionality", in «Signs», 30, 3, pp. 1771-1800.

O'Leary B.S., Lindholm M.L., Whitford R.A. and Freeman S.E. (2002). "Selecting the best and brightest: Leveraging human capital", in «Human Resource Management», 41, 3, 325-340.

Pagano A. (2018). *The Gender Dimension of the Female Highly Skilled Migrants*, in Paoloni P. and Lombardi R. (eds), *Gender Issues in Business and Economics*, Cham, Springer, pp. 147-157.

Raghuram P. (2008). "Migrant women in male-dominated sectors of the labour market: a research agenda", in «Population, Space and Place», 14, 1, pp. 43-57.

Shachar A. (2006). *The race for talent: Highly skilled migrants and competitive immigration regimes*, New York University School of Law.

Spivak G. C. (1999). *A Critique of Postcolonial Reason*, Harvard, Harvard University Press.

Tesfai R. (2017). "Racialized Labour Market Incorporation? African Immigrants and the Role of Education-Occupation Mismatch in Earnings", in «International Migration», 55, 4, pp. 203-220.

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# Women's Bargaining Power and Children's Nutritional Status: Evidence from Indonesia

Romi Hartarto<sup>1</sup>

## Aims of the contribution

This study contributes to the literature on women's authority by estimating its bargaining effects on the prevalence of child stunting under age five in Indonesia. If bargaining power of the mother is related to nutritional status of her children, then one policy focus to reduce child malnutrition would be to empower women by strengthening their position within the family and the community.

## Description of the case study

### Introduction

As a middle-income country, Indonesia is currently confronting a serious challenge of child stunting. Despite increases in economic growth and purchasing power of Indonesian families, the national level of stunting rate has remained high at 37 per cent between 2007 and 2013. This prevalence of stunting is the highest among Southeast Asian countries and is even among the five highest in the world. As a growing and increasingly important economy, overcoming high prevalence of child stunting is pivotal for inclusive and sustained growth of this fourth largest country in the world.

Stunting is influenced by bio-behavioural determinants, such as insufficient nutrient intake and illness, but beyond that, socio-economic factors are also found to have overarching contribution (Janevic et al., 2010). Many studies have explored the link between mother's socio-economic status and welfare of children. Maternal control over economic resources appears to improve health outcomes for children (Glewwe, 1999). It is revealed that in households where women have more power in the decision making, the expenditure share of healthy food is higher than in households with powerless women (Boccia et al., 2018). If the men have more power, the household can spend on masculine goods, such as alcohol and tobacco (Buchmann, 2000), which in turn displace spending on nutritious food for the children (Block and Webb, 2009).

Thus, there is potentially a causal positive link between women's decision making authority and children's health outcomes. However, much of the existing literature on women's authority and its relation to child health outcomes has focused on South Asia and Sub-Saharan Africa as regions with relatively large gender gaps. However, little is known for middle income countries in Southeast Asia. As a country with cultural heterogeneity, women's authority in Indonesia is generally higher than most South Asian countries. Indeed, rigorous empirical studies based on the large household data sets are relatively rare on such topic for middle-income countries in general.

### Materials and methods

This study uses the latest data from the fifth round of the Indonesian Family Life (IFLS-5) conducted in 2014. This study estimates the effect of women's bargaining power on child stunting using instrumental variables probit model. The dependent variable takes the value 1 if a child's HAZ score below -2 and zero otherwise. Mothers' bargaining power in the household is measured by a single index calculating the proportion of decisions across 18 household domains that are made by them alone. The binary variable of matrilineal community is used as the instrument for women's bargaining power due to potential endogeneity. The estimation also includes a set of

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<sup>1</sup> Heriot-Watt University.

individual and parental controls comprising gender of the children, age and age squared, age and height of the parents to capture the influence of genetic endowments, and parental education as measured by number of completed years of education.

## Results

There is a positive association between living in matrilineal communities and bargaining power, implying that women from matrilineal communities tend to have a greater say than those following patrilineal norms. Women's bargaining power is statistically significant at five per cent level and negatively determines the likelihood of having a stunted child. An increase in women's bargaining power measure by 1 percentage point leads to about 0.8 percentage point decline in the likelihood of having stunted child.

Some individual and parental characteristics also matter in determining status of child stunting. Importantly, the child's gender does not matter. Age of a child is positive and significant with its square negative and significant at 1 per cent level. It implies that the prevalence of stunting increases as children grow older but with smaller marginal changes. The likelihood of being stunted is significantly greater among children whose parents are shorter. The coefficient of mother's age is negative and significant, meaning that older mothers are more likely to have better nourished children. More educated parents have less stunted child since it is expected that they will be more knowledgeable toward practices of proper childcare.

## Conclusions

This study investigates whether mother's bargaining power has any statistical influence upon children's nutritional status in Indonesia. Using kinship norm as an instrument, a higher level of mother's bargaining power is found to result in better nourishment of the children, as indicated by reduced stunting prevalence and higher HAZ-score. This causal finding is a stronger finding than much of the literature, implying the benefit of kinship norms in promoting women's bargaining power and consequently better investments in child health.

## References

- Boccia M., Mazzotta F., Papaccio A. and Parisi L. (2018). *Intra Household Decision Making and Children Outcomes in Malawi: the Effect of Matrilineal and Patrilineal Descent*, SITES-IDEAS.
- Buchmann C. (2000). "Family structure, parental perceptions, and child labor in Kenya: What factors determine who is enrolled in school?", in «Social forces», 78, 4, pp. 1349-1378.
- Glewwe P. (1999). "Why Does Mother's Schooling Raise Child Health in Developing Countries? Evidence from Morocco", in «Journal of Human Resources», 34, 1, pp. 124-59.
- Janevic T., Petrovic O., Bjelic I. and Kubera A. (2010). "Risk factors for childhood malnutrition in Roma settlements in Serbia", in «BMC Public Health», 10, p. 509.

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# Gender diversity in banks: Evidence from a new framework of analysis

Giuliana Birindelli<sup>1</sup>, Antonia Patrizia Iannuzzi<sup>2</sup>

## Aims of the contribution

This paper focuses on gender diversity policies implemented by banks in order to verify how these companies are trying to insure gender parity and equality in their business and decision-making processes.

## Description of the research

### Introduction

Promoting gender balance has become a critical corporate sustainability issue. The United Nations Sustainable Development Goals (SDGs) state that gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world (Goal 5). In line with this consideration, the European Directive 2014/95/EU obliges large companies (exceeding 500 employees) to enhance disclosure on this issue by providing information on all actions taken to ensure gender equality and prevent violations and discriminatory attitudes, and information on conventions or international agreement implemented by the company. The Directive was transposed into Italian law by Legislative Decree 254 of 30 December 2016.

Academic literature on gender diversity points out important positive effects on banks' value creation, especially with regard to a greater share of women on boards of directors. In particular, female directors are considered more effective at monitoring in firm governance (Adams and Ferreira, 2009; Benkraiem et al., 2017) and more interested in long-term strategies compared to their male peers (Glass and Cook, 2017). For Kim and Starks (2016) women directors provide additional expertise to corporate board, which results in enhanced board advisory effectiveness. Indeed, women directors positively impact not only on firm's profitability, riskiness profile (Faccio et al., 2016) and earnings quality (Srinidhi et al., 2011), but they also play a key role in the development of high corporate sustainability practices (Glass and Cook, 2017) and environmental performance (Post et al., 2011; Kassinis et al., 2016).

### Materials and methods

To achieve the aim of this study, we carry out a qualitative analysis of all Italian listed banking groups over the period 2017–2018. To proxy the intensity of the gender diversity approach in banks we elaborate a specific score by using a new framework of analysis that measures gender policies against a set of pre-determined items that were selected on the basis of relevant requirements/recommendations established by the doctrine and regulation. The model of analysis is composed by more than 40 items grouped into four categories: 1) women in apical positions, 2) policy and certifications on gender diversity, 3) gender pay gap and 4) gender disclosure. To valorize each item, all banks documents were analyzed, especially the Consolidated Non-Financial Statement, the Corporate Governance Report, the Remuneration Report and the Annual Report. Moreover, other direct and indirect sources were consulted including the web sites of each bank, the all gender diversity indexes, the main international initiatives that promote gender equality and women's empowerment. Finally, for all the items, we adopted a binary scale that takes the value 1 if the item is disclosed and 0 otherwise, except for those items related to the presence of women on governance and control bodies. For this information, a graduated valuation was adopted.

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1 Department of Management and Business Administration, "G. d'Annunzio University" of Chieti-Pescara.

2 Department of Economics, Management and Business Law, "A. Moro" University of Bari.



## Results

Our results confirm a low presence of women in apical positions (chair of the board of directors and Ceo) and an adjustment of the composition of the governance and control bodies to the Law “Golfo-Mosca” (Law 120/2011), on the gender balance in such bodies in listed companies. Also the committees of the board of directors (e.g, Nomination Committee, Remuneration Committee, Risks Committee and Committee for Transactions with Related Parties) often point out a lower presence of female directors than their male counterparts, especially as President of the committee. The company population is enough balanced between male and female employees. However, in general the percentage of female executives and middle managers is lower than that of men, while the percentage of female employees in professional areas is higher. As regards employees by level of education (degree, high school certificate, other) and gender, women are often more educated. Other interesting findings are the following: many banks adopted various initiatives that are dedicated to female-run businesses and self-employed women; as a general rule, there are policies at Group level for promoting diversity and non-discrimination; most banks put on welfare initiatives, starting with better work-life balance, and actions for supporting the return of female employees after maternity. On the contrary, few banks: 1) promoted important awards dedicated to enterprises that have implemented policies to guarantee equal opportunities between men and women; 2) published a “Gender diversity report” and 3) are included in Gender-Equality Indices (as Bloomberg Gender Equality Index, EWoB - Ethics & Boards European Gender Diversity Index and FTSE women on board leadership index). Finally, female/male salary ratios (ratio of gross base salary - women vs. men and ratio of total remuneration - women vs. men) highlight a gender pay gap: as expected, women are generally paid less than men. So, the results can be summarized in the following expression: “fewer women, more educated women and less paid women”.

## Conclusions

Our findings confirm the need to promote measures aimed at removing any obstacles and defining specific actions to help foster the culture of gender equality. Italian banks have shown a greater attention on gender diversity over time and have achieved good goals, but they need to continue to demonstrate their strong commitment to equality and advancing women in the workplace. However, removing the barriers impeding women’s progress can have important consequences only if there is a cultural shift and a growing public awareness of the significant contribution women bring to bank performance. This awareness is crucial to allowing women to reach the top echelons of management.

## References

Adams R. and Ferreira D. (2009). “Women in the boardroom and their impact on governance and performance”, in «Journal of Financial Economics», 94, pp. 291-309.

Benkraiem R., Hamrouni A., Lakhal F. and Toumi N. (2017). “Board independence, gender diversity and CEO compensation”, in «Corporate Governance: The International Journal of Business in Society», 17, pp. 845-860.

Faccio M., Marchica M.T. and Mura R. (2016). “CEO gender, corporate risk-taking, and the efficiency of capital allocation”, in «Journal of Corporate Finance», 39, pp. 193-209.

Glass C. and Cook A. (2017). “Do women leaders promote positive change? Analyzing the effect of gender on business practices and diversity initiatives”, in «Human Resource Management», 57, pp. 823-837.

Kassinis G., Panayiotou A., Dimou A. and Katsifaraki G. (2016). "Gender and environmental sustainability: A longitudinal analysis", in «Corporate Social Responsibility and Environmental Management», 23, 6, pp. 399-412.

Post C., Rahman N. and Rubow E. (2011). "Green governance: Boards of directors' composition and environmental corporate social responsibility", in «Business & Society», 50, 1, pp. 189-223.

Srinidhi B., Gul F.A. and Tsui J. (2001), "Female Directors and Earnings Quality", in «Contemporary Accounting Research», 28, 5, pp. 1610-1644.

# The consequences of gender stereotypes on women operating in business contexts

Raffaele Mancuso<sup>1</sup>, Cristina Rossi-Lamastra<sup>1</sup>, Paola Rovelli<sup>2</sup>

## Aims of the contribution

Gender stereotypes penetrate various realms of society, affecting – often in subconscious ways – actions and decisions towards women. In the last decade, scholars have intensively studied the consequences of these stereotypes, with particular attention to women operating in business contexts. Following this increasing interest, our paper offers a comprehensive review of the empirical literature on the consequences of gender stereotypes on women operating in business contexts. After selecting 69 relevant papers, we systematize their findings into a coherent conceptual framework. The framework classifies papers depending on: the business context, the specific group of individuals taken into account, and the phase of their experience in the business context that is investigated. Drawing on this framework and our analysis, we identify relevant research gaps and propose directions for future research.

## Description of the research

### Introduction

Stereotypes are social judgments of individual group members that lead people to judge group members consistently, and in an exaggerated way, with group expectations (Lee and Free University of Bozen James, 2007). Thus, gender stereotypes are generalizations and expectations about the attributes of men and women (Heilman, 2001). Gender stereotypes are especially worrisome in business contexts, which are still characterized by a substantial under-representation of women and appear male-dominated (e.g., Dezsö, et al., 2016). These stereotypes, indeed, influence the assessment of women's competences and of their fitness to leadership roles (see Ellemers et al., 1999, for a recent review on these topics). More generally, while men are usually considered as having agentic characteristics, which are typically viewed as fitting better with role expectations in business contexts, women are instead perceived to have communal characteristics, which are normally associated to private life and family contexts (Eagly and Karau, 2002). Hence, gender stereotypes can have adverse consequences on women operating in business contexts. Such a relevant issue has attracted massive scholarly attention, but, to the best of our knowledge, a comprehensive literature review on this topic is still missing. Extant reviews cover indeed specific contexts – like healthcare (Kilminster et al., 2007; LaPierre and Zimmerman, 2012) or education (Sabbe and Aelterman, 2007) – or mainly focus on the psychological roots of gender stereotypes – as for instance the review by Heilman (2012), which is not systematic and dates back to 2012. Therefore, this paper aims to offer a comprehensive and systematic review of the contributions published in the last 10 years on the consequences of gender stereotypes on women operating in business contexts. As we want to present knowledge on visible and measurable consequences of gender stereotypes, the review includes only empirical contributions.

### Materials and methods

Applying a set of searching and exclusion criteria, we identify 69 relevant papers. To systematize our findings, we follow a conceptual framework that we derived from our reading of the papers. The framework consists of a two-by-two matrix. On one side, it classifies papers depending on the

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1 School of Management, Politecnico di Milano.

2 Free University of Bozen.

business context (established firms vs. entrepreneurial ventures) and, more specifically, on the group of individuals that is studied within the context (board of directors, CEOs/top executives, and employees in the case of established firms; entrepreneurs in the case of entrepreneurial ventures). On the other side, the framework distinguishes papers depending on the phase of these individuals' experience in the focal business context (appointment, working in the firm, and dismissal for established firms; becoming entrepreneur, running the business, and exit for entrepreneurial ventures). Drawing on this framework and on the analysis of the papers, we identify relevant research gaps and propose a research agenda.

## Results

Through this literature review we identified several research gaps that can inspire scholars to advance their future research developments. First, we propose questions on established firms, distinguishing them based on the consequences on (i) appointment, (ii) working in the firm, and (iii) dismissal. Second, we suggest research directions specific for entrepreneurial firms; in this case we distinguish between (i) becoming an entrepreneur, (ii) running the venture, and (iii) exit. This agenda does not aim to be exhaustive; however it provides some suggestions that may be of inspiration for scholars to identify additional research directions.

## Conclusions

Given its wide scope, our literature review offers insights that can illuminate research and stimulate future developments in many fields. These include, for instance, human resource management, organization science, entrepreneurship, finance, labour economics, and even macroeconomics. Moreover, the review can make managers in established firms aware of the adverse consequences of gender stereotypes and help them to develop stereotype-free work settings and decision-making processes. Entrepreneurs, and those interested in promoting entrepreneurship, can instead learn more on how gender stereotypes hinder the gathering of human and financial resources; thus, they can take actions and design policies to overcome these hurdles.

## References

- Dezsö C.L., Ross D G. and Uribe J. (2016). "Is there an implicit quota on women in top management? A large-sample statistical analysis", in «Strategic Management Journal», 37, 1, pp. 98-115.
- Eagly A.H. and Karau S.J. (2002). "Role congruity theory of prejudice toward female leaders", in «Psychological Review», 109, 3, pp.573-598.
- Ellemers, N., Kortekaas, P. and Ouwerkerk, J.W. (1999). "Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity", in «European Journal of Social Psychology», 29, 2-3, pp.371-389.
- Heilman M.E. (2001). "Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder", in «Journal of Social Issues», 57, 4, pp. 657-674.
- Heilman, M. E. 2012. "Gender stereotypes and workplace bias", in «Research in Organizational Behavior», 32, pp. 113-135.
- Kilminster S., Downes J., Gough B., Murdoch-Eaton D. and Roberts T. (2007). "Women in medicine – is there a problem? A literature review of the changing gender composition, structures and occupational cultures in medicine", in «Medical education», 41, 1, pp. 39-49.

LaPierre T.A. and Zimmerman M.K. (2012). "Career advancement and gender equity in healthcare management", in «Gender in Management: An International Journal», 27, 2, pp. 100-118.

Lee P.M and James E.H. (2007). "She'-e-os: Gender effects and investor reactions to the announcements of top executive appointments", in «Strategic Management Journal», 28, 3, pp. 227-241.

Sabbe E. and Aelterman A. (2007). "Gender in teaching: A literature review", in «Teachers and Teaching: theory and practice», 13, 5, pp. 521-538.

# Research in Economics, Business and Finance and Gender: a Bibliometric Analysis

Tanya Araújo<sup>1</sup>, Elsa Fontainha<sup>2</sup>

## Aims of the contribution

This research aims to map, including gender authorship, the research in Economics, Business and Finance, produced by researchers affiliated in Portuguese Research Performing Organisation (RPO).

## Description of the research

### Introduction

During last years, there is an increase of bibliometric studies that include gender end gender gaps in the core of the research. Bibliometric research includes gender issues in two main sets of studies: one has gender themes as the core of the research; the other uses gender variables combined with others (e.g. institutions, fields of science) to explain or describe the science production and dynamic (Abramo et. al., 2015, 2019; Lindahl et al., 2020; Sugimoto et al., 2019; Zhang et al., 2018).

The study of the Portuguese scientific production by gender is relevant because: Portugal, compared with 11 other countries/regions for the period 2011-2015 has the highest share of women as inventors (26%) and in the research population (49%) (Elsevier, 2017); Portugal has the highest share of women among researchers, even in scientific domains where women are generally underrepresented (Elsevier, 2017, p. 22); Women have higher level of education (EC, 2016); However, the proportion of top positions in the academic staff (about 25% in grade A positions) contrasts with the scientific performance (EC, 2016; 2019).

### Materials and methods

By applying methodologies that enable the gender disambiguation of authors, big missing data on the gender of citing and cited authors is dealt with. The main database is Web of Science, WoS.

In most of bibliometric data sources the detailed information by women and men is not available directly or indirectly. In order to accurately allocate the gender of authors a self-tailored algorithm was built and applied (Larivière et al., 2013; Araújo and Fontainha, 2017a, 2017b, 2018).

To study the interdisciplinarity pattern of research in Economics, the minimum spanning tree (MST) method is applied by authorship category. To study the international collaboration, network analysis is applied.

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1 Department of Economics, ISEG Lisbon School of Economics and Management, Universidade de Lisboa; REM Research in Economics and Mathematics, UECE Research Unit on Complexity and Economics,  
2 Department of Economics, ISEG Lisbon School of Economics and Management, Universidade de Lisboa; CSG Research in Social Sciences and Management, CESA Center for African and Development Studies.

## Results

The patterns of interdisciplinary collaboration in Economics for men and women are different. The adoption of MST method allows illustrating that (Figures 1 and 2).

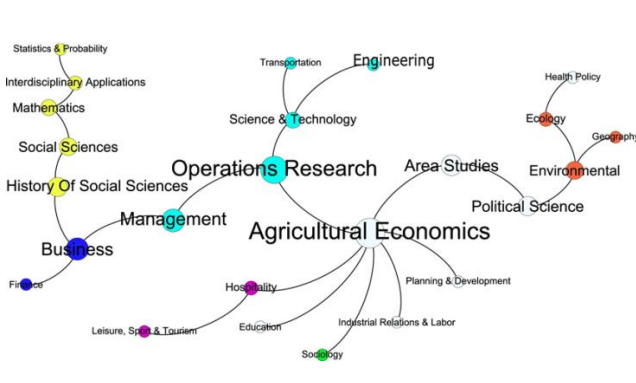


Figure 1: The MST of the Women Exclusive Category (Source: Araújo and Fontainha, 2017a)

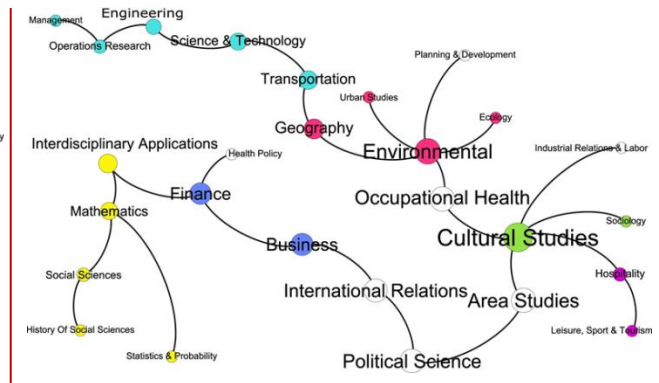


Figure 2: The MST of the Men Exclusive Category (Source: Araújo and Fontainha, 2017a)

The international collaboration networks are different between men and women and are more dense for men than for women. Figure 3 shows the results in 2016 for the networks of international research collaboration. The largest difference between men and women is the high level of collaboration of men with United States and United Kingdom.

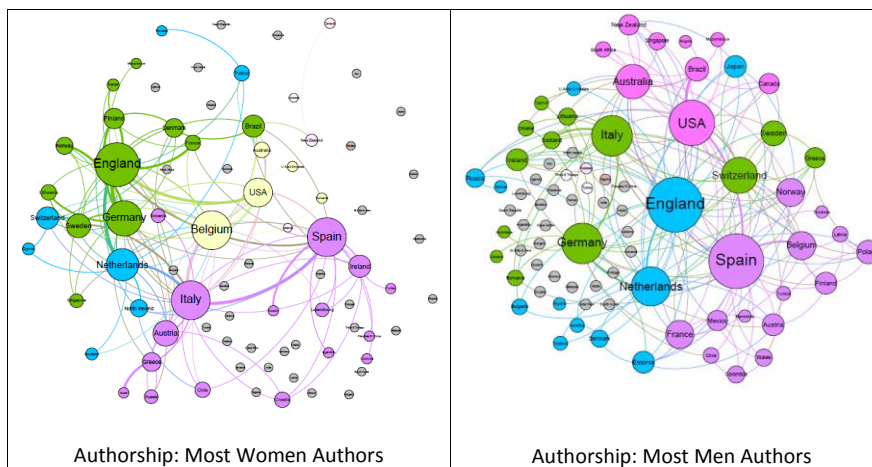


Figure 3: International Collaboration by Gender (Portugal, Social Sciences, 2016)

## Conclusions

The research concludes that women and men have specific patterns of interdisciplinary and international collaboration in research. The explanation of those differences is an avenue of future research.

## References

- Abramo G., Cicero T. and D'Angelo C.A. (2015). "Should the research performance of scientists be distinguished by gender?", in « Journal of Informetrics», 9, 1, pp. 25-38.
- Abramo G., D'Angelo,C.A. and Di Costa F. (2019). "Authorship analysis of specialized vs diversified research output", in «Journal of Informetrics», 13, 2, pp. 564-573.

Araújo T. and Fontainha E. (2017a). “The specific shapes of gender imbalance in scientific authorships: a network approach”, in «Journal of Informetrics», 11, 1, pp. 88-102. <http://dx.doi.org/10.1016/j.joi.2016.11.002>

Araújo T. and Fontainha E. (2017b). “Big Missing Data: are scientific memes inherited differently from gendered authorship?” <https://arxiv.org/pdf/1706.05156.pdf>

Araújo T. and Fontainha E. (2018). “Are scientific memes inherited differently from gendered authorship?”, in «Scientometrics», 1-20. <https://link.springer.com/article/10.1007/s11192-018-2903-7>

Elsevier (2017). *Gender in the global research landscape—analysis of research performance through a gender lens across 20 years, 12 geographies, and 27 subject areas*, Elsevier.

European Commission (2016). *She Figures 2015*, Luxembourg, Office for Official Publications of the European Communities.

European Commission (2019). *She Figures 2018*, Luxembourg, Office for Official Publications of the European Communities.

Larivière V., Ni C., Gingras Y., Cronin B. and Sugimoto C.R. (2013). “Global gender disparities in science”, in «Nature», 504, 7479, pp. 211-213.

Lindahl J., Colliander C. and Danell, R. (2020). “Early career performance and its correlation with gender and publication output during doctoral education”, in «Scientometrics», 122, 1, pp. 309-330.

Sugimoto C.R., Ahn Y.Y., Smith E., Macaluso B. and Larivière V. (2019). “Factors affecting sex-related reporting in medical research: a cross-disciplinary bibliometric analysis”, in «The Lancet», 393, 10171, pp. 550-559.

Zhang C., Bu Y., Ding Y. and Xu J. (2018). “Understanding scientific collaboration: Homophily, transitivity, and preferential attachment”, in «Journal of the Association for Information Science and Technology», 69, 1, pp. 72-86.

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## **PARALLEL SESSION 2. THE INCLUSION OF THE SEX/GENDER VARIABLES IN RESEARCH:**

### **DESIGN AND ENGINEERING**

**Session chaired by Alessandra Bonoli and Arantxa Gonzalez de Heredia Lopez de Sabando**

University of Bologna, Mondragon University

#### **Gender perspective in Environmental Sustainability and Urban Resilience**

Alessandra Bonoli<sup>1</sup>

##### **Aims of the contribution**

Given the large, but sometimes unrecognized, role that social factors play in sustainability, a gendered perspective seems to be crucial. However gender relations are still largely absent from debates on climate change or on environmental impact. The paper will analyze some gender and diversity based environmental issues, in order to underline roles, responsibilities and attitudes which would give women leadership in the sustainability goals achievement, according with United Nations Agenda 2030, through a gender approach that is crucial for a long-term positive change.

##### **Description of the research**

###### **Introduction**

The United Nations Agenda 2030 (UN Agenda 2030, 2015) highlights the fundamental interaction between the main three economic, environmental and social perspectives. Gender equality represents one of the seventeen Goals (SDGs), i.e. one of the pillar in the paradigm of the Sustainable Development.

According with the UN Agenda, we have to move towards a future characterized by a better quality of life thanks to health and education for all, without poverty and hungry, with a lower environmental impact at each ecosystem, on land or below water. The future we want can be build up now by the utilization of renewable energy sources and in a new economical paradigm based on circular and sharing economy approaches at every level of our life and activities.

This “transition period” is strictly connected with environmental sustainability. In fact we are living in a very crucial historical period where climate change and global warming are transforming some equilibria (IPCC, 2012); where natural resources depletion and water scarcity are affecting millions of people; where fossil fuel utilization for energy has to be reduced and avoided as much as possible.

Since Rio+20 conference (UN conference, 2012), global debates on climate change have focused on women’s leadership and on harnessing women’s ‘potential’ as having a special relationship with nature and being a crucial resource for sustainable development. Environmental issues would impact women more because of their limited access to: resources, information and education,

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<sup>1</sup> Department of Civil, Environmental and Materials Engineering (DICAM, University of Bologna).

mobility decision making. UNEP highlights the relationship between Gender and Natural Resources. In a milestone document “Women and Natural Resources, Unlocking the Peace building Potential” (UNEP, 2014) women are defined as “stewards” of natural resources especially in rural areas, adept at building social capital. The traditional women role is strictly related to household responsibility and over the world it is necessary to recognize women engagement time and power consuming.

The urgent need to change unsustainable patterns of consumption and production requires concrete initiatives that can accelerate the transition towards sustainable systems of practice and provision. In this process, research, education and dissemination play a crucial role especially in catalyzing proactive measures that can positively affect the present and the future of our society, transforming gender relations [Bonoli et al, 2015].

## **Materials and methods**

Starting from a couple of milestone concepts, such as climate change and resilience, we assume to decline their pure scientific and “physical” significance in a gender perspective and to discover women involvement described and encouraged by some United Nations documents.

The questions we assumed to answer by analysing the main United Nation perspective in these fields were how can “gender and climate change” and “gender and resilience” be highlighted.

## **Results**

Climate change would impact women more because of their limited access to resources, to information and education, to mobility and role in decision making in several areas of the world. Women have to be the “stewards of natural resources” (IFRC, 2013) especially in rural areas, adept at building social capital. The traditional women role is strictly related to household responsibility also in ensuring food and water. While gender equality matters in its own right, particular gender dimensions related to climate risk management need to be addressed. Women are disproportionately at risk to the effects of natural hazards and climate change: women typically outnumber men among natural disasters casualties, often because of cultural and behavioural restrictions on women's mobility and socially ascribed roles and responsibilities (UNEP, 2017). Climate change has a greater impact on those sections of the population most reliant on natural resources for their livelihoods and/or who have the least capacity to respond to natural hazards. Climate change can also provide some opportunities for positive social transformation. Yet, women can play an effective role in response to climate change due to their local knowledge of and leadership in e.g. sustainable resource management and/or leading sustainable practices at the household and community level. At the local level, women's inclusion at the leadership level has led to improved outcomes of climate related projects and policies. On the contrary, if policies or projects are implemented without women's meaningful participation it can increase existing inequalities and decrease effectiveness. Providing women and girls with skills to prepare for, adapt and respond to climate change is essential. Parties to the United Nations Framework Convention on Climate Change (UNFCCC, 2017) have recognized the importance of involving women in the development and implementation of national climate policies that are gender-responsive by including overarching text in the Paris Agreement.

## **Conclusions**

Environmental issues are pushing us to reconsider the entire system of our values and priorities.

A new period was perhaps born where we have to imagine a re-education of the society in many aspects of our lifestyle and social behaviour and relations and an improving of the awareness of the responsibility of our actions is the basis of the changing we need.

Women can drive this transition having the capability to better understand and adapt. Participation and community activities can develop and institutionalize innovative approaches. Involving women's groups, enlarging their access to information, improving their public roles, attitudes and responsibility all the society can have better benefits.

According with several United Nations "recommendations for action", it seems crucial:

- to integrate gender perspectives into mitigation and adaptation initiatives, by investing in women leading to environmental development objectives and bringing women into the planning, financing and implementation of climate responses;
- to ensure that adaptive actions aim to build up the asset base of women;
- to plan mitigation initiatives such that they promote the empowerment of women and to integrate principles of gender equality and women's empowerment into financing for sustainable development.

## References

Bonoli A. (2015). *Gender and diversity for urban resilience*, Proceedings of the Conference Hydrogeological risk management: Gender (women- men) issues and impacts, Rome.

IFRC (2013). "Gender and diversity for urban resilience: An analysis", in «International Federation of Red Cross and Red Crescent Societies».

IPCC (2012). "Special Report of the Intergovernmental Panel On Climate Change" (<https://www.ipcc-wg2.gov>).

UNDP (2014). Women and Natural Resources. Unlocking the Peacebuilding Potential.

UNEP (2017). Gender and Climate Change.

United Nations (2017). Framework Convention on Climate Change.

UN Agenda 2030 (2015) <https://unric.org/agenda-2030>

UN Rio+20 Conference <https://sustainabledevelopment.un.org/rio20>

# Designing Robots – Changing Gender Stereotypes, Challenging Norms

Brigitte Ratzer<sup>1</sup>

## Aims of the contribution

The lecture is a contribution to the debate on gender in research. It takes up very concrete criticism but also starting points for change. The critical debate must be conducted not only within the field of robotics but also in research funding, politics and society. Robotics, like few other disciplines, has the potential to completely change our understanding of gender and gender roles. In the positive as in the negative.

## Description of the research

Within the framework of the GEECCO project (<http://www.geecco-project.eu/home/>), literature studies were produced on four research fields, namely the area of Energy, Mobility, Human-Computer-Interaction and Robots. In detail, the research comprised the following aspects:

- gathering current debates and negotiations relating the chosen field & gender
- searching for literature (including grey literature) nested in / pointed to in debates published since the 1980s;
- relating to current (if existing) research projects and case studies of "Gender in Research"
- ordering/clustering the knowledge in singular discourse strands, if possible

This resulted in very compact reviews that support researchers and funding organisations in integrating gender into the respective fields.

In my talk I will focus on one of these literature reviews and give an overview of the existing literature on robotics and gender. I will not only present results from human-robot interaction research, but also from science and technology studies (STS), feminist technoscience, etc. Besides some general aspects, distinct application areas of robot are picked out and discussed: household robots/ social robots; care robots; combat robots, robotics in disaster operations; sex robots & robot brothels.

In addition to the literature reviews, we decided to produce explanatory videos. These videos shall support researchers as well as funding agencies in understanding the essential messages. A three minute video about gender and robots will be part of the presentation.

## References

Pillinger A. (2019). *Gender and Feminist Aspects in Robotics*

[http://www.geecco-project.eu/fileadmin/t/geecco/FemRob\\_Final\\_plus\\_Deckblatt.pdf](http://www.geecco-project.eu/fileadmin/t/geecco/FemRob_Final_plus_Deckblatt.pdf)

Richardson K. (2016). "The asymmetrical relationship: Parallels between prostitution and the development of sex robots.", in «ACM SIGCAS Computers and Society». 45, 3, pp. 290-293.

Robertson J. (2010). "Gendering Humanoid Robots: Robo-Sexism in Japan", in «Body & Society», 16, 2, pp. 1-36.

Suchman, Lucy (2006). *Human-Machine Reconfigurations: Plans and Situated Actions* (2nd ed.)

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<sup>1</sup> TU Wien.

# Workplace management and gender: a literature review and a research agenda

Andrea Ciaramella<sup>1</sup>, Alessandra Migliore<sup>1</sup>, Cristina Rossi-Lamastra<sup>2</sup>, Chiara Tagliaro<sup>1</sup>

## Aims of the contribution

This research proposes a comprehensive literature review of all the studies on how workplace management influences female workers and, more generally, impact on gender equality. Specifically, with the term workplace management, we refer to the strategies to deliver organizational goals and support workers' needs by mean of both spatial and organizational features of the workplace.

## Description of the research

### Introduction

The issue of gender equality is assuming a central relevance in academics' and practitioners' debate; there is general convincement that gender diversity should be accepted and valorised in business and organizational contexts. Conversations on the topic revolve mainly around the factors which facilitate or hamper women's career progresses. Among these factors, workplace management has, so far, gone under-remarked. This is rather surprising as evidence exists that the physical and organizational features of the workplace differently affect male and female workers. For instance, a recent study by Jones Lang LaSalle (Puybaraud, 2017) reveals that more men than women believe that the workplace impact the effectiveness of their work. Why? What does this difference mean and how can we deal with it? The same research finds a significant difference between men and women in the use of "third places" (i.e. cafés, libraries or co-working spaces) at work. It results that men work from third places more frequently than women. Why does this happen? To what extent does this trend influence the way we design and manage the workplaces and we look at organizational and business performances?

Despite the prominence of the topic, a comprehensive review of scholarly contributions is still missing. Research on gender and workplace management is scarce and scattered across multiple disciplines, while mainstream contributions on workplace management rarely address directly gender issues; instead they consider gender as an additional variable. Furthermore, most studies adopt a single disciplinary perspective, whilst a more transversal and inter-disciplinary stance would be desirable to identify a broader spectrum of gender-related issues in the workplace. Such a situation likely has practical consequences on the design of workplaces, and on performances and job satisfaction of workers.

Our literature review intends to overcome the aforementioned shortcomings. In so doing, we also expand the scope of the analysis from traditional themes of workplace management (e.g. typology of office; perception of indoor environmental quality) to new trends, including collaborative spaces and shared facilities, which scholars define as 'commons' and we expect that differently influence male and female workers.

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<sup>1</sup> Department of Architecture, Built Environment and Costruction Engineering, Politecnico di Milano.

<sup>2</sup> Department of Management, Economics and Industrial Engineering, Politecnico di Milano.

## Materials and methods

We performed a systematic literature review based on two sets of keywords, combined in queries through the logical operator AND. We combine keywords pertaining all types of gender-related words with keywords pertaining to workplace management. The former set of keywords includes: “gender”, “sex”, “female”, “woman”, “feminine”, “discrimination”, “bias”, “stereotype”, “equality”. The latter includes: “workplace”, “workspace”, “space plan”, “organizational space”, “office”, “meeting room”, “corporate building”, “co-work”, “collaborative space”, “flexible work”, “home office”, “homework” and “cooperative work”. The selected keywords range purposely from general terms like “gender” and “workplace”, to specific terms like “flexible work”, “co-work”, “cooperative work” that explore the new trends in workplace management.

By combining these two set of keywords, we obtained 117 queries, which, in October 2019, we ran on the abstracts, titles, and keywords of English written documents hosted in the Scopus database. This search ended up in more than 100.000 results, which we narrowed down by applying a set of selection criteria. Specifically, we decided to include only contributions: (i) published in scientific journals (ii) published in the last 10 years; (iii) in the fields of management, economics, business, architecture, engineering, human resources, gender studies, psychology and social sciences; (iv) related to developed countries. The application of these criteria leads us to select 15152 papers. After reading the abstracts, we included in the literature review 101 papers.

## Results

The selected papers span different disciplines. To systematize their contents, we propose a conceptual framework, which we summarize in Table 1. Each paper finds its place inside the table and this helps to recognize the most frequent themes that scholars have analysed when dealing with gender and workplace. The framework consists of a matrix in which we classify papers along two dimensions. The columns identify the spatial and organizational features of the workplace, which researchers have recognized as features that have consequences on women. These consequences are reported on rows, distinguishing consequences on women’s (i) productivity, (ii) creativity, (iii) career advancements, (iv) leadership and status; (v) job satisfaction, (vi) work-life balance, (vii) wellbeing, and (viii) health . Clearly, it may occur that each paper covers more than one theme and, thus, potentially belong to more than one cell in the matrix. For the sake of simplicity, while reading a paper, we identified its main theme and, when discussing the paper, we acknowledged the multiplicity of its themes.

From our reading of the papers, we find support to the idea that all spaces are gendered: space’s features produce or reproduce gender practices (Panayiotou, 2014). Physical indoor characteristics (lighting, humidity, noise, etc.), the type of office (single office, shared office, open plan, etc.) and flexibility in working schedule, load and place affect to different extents men and women wellbeing and status perception (Chung, 2018; Formánková, 2015; Choi, 2017; Hirst, 2018). In particular, flexible work arrangements have an impact on women’s work-life conflict and job satisfaction (Azar, 2018; Beauregard, 2011). Moreover, the literature confirms that shared offices of medium dimensions and shared facilities (Weijs-Perrée, 2019; Bodin Danielsson, 2019) have a stronger effect on improving female creativity, proactiveness and expertise distribution than open plan offices have (De Korte, 2011; Banks, 2011; Heinzen 2018).

Table 3: Framework for the analysis of the selected papers of the literature review

Consequences of women's	Features of the workplace						
	Spatial features of the workplace					Organizational features of the workplace	
	Indoor environmental quality	Ergonomics of the workstation	Type of office	Supportive collaborative facilities	Interior design & aesthetical features	Flexibility of working place	Flexibility of working time and load
Productivity							
Creativity							
Sharing Knowledge & innovation							
Career advancement							
Leadership & Status perception							
Job satisfaction							
Work-life balance & work-family conflicts							
Wellbeing & comfort							
Health							
Co-workers relationship							

## Conclusions

Our review reveals a strong multi-disciplinarity of research on gender and workplace management. In our view, this stands as a strength rather than as a weakness: due to the newness of the topic, studies stem from different disciplines stating the urgency of the theme and its practical implications. Accordingly, it is necessary to bring forth an interdisciplinary research agenda on questions such as: do the design and organization of workspaces – including the collaborative ones – favour the integration and inclusion of women and more generally of minority and diverse groups? How can collaborative spaces' design help organizations achieve gender parity in business contexts? Which workplace characteristics do designer have to consider for improving the level of satisfaction and productivity of the diverse people working in these spaces? Do the new collaborative workplaces empower women to take on entrepreneurial and innovation opportunities?

As attention to gender spans many disciplines and fields, we recognize this literature review as an essential step for scholars interested in gender issues. Moreover, given the widespread attention to gender equality and diversity in the business community, we think that it can offer useful insights to executives, human resources managers, and managers in charge of corporate social responsibility who are increasingly called to design inclusive work practices.

## References

- Azar S. Khana A. and Van Eerde W., (2018). "Modelling linkages between flexible work arrangements' use and organizational outcome", in «Journal of Business Research», 91, pp. 134-143.
- Beauregard T. A. (2011). "Direct and indirect links between organizational work– home culture and employee well-being" in «British Journal of Management», 22, 2, pp. 218-37.
- Bodin Danielsson C. and Theorell T. (2019). "Office Employees' Perception of Workspace Contribution: A Gender and Office Design", in «Environment and Behavior», 51, 9-10, pp. 995-1026.
- Bodin Danielsson, C., Bodin, L., Wulff, C. and Theorell, T. (2015), "The relation between office type and workplace conflict: a gender and noise perspective", in «Journal of Environmental Psychology», 42, pp. 161-171.
- Choi J.H. and Moon J. (2017), "Impacts of human and spatial factors on user satisfaction in office environments", in «Building and Environment», 114, pp. 23-35.
- Chung, H. and Van der Lippe T. (2018c). "Flexible working work life balance and gender equality: Introduction" in «Social Indicators Research», <https://link.springer.com/content/pdf/10.1007/s11205-018-2025-x.pdf>
- De Korte E., Kuijtl L. and Van dei Kleij R, (2011). "*Effects of Meeting Room Interior Design on Team Performance in a Creativity Task*", in Robertson M.M. (ed.), *Ergonomics and Health Aspects: International Conference, EHAWC 2011, Held as Part of HCI International 2011, Orlando, USA, July 9-14, 2011. Proceedings*, Berlin Heidelberg, Springer-Verlag, pp. 59-67.
- Formánková L. and Kuížková A., (2015). "Flexibility trap – the effects of flexible working on the position of female professionals and managers within a corporate environment", in «Gender in Management: An International Journal», 30, 3, pp. 225-238.
- Frontczak M., Schiavon S., Goins J., Arens E., Zhang H. and Wargocki P. (2012). "Quantitative relationships between occupant satisfaction and satisfaction aspects of indoor environmental quality and building design", in «Indoor Air», 22, p. 119e31.
- Hirst A. and Schwabenland C., (2018). "Doing gender in the 'new office'", in «Gender, Work & Organization». 25, 2, pp. 159-176.
- Mitev N., De Vaujany F., Laniray P., Bohas A. and Fabbri J. (2018). *Co-working spaces, collaborative practices and entrepreneurship*, in Riemer K. and Schellhammer S. (eds), *Collaboration in the Digital Age*, Berlin Heidelberg New York, Springer Verlag, pp. 15-43.
- Moriset B. (2014). "Building new places of the creative economy. The rise of coworking spaces". *2nd Geography of Innovation International Conference 2014*, Utrecht University, Utrecht, 23-25 January 2014, 24.
- Panayiotou A. (2014). "Spacing gender, gendering space: a radical strong plot in film", in «Management Learning», 46, 49, pp. 427-443.
- Puybaraud, M. (2017). "Workplace Powered by Human Experience. A global perspective". Retrieved from [http://humanexperience.ill/wp-content/uploads/2018/02/7686-JLL-HUMAN-EXPERIENCE\\_GLOBAL-REPORT\\_SPS\\_A4\\_V5.pdf](http://humanexperience.ill/wp-content/uploads/2018/02/7686-JLL-HUMAN-EXPERIENCE_GLOBAL-REPORT_SPS_A4_V5.pdf)



Weijts-Perrée M., Appel-Meulenbroek R., Arentze T. and Romme G., (2018). "The influence of personal- and business centre characteristics on knowledge sharing types in business centres", in «Facilities», 37, 1-2, pp. 21-37.

# PARALLEL SESSION 2. THE INCLUSION OF THE SEX/GENDER VARIABLES IN RESEARCH: GENDER-INCLUSIVE MATERIAL SCIENCES AND ENGINEERING

**Session chaired by Ilaria Braschi and Marta Klanjšek Gunde**  
University of Bologna, National Institute of Chemistry-Slovenia

## **On the pursuit of gender balance in European cement industries: A bibliometric study using Scopus database**

Geo Paul<sup>1</sup>, Enrico Boccaleri<sup>1</sup>, Ilaria Braschi<sup>2</sup>, Leonardo Marchese<sup>1</sup>

### **Aims of the contribution**

Cement is the most common, perennial, reliable and economic construction material used today with an annual consumption in volume by society only surpassed by water. The increasing attention to environmental protection, CO<sub>2</sub> emissions and resource conservation necessitate finding new solutions to reduce the environmental impact of cements' sustainable production processes. In addition, cement industry is an essential part of the waste management cycle, highlighting its role in circular economy, where waste is recovered as energy and recycled as material in the cement manufacturing process. Based on the bibliometric analysis on the literature published in academic cement journals, indexed in Scopus database, this study showcase the growing diversity and opportunities for women in a sector traditionally associated with men. From the retrieved articles (a period set from 1980 to present), geographic distribution of publications based on the country (European) affiliation of authors and contribution from female authors (both academia and industry based) were analysed. The results of this assessment showed that substantial improvements in gender balance is achieved with respect to the past, particularly in areas related to cement research, innovation and development.

### **Description of the case study**

#### **Introduction**

Cement with an annual world-wide production of about 4 billion tonne and a forecast of growth to above 5 billion tonne by the year 2050, it is bound to accumulate pressure on the already fragile environment and the natural resource base (<https://www.iea.org>; <https://www.globalcement.com>). Cement production and transportation are responsible for approx. 8% of the anthropogenic CO<sub>2</sub> emission and considering the increasing world-wide demand for cement, along with current trends in energy supply, reductions in energy consumption and CO<sub>2</sub> emission associated with cement production represent the most challenging research fields within the cement industry (<https://www.iea.org>; <https://www.globalcement.com>). Therefore, the design, implementation and sustainable production of eco-friendly, low carbon footprint, low energy cement is of paramount importance to today's world. Along with academia, industry plays a leading role in cement

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<sup>1</sup> Department of Sciences and Technological Innovation, University of Eastern Piedmont.

<sup>2</sup> Department of Agricultural and Food Sciences (DISTAL), University of Bologna.

research, innovation and development (RID). Bibliometric analyses were carried out to extract the literature contribution in the cement RID fields related to European authors. Among them, female participation, both in academia and industry based, were deduced based on certain indicators and determined the achievement of gender balance.

## Materials and methods

A bibliometric analysis based on Scopus database was implemented (<https://www.scopus.com>). The keyword was 'cement' as well as the search field was set as 'article title, abstract, keywords' and the study period was set from 1980 to present. Further search refinement elements were inserted in the form of certain constraints, exclusions, limits and filters to minimize false-positive results. The online search was performed on December 12, 2019.

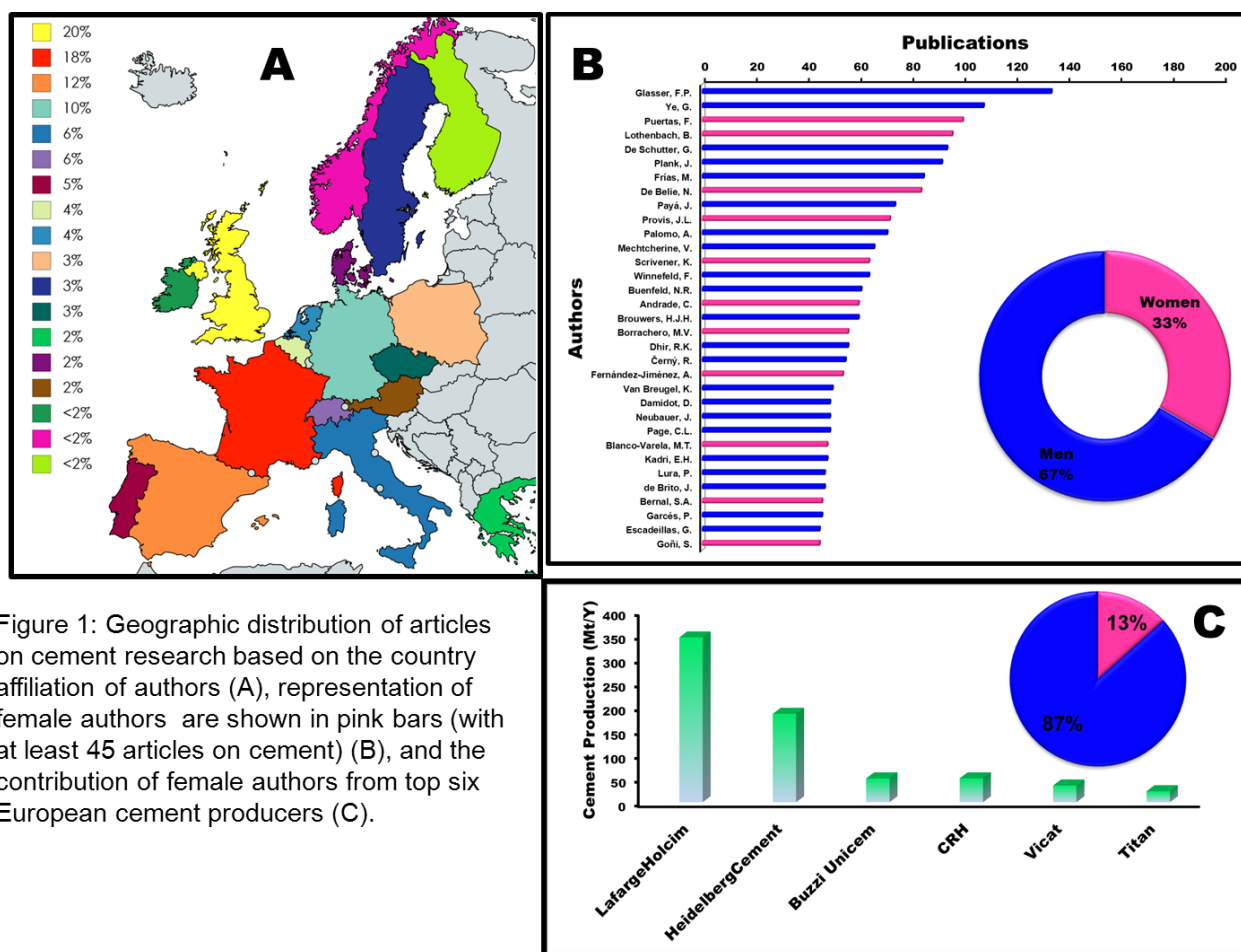


Figure 1: Geographic distribution of articles on cement research based on the country affiliation of authors (A), representation of female authors are shown in pink bars (with at least 45 articles on cement) (B), and the contribution of female authors from top six European cement producers (C).

## Results

Initial search resulted in more than 100000 articles but a further refinement on the subject area restricting to material science and engineering resulted in 68000 articles. Application of additional filters such as country (Europe based), language (English), and source type (journals, cement related) resulted in around 16000 articles. Affiliation filter has been employed to distinguish between academia alone and industry alone contributions. Analysing the search results gave the document count for most productive authors and the statistics related to gender balance. Figure 1 shows the geographic distribution of articles on cement research based on the country affiliation of authors (A) and the contribution from female authors (B) (with at least 45 articles on cement).

The study shows that around 33% of the contributions are from female researchers. However, a detailed analysis revealed that these researchers represent either academia or government funded institutes. Figure 1 (C) illustrates the research articles from authors affiliated to cement industries (in Europe, <https://cembureau.eu/cement-101/key-facts-figures>) alone and only 13% represent female contributions. It is imperative to note here that only contributions from top six cement producers of Europe<sup>2</sup> were considered for this study. More importantly, these cement industries have significantly contributed articles to the cement research fields through collaborative work with the female authors (academia based) of chart B.

## **Conclusions**

This study shows that women can actively play a role in developing the low carbon and low energy cement road map. It highlights the growing participation and active roles of women in the cement industry sector along with academia, more specifically in the cement research, innovation and development areas; however, they are still under-represented. Moreover, the study also finds a sharp growth in industry-academia collaborations as well as research networking in the cement related research, innovation and development fields which will strengthen further the gender balance.

## **References**

<https://cembureau.eu/cement-101/key-facts-figures>

<https://www.globalcement.com>

<https://www.iea.org>

<https://www.scopus.com>

## Gender balance in alkali activated materials / geopolymers research

Giulia Masi<sup>1</sup>, Stefania Manzi<sup>1</sup>, Maria Chiara Bignozzi<sup>1</sup>

### Aims of the contribution

The aim of this study is to evaluate the gender balance in a topic of Materials Research related to the development of alkali activated materials (AAMs) including geopolymers. A great attention has been recently addressed to this topic as AAMs represent a new class of materials with sustainable features. The first paper on geopolymers was published in 1979 by Davidovits, but around early 2000s the research interest has increased and nowadays up to 1000 papers each year are published on International peer-reviewed journals (Scopus source) since 2017.

### Description of the case study

#### Introduction

Alkali activated materials (AAMs), including geopolymers, are a new class of materials produced by the activation of aluminosilicate precursors by alkaline sources (Shi et al., 2019; Provis, 2018). They can be defined as sustainable materials and/or binder systems, due to the fact that a wide range of precursors can be used, with different performances, availability and costs. This aspect makes the development of this type of materials more challenging compared to other construction materials currently applied (e.g. Portland cement), but also more versatile and locally adapted. Many aspects of AAMs and geopolymers have been investigated in the available published literature, such as the synthesis and optimization of several aluminosilicate precursors, the performances of the developed products (chemical, physical, mechanical and microstructural properties) and the investigation of their durability. Geopolymers and AAMs were firstly proposed in 1979 by Davidovits, but only in early 2000s the research interest about this topic has continuously increased up to recent years where more than 1000 papers were published each year in International peer-reviewed journals. This contribution aims at evaluating the gender balance in this specific innovative and dynamic research topic in order to highlight the involvement of women in Materials Science field. The analysis of the authors list of the published papers here reported was carried out using Scopus database, considering publication years from 1979 up to 2019.

#### Materials and methods

The analysis of the published papers on AAMs and geopolymers was carried out using Scopus database. “Alkali activated materials” and “geopolymers” were considered as keywords for the search in the titles, abstracts and keywords. Publications from 1979 and 2019 were analysed. In order to have significant gender balance data, mainly first author and corresponding author, as well as the authors with the highest number of publications in this specific topic were considered.

#### Results

From 1979 up to 2019, around 8000 papers on the specific selected topic have been published. Authors that have published papers with “alkali activated materials” or “geopolymers” within the titles, abstracts or keywords are spread worldwide. Mainly China, Australia, India, United States, Malaysia, United Kingdom and Europe (France, Italy, Czech Republic, Spain and Germany) are the main countries of the authors that have published on this topic. Only the most prolific authors

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<sup>1</sup> Department of Civil, Chemical, Environmental and Materials Engineering (DICAM), University of Bologna.

that have published more than 30 publications are reported in Figure 1, showing that female authors represented around one fifth of the total number of authors.

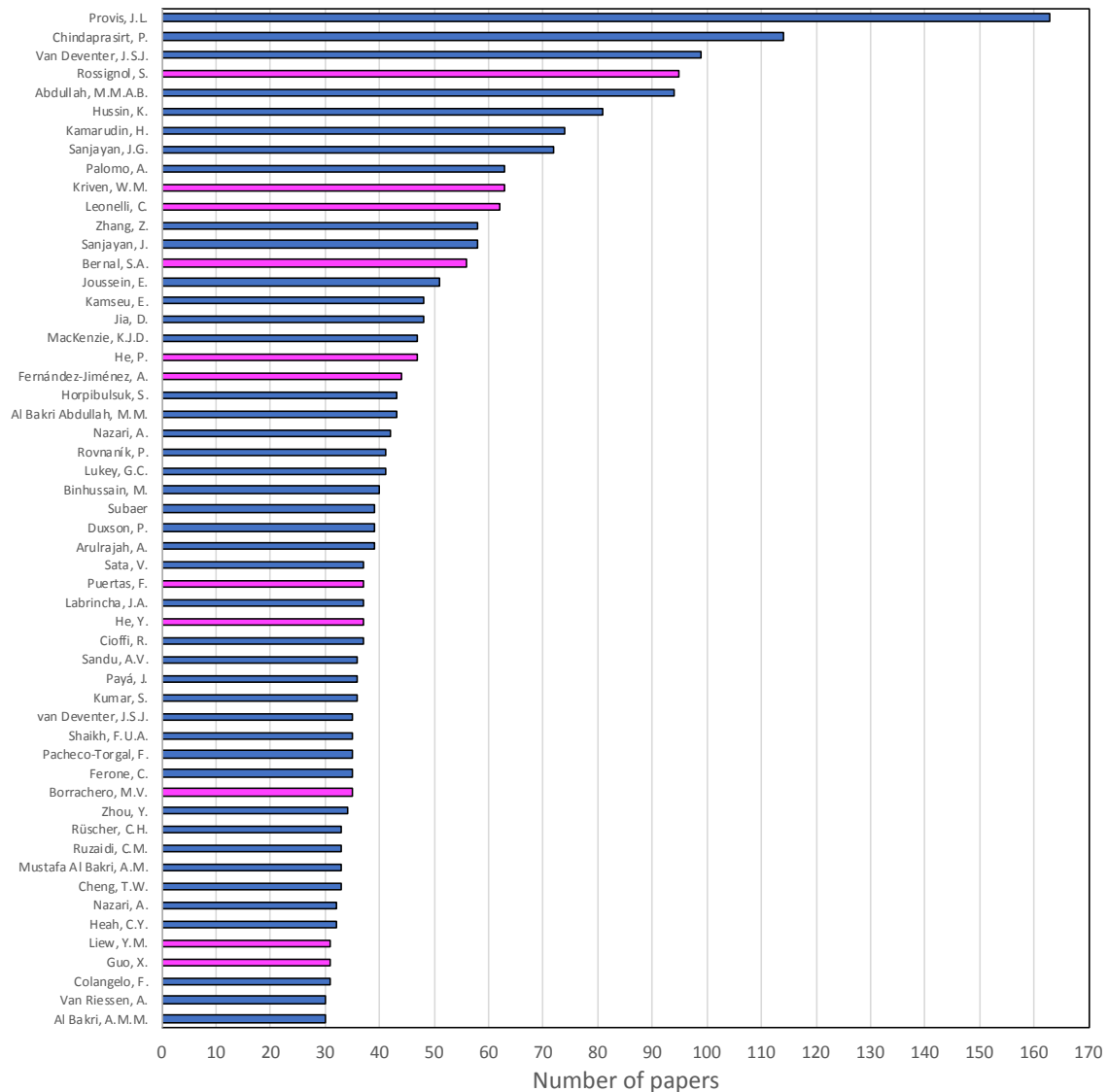


Figure 1. The number of documents by authors.

## Conclusions

The gender balance in the specific research topic of AAMs and geopolymers exhibits that it is still shifted towards men as women only represent the 20% of the most prolific authors. However, the number of female authors is increasing, especially in the last 20 years, thus indicating that a more equal gender balance may be hopefully reached in the near future.

## References

- Provis J.L. (2018). "Alkali-activated materials", in «Cement and Concrete Research», 114, pp. 40-48.
- Shi C., Qu B. and J.L. Provis (2019). "Recent progress in low-carbon binders", in «Cement and Concrete Research», 122, pp. 227-250. Gender equality in engineering scientific research and academic life.

## Case study – Faculty of Geology and Mining, Polytechnic University of Tirana, Albania

Edmond Hoxha<sup>1</sup>

### Aims of the contribution

The aim of contribution is to give a specific example of gender equality inclusion on very specific engineering branch as Geology and Mining area.

### Description of the case study

#### Women's role in Albanian scientific life

Women's role is very important in a developed society especially in decision-making positions and science. As it is known, a society changes through education and science. Including more women, generally in public administration, and especially in academic institutions, and scientific research will improve and make our society better. Albania is a country where the disbalance of gender equality must be considered. Between many life areas, academic and scientific research is an area where this disbalance needs special attention. This presentation gives a specific example of gender equality inclusion on very specific engineering branch as Geology and Mining area

#### Some brief statistics for Albania

- Inequality Index: According of Albanian Institute of Statistics Inequality index for 2018 is 0.07;
- Obligatory education (8-9 year) is followed from 54.8 % of women and 45.3 % of man. Higher education 17.2 % of women and 15.7 % of man over 25 years old;
- Employment in 2018 shows that there are 42.3% of female jobs in the agricultural sector. The second sector that occupies is that of public administration, social society, and service and use activity more, me 21.4%;
- Inequality Index: According of Albanian Institute of Statistics Inequality index for 2018 is 0.07;
- Obligatory education (8-9 year) is followed from 54.8 % of women and 45.3 % of man. Higher education 17.2 % of women and 15.7 % of man over 25 years old;
- Employment in 2018 shows that there are 42.3% of female jobs in the agricultural sector. The second sector that occupies is that of public administration, social society, and service and use activity more, me 21.4%.

#### Some reasons for inequality

- Gender equality exist in the law but in practice are many obstacles;
- Girls lack the confidence that they can afford an important and well-paid career;
- Even though there are a large number of girls enrolling in universities in the fields of science and engineering many of them drop out of studies halfway, or do not pursue further qualifications;
- At the beginning woman and man start academics carrier in the same condition. After creating family, women face a lot of barriers and they hesitate to be a good mother or good scientists

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<sup>1</sup> Department of Mineral Resource Engineering, Polytechnic University, Tirana

### How to include and promote women scientists

- Giving more time for science creating good conditions in family
- Involving them more in all academics process and scientific works like: Curriculum development; Text books preparation; supporting publications; Projects including of women scientist.
- Increasing Role of Media promoting women scientist

### Polytechnic University of Tirana

Polytechnic University of Tirana is one of the biggest and the best Universities in Albania. Even it is very good University, according of the gender equality in scientific research still it must be increase women inclusion. The University includes 7 Faculties and 1 Institute as following: (1) Faculty of Information Technology (FIT); (2) Faculty of Electrical Engineering (FEE); (3) Faculty of Mechanical Engineering (FME); (4) Faculty of Civil Engineering (FCE); (5) Faculty of Architecture and Urbanism (FAU); (6) Faculty of Mathematical Engineering and Physic Engineering (FME & IF); (7) Faculty of Geology and Mining (FGM); (8) Institute of Geosciences, Energy, water and Environment.

### Faculty of Geology and Mining has four Departments:

Faculty of Geology and Mining has four Departments as following: (1) Earth Sciences; (2) Energy source engineering; (3) Mineral Resource Engineering; (4) Applied Geology, Environment and Geoinformatics.

### Women scientists in Geology and Mining area

Geology and Mining is a very specific area, and because of this the inclusions of scientific women in this area until now have been difficult. Faculty of Geology and Mining has in total a staff of 85 persons, 33 or 39% of them are women. It means about 39% are women.

The Actual situation shows: (1) Small number of women with Prof.Dr. Grade; (2) Low involving of women in of Decision Makers. In Decanat (Dean, Deputy Dean). Only man; In Council of Professors there are only man (This because also women did not candidate for this position); Chief of Departments, from 4 only 1 is women; Women Professors leading the Projects. Very few

Nowadays the female students number is increased so my personally believe and vision is that there are possibilities to change this rate increasing it in women's favour. Encouraging the best women students to be part of teaching and scientific research process could be another way to promote gender equality.

### **Conclusion and recommendations**

As conclusion I can say that Re-gendering in Science is immediate action for Albania in generally;

- It is recommended to the government and Parliament to approve and execute special measure to support the active participation of women's in science;
- Special support can be ensured for excellent girls students;
- It is recommended to have equally number of candidates in University election;
- The women themselves must be more active to protect there's right for equally scientific life conditions.



# Fungal infections and sex/gender of fungi, hosts and researchers

Nada Kraševc<sup>1</sup>

## Aims of the contribution

Aim of the contribution is discussion of sex/gender involvement at three different levels during the studies of fungal infection on (human) hosts.

## Description of the case study

### Introduction

On the first glance fungal research has nothing to do with PLOTINA Conference, *Regendering Science*. When thinking deeper, one can realise that in case of fungal infections sex/gender is involved at level of fungi, of hosts and researchers. Do we include sex/gender variables enough in these studies?

### Materials and methods

Sex/gender based data were obtained by mining the literature and former basic knowledge on the research area.

### Results

#### Fungi:

Fungi first appeared approximately 1.5 billion years ago and were among the earliest organisms domesticated by humans. The number of fungal species is estimated to be over 1.5 million, of about 100 are associated with human diseases (Butler, 2010).

Sex emerged early in evolution, and most eukaryotes undergo a sexual cycle. Regarding the evolutionary theory, sex is expensive and inefficient, as it requires the formation of different haploid gametes, which must fuse to regenerate a diploid. Even in fungi, the need to maintain two mating partners reduces fitness. The benefits of sex, including recombination and adaptation, therefore greatly outweigh the efficiencies of mitotic reproduction (Butler, 2010). Homothallic species do not need to maintain mating partners, so benefits of same-cell mating are not immediately obvious. However, homothallic species are also capable of outcrossing, and even a small amount of cross-fertilization is sufficient to maintain diversity (Butler, 2010).

A brief overview on understanding of sexual and asexual reproduction in fungal pathogens commonly infecting humans will be presented (*Aspergillus fumigatus*, *Cryptococcus neoformans* and *Candida albicans*) (Ene IV and RJ Bennett, 2014). Rather than being asexual, mitotic, and largely clonal, as it was thought a decade ago, the vast majority of pathogenic fungi retained sexual, or parasexual, cycles (Ene IV and RJ Bennett, 2014; Heitman et al., 2014). In at least some human pathogenic fungi, the sexual process itself directly influences virulence. (Para)sexual reproduction may be as important for the generation of resistant spores, as for the modulating interaction with host cells (Ene IV and RJ Bennett, 2014; Heitman et al., 2014).

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<sup>1</sup> National Institute of Chemistry, Slovenia.

### Hosts:

Several dermatological fungal infections (tinea pedis, cruris, capitis, manuum, corporis, onychomycosis and different cutaneous candidiasis) seem to be dependent on different life style of women and men (Shemer and Babaev, 2018).

But there seems to be clear sex bias in *C. neoformans* infections, which sickens a quarter of a million people annually (over 180,000 deaths). In humans, male sex is considered a risk factor for cryptococcosis; males also have more severe symptoms and poorer outcomes (HIV- ~3M:1F versus HIV+ ~8M:2F) (Guess et. al., 2019). Sex hormones have been suggested to be the cause, although little primary research has been conducted elucidating the reasons for these differences. Given that the sex difference is both prevalent and accepted by many researchers in the field, surprisingly, there is a lack of comprehensive knowledge (Guess et. al., 2019).

### Researchers:

As we all know by now, despite the high prevalence of women in graduate degree programs and equal or more women earning MDs and PhDs, and despite all efforts to promote women in STEM sciences, disparity in pay and academic advancement of women remains. Likewise, there are fewer women in top scientific and academic leadership positions.

The US Gordon Research Conferences (GRC), known for fostering insight through wide-ranging discussions of cutting-edge science, represents an excellent example of good practices. In addition to the hallmark scientific program, GRC in 2016 introduced the “Power hour”. This session gives communities the opportunity to discuss challenges women face in science. In 2018, the GRC included the Power hour in “Molecular and cellular fungal biology” community for the first time (Riquelme et al., 2018). Another Power hour was held in the 2019 at GRC “Immunology of fungal Infections” (Ballou et al., 2019).

As urgent topics emerged: unconscious gender bias (representation in committees, letters of recommendation, consideration of comments, assigned duties), work-life balance (flexibility, say NO, thoughtful about CV gaps), pay-gap bias (know your worth, negotiate upfront), sexual harassment (know the procedures at institution, endorse a code of conduct and no-harassment roles, encourage people to speak up when they feel it), awareness (write about the gender gap in science, per reviewing, nominations for awards), mentorship (early career researchers in general, and women in particular, to identifying mentors), self-promotion and negotiation, hiring practices (gender blind, aware of the recruitment of minority candidates), building and maintaining networks.

To overcome the perception that under-representation of women as invited speakers is due to a lack of enough qualified women, GoogleDoc was launched (in 2016) which serves as a centralized source for identifying potential women speakers within fungal research community “Women researchers in filamentous fungi and oomycetes” (<http://fungalgenomes.org/blog/wrifo/>).

### **Conclusions**

For global development of ideas in science it is important fostering diversity across the gender spectrum and retention of underrepresented minorities within the research community.

As it is already known from clinical studies, some drugs can have different efficiency in treating diseases in sex dependent manners. Future studies of prevalence for fungal infections should be analysed by the same manner.

## References

- Ballou E.R., Gaffen S.L. Gow N.A.R. and Hise A.G. (2019). "Empowering women: Moving from awareness to action at the immunology of fungal infections Gordon Research Conference", in «Pathogens», 8, 3, pp.103.
- Butler G. (2010). "Fungal sex and pathogenesis", in «Clinical microbiology reviews», 23, pp.140-159.
- Ene IV and RJ Bennett (2014). "The cryptic sexual strategies of human fungal pathogens", in «Nature reviews microbiology», 12, 4, pp. 239-21.
- Guess T.E., Rosen J.A. and McClelland E.E. (2018). "An overview of sex bias in *C. neoformans* infections", in «Journal of Fungi», 4, 2, p. E49.
- Heitman J., Carter D.A, Dyer P.S. and Soll D.R. (2014). "Sexual reproduction of human fungal pathogens, in «Cold Spring Harbor Perspectives in Medicine», 4, 8, a019281.
- Riquelme M. et al. (2018). "The power of discussion: Support for women at the fungal Gordon Research Conference", in «Fungal genetics and biology», 121, pp. 65-67.
- Shemer A. and Babaev M. (2018). *Fungal infections (onychomycosis, tinea pedis, tinea cruris, tinea capitis, tinea manuum, tinea corporis, different candida infections, and pityriasis versicolor) and mycological laboratory analyses*, in Tur E., Maibach E. (eds), *Gender and dermatology*, Cham, Springer, pp. 235-242.
- Women researchers in filamentous fungi and oomycetes*, <http://fungalgenomes.org/blog/wrifo/>, 19/12/2019

## Influence of gender on behaviour change and product acceptance in the upcoming zero-waste economy

Kaja Rems<sup>1</sup>, Uroš Novak<sup>1</sup>, Petra Props<sup>1</sup>

Aim of the contribution and introduction

In our case study, the evaluation of the gender and age on the behaviour change in regards to the acceptance of the zero-waste natural based products have been examined. The BioApp (<https://www.bioapp-platform.eu/>) research project social media platforms were used to extract the data, from the promotional post of the zero-waste product. The Zero Waste International Alliance defines zero waste as “the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.” (<http://zwia.org/zero-waste-definition/>).

The recent expansion of the awareness by the public through social media platforms exposing the current excessive production and consumption of single-use plastic with already visible and documented severe consequences for the environment and human health, opens the way for a new type of so called zero-waste product. To be able to enforce this drastic change in the consumer's behaviour the influence of gender and age of the individuals plays an important role. The previous studies showed that women tend to perceive various hazards as riskier in comparison to men and are less willing than men to impose health and environmental risks on others. However, exposure to hazardous chemicals from some everyday products showed significant differences between sexes (Mc Gregor, 2017). The 2019 Circularity Gap report identifies that whilst globally, the world is only 9% circular, in Europe, our economies are only slightly better at 12% circular, showcasing the big challenges we face ahead of us. Nevertheless, this also represents a huge opportunity, with 88% of our economy left to be transformed into a resource-efficient system (<https://www.circularity-gap.world/>). Currently, biodegradable and bio-plastics do not fulfil expectations concerning degradation and/or composting properties; biodegradable plastics are not produced from renewable sources (<https://www.circularity-gap.world/>; Knickmeyer, 2020). The reduction of plastic has, therefore, become a major global challenge. Moving towards a circular economy, reducing resource consumption and tackling pollution worldwide requires not only the prevention and reduction of waste in the first place but the adaptation of existing policies and services accompanied by a change in consumer culture and behaviour. Overall, research in OECD countries found that in comparison to men's more resource-intense and unsustainable lifestyles and consumption patterns (regardless of whether they are rich or poor), women have a lighter environmental footprint than men (OECD2008). At the household-level, it is more likely that women buy most of the food and other basic consumer goods and this could play an important role in reducing the use of plastic consumer goods in the household (Knickmeyer, 2020). Moreover, it was found that females were the ones who started the promotion of the zero-waste lifestyle on social media in regards to changing lifestyles connected to the rising health and environment-related negative effect of plastics. The study also points out the fact that all the YouTubers were female (<https://stud.epsilon.slu.se/13400/>). One of the reasons for this difference between sexes could lie in cultural based stereotypes that men litter more, recycle less to 'safeguard their gender identity'. Where a study suggests that some men view environmentalism as 'feminine', apparently, and avoid certain behaviours because of that (Swim et al., 2019). It's a common fact that engagements with social media to some degree, influence the everyday lives of most of us. Social media networked database platforms combine public with personal communication and can

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<sup>1</sup> National Institute of Chemistry, Slovenia.

become one of the most powerful tools in for the sustainability groups to deploy the potential of their communicative power (Craig, 2019).

Since the transition of the individual to novel zero-waste solutions might be insufficient to curb the plastic problem, a perspective highlighting the impact of human behaviour is needed. Within the BioApp (<https://www.bioapp-platform.eu/>) research project, the zero-waste products for food, cosmetics using natural materials have been envisioned and the creation of the prototypes was made and their acceptance and likability was tested using social media platforms.

## Materials and methods

The BioApp's project social media platforms have 664 followers on Facebook, 2260 connections on LinkedIn, 250 followers on Instagram and 220 contacts in the Mailchimp campaigns all together. In 2 years' period, when the project was started, a total reach of the posts is higher than 150.000 (statistics from 18.12.2019). For this case study five selected zero-waste products, which were all promoted to the social media users in the form of video, posts with pictures, stories and in the newsletters was analysed with special focus on gender and age of the users who interacted with the posts (Figure 1). The five selected zero-waste prototypes included in this promotion are zero-waste cream packaging, edible water-soluble packaging, biodegradable natural active packaging for fresh food, plastic and toxic chemicals free detergent and containers for the storage.



Figure 1: Five selected zero-waste products developed in the BioApp project.

## Results

Analysis of the BioApp social media data for the five promoted zero-waste products, showed indeed a higher percentage of females interactions (65%), which take into account, shares, likes or other emoji, clicks, or comments in comparison to males (35%). For both sexes, the most active age group was between 25-34 (60%), which was expected since the topic and the usage of the social platform is more frequent among them compared to older generation. Moreover, the results showed no negative feedback from the social media users towards the presented zero-waste products solutions, which can be the case that the social media users are already supporting this

type of behaviour change or the lack of the critical thinking due to the novelty of this concept, without larger sample of the adopters. Finally, majority of the supporters are already being exposed previously to the negative storylines dealing with the single-use plastic waste problem.

## Conclusions

The usage of social media was recognized as a useful tool to help facilitate the development and promotional purposes of zero-waste product and lifestyle especially for non-institutional types of influential groups, such as the BioApp research project, which is being part of a scientific institution. The behaviour change movements in the field of zero-waste and plastic alternative promotions are being so far dominated by the females. However, the examination of the BioApp data showed higher engagement of the male sex, as so far evaluated in the literature, especially those below 34 years old, which shows that the younger generation feels more connected to the zero-waste alternative regardless of their presumed role in the society.

## References

Craig G. (2019). *Media, Sustainability and Everyday Life*, Palgrave Studies in Media and Environmental Communication, Springer.

Knickmeyer D. (2020), "Social factors influencing household waste separation: A literature review on good practices to improve the recycling performance of urban areas", in «Journal of Cleaner Production», 245, 118605.

MacGregor S. (ed) (2017). *Routledge Handbook of Gender and Environment*, Abingdon, Routledge, pp. 202-216.

Swim J.K., Gillis A.J. and Hamaty K.J. (2019). "Gender Bending and Gender Conformity: The Social Consequences of Engaging in Feminine and Masculine Pro-Environmental Behaviors", in «Sex Roles», 82, pp. 363-385.

<https://www.bioapp-platform.eu/>

<http://zwia.org/zero-waste-definition/>

<https://www.circularity-gap.world/>

<https://stud.epsilon.slu.se/13400/>

## Acknowledgements

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## Gender perspective in the plastic recycling field

Raffaella Ferraioli<sup>1</sup>, Paola Scarfato<sup>1</sup>, Loredana Incarnato<sup>1</sup>

### Description of the case study

Plastic represents an important part of the global economy since it combines a broad range of functional properties with competitive cost. However, plastic economy has important environmental drawbacks that are becoming more apparent day by day. Every year, a huge amount of plastics is used, but only 14% of plastic packaging is globally collected for recycling, while 72% is not recovered at all, posing a challenge from a recycling perspective.

Two different approaches to solve the plastic environmental problem, plastic-free and recycling policies, are considered. These solutions are very different: the first one aspires to the elimination of the plastics from our lives, while the second one pursues the circular economy concept.

Using other materials in substitution to plastic could, of course, stop plastic wastes generation, but, at the same time, implies to give up to its numerous advantages.

On the other hand, recycling still presents some unsolved problems. In fact, due to the presence of different polymeric fractions, the properties of recycled plastics are relatively poor and it is not simple to find new fields of application. Sometimes, the reason for this difficulty can be attributed to low mechanical properties, color, touch and odor of recycled materials. On the other hand, some plastics mainly rigid packaging, such as PET and HDPE bottles, and post-commercial films are already recycled at relatively high volumes. The reason for these differences in recycling rates is the extent to which the packaging design enable high-purity after-use streams in significant volumes.

This work aims to analyse the gender perspective in the recycling sector in order to evaluate if a gender-balance in researcher teams could give an improvement to plastic wastes problem.

To completely understand the phenomenon, it is important to consider all the aspects, starting from who generates most plastic refuses. According to Izabela Anna Talalaj and Maria Walery (2015), cities characterized by a higher female to male ratio are afflicted by a huge amount of plastic wastes, meaning that women produce more refuses than men do. This behaviour can be explained noting that women use more different products for personal and children care and the house cleaning.

They also analyze the correspondence between wastes generation and women age.

Oztekin et al. (2017) analyze, through a t-test, the attitude of women and men to recycle and it comes out that women are more inclined to buy packaging made by plastics, preferring recycled plastics to other materials. This behaviour can be attributed to the fact that women take into account the lighter weight of packaging, the necessity to have food with a prolonged shelf-life and the necessity for their children to handle safely packaging. They also use to take with themselves a lot of things useful for themselves and their children, so they need light and reliable packaging. All these reasons make women more likely to continue using plastic and recycle it at the end of life rather than replacing it with other materials.

For what concern the role of gender in the recycling research, it can be noted a male predominance. On the other hand, the applicative sectors selected for the reintroduction on the

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<sup>1</sup> Department of Industrial (DIIN), University of Salerno.

market of the recycled plastic materials such as automotive, construction, etc., are characterized by a male prevalence. A gender-balance of researcher teams can help to framing new application sectors, to rethink all the research pathway focusing on the final products and on the final consumers in order to achieve a commercially attractive recycled good. This perspective is under investigation in our group, involved in H2020 R&I Peers project (project n. 788171), in research activities focused on post-consumer plastic recycling and on development of new, eco-sustainable packaging solutions.

## References

Oztekin C., Teksöz G., Pamuk S., Sahin E. and Kilic D.S. (2017). "Gender perspective on the factors predicting recycling behaviour: implications from the theory of planned behaviour", in «Waste management», 62, 290-302.

Talalaj I.A. and Walery M. (2015). "The effect of gender and age structure on municipal waste generation in Poland", in «Waste management», 40, pp. 3-8



## On The Toluene Adsorption On Hyper Cross-Linked Polymers

Giorgio Gatti<sup>1</sup>, Federico Begni<sup>1</sup>, Chiara Bisio<sup>1</sup>, Geo Paul<sup>1</sup>, Leonardo Marchese<sup>1</sup>

### Description of the research (poster)

Pollutants removal from the environment has proven to be difficult and expensive. In order to address this problem, various methods for the removal of organic contaminants have been developed in recent years such as oxidation, reverse osmosis, ion exchange etc. (Ali et al., 2012). In this respect, adsorption is considered a very promising alternative due to its universal applicability, ease of operation and cost effectiveness. Hence, a growing number of porous sorbents have been developed, ranging from completely inorganic frameworks, such as zeolites, to entirely organic structures like porous polymers.

In this work, we studied and compared the adsorption capacities of toluene on different materials including well established adsorbents, such as zeolites and mesoporous silica and novel materials, such as hyper cross-linked polymers (HCPs).

HCPs were prepared as reported in the literature and using different ratios between monomer tetraphenylmethane (TPM) and cross – linker, formaldehyde dimethyl acetal (FDA) (Errahali et al., 2014). Synthetic route for HCPs consists of employing a Friedel – Crafts alkylation using FeCl<sub>3</sub> as catalyst to promote the formation of a rigid, highly cross-linked framework. By using different TPM/FDA ratio materials with a different degree of cross-linking can be obtained.

Adsorption data showed a higher toluene uptake for HCPs with respect to zeolites and silicas (in particular, Y and MCM-41 solids). In order to gain insights into the nature of host-guest interactions we performed adsorption of fully deuterated toluene on HCPs, monitoring the process through FT-IR and SS-NMR spectroscopy. By combining volumetric analysis and spectroscopy methods it was derived that the organic nature of the aromatic framework displayed by HCPs together with their high surface area are key properties to improve significantly the toluene adsorption capacities.

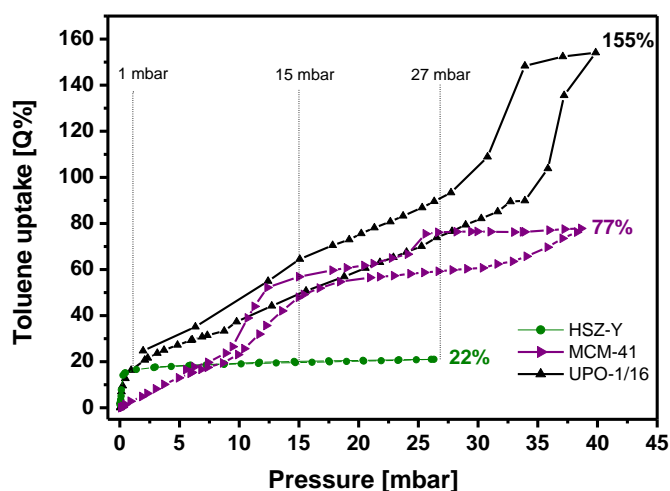


Figure 1: Adsorption isotherms of toluene adsorbed on HCP UPO-1/16 compared with zeolite Y and silica MCM-41

<sup>1</sup> Department of Sciences and Technological Innovation, University of Eastern Piedmont.

## References

Ali I., Asim M. and Khan T.A. (2012). "Low cost adsorbents for the removal of organic pollutants from wastewater", in «Journal of Environmental Management», 113, pp. 170-183.

Errahali M., Gatti G., Tei L., Paul G., Rolla G.A., Canti L., Fraccarollo A., Cossi M., Comotti A., Sozzani P. and Marchese L. (2014). "Microporous Hyper-Cross-Linked Aromatic Polymers Designed for Methane and Carbon Dioxide Adsorption", in «Journal of Physical Chemistry», 118, 49, 28699–28710.

# A Porous Carbon from Recycled Polystyrene for Co<sup>2</sup> Adsorption and Sequestration

Giorgio Gatti<sup>1</sup>, Lorenzo Tei<sup>1</sup>, Enzo Mangano<sup>2</sup>, Stefano Brandani<sup>2</sup>, Maurizio Cossi<sup>1</sup>, Leonardo Marchese<sup>1</sup>

## Description of the research (poster)

### Introduction

Porous carbons play an important role in CO<sub>2</sub> adsorption and separation due to their highly tunable porosity, excellent stability, wide availability, and flexible surface chemistry. Such materials can be obtained from a variety of sources, and through different methods, resulting in several kinds of porous carbons with specific characteristics, suitable to various applications. Here we review briefly the most used materials used for this goal, with a particular focus on the balance between high performance and sustainability of the production route. Then we describe the synthesis and gas adsorption properties of a porous carbon obtained from commercial expanded polystyrene, through a low cost and low impact methodology.

### Method

The first step consists of the Friedel-Craft reaction of the dissolved polystyrene chains with a bridging agent to form a highly-crosslinked polymer, with permanent porosity of 0.7 cm<sup>3</sup>/g; then, this polymer is treated with potassium hydroxide at a high temperature to produce a carbon material with a porous volume larger than 1.4 cm<sup>3</sup>/g and a distribution of ultramicro-, micro-, and mesopores.

### Results

After characterization of the porous carbon and determination of the bulk density, the gas uptake was measured using a volumetric apparatus to various pressures. The equilibrium adsorption isotherms obtained are among the highest reported for this kind of material. The interest of this product lies both in its excellent performance and in the virtually costless starting material.

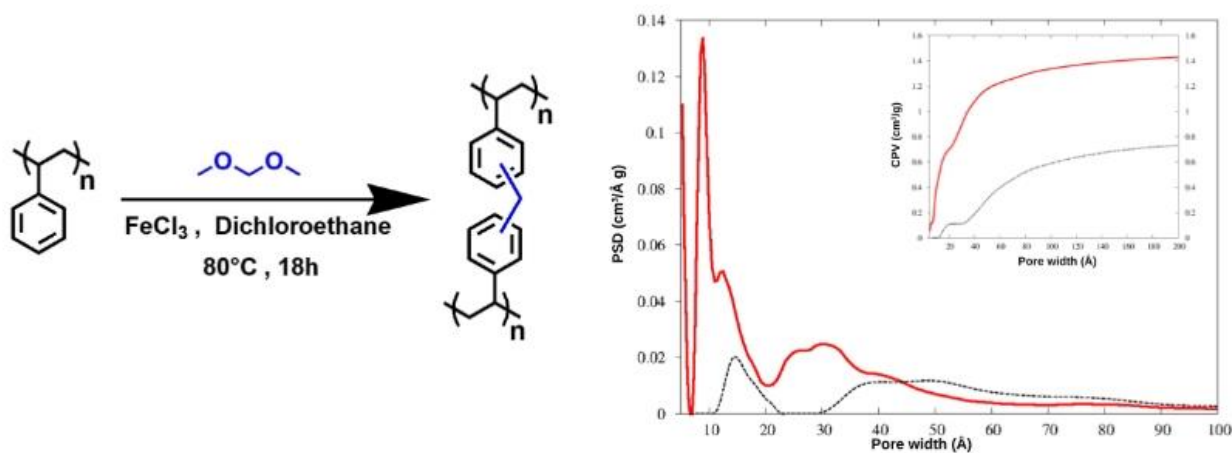


Figure 1: Scheme of Friedel-Crafts cross-linking reaction and pore size distribution of the cross-linked polymers and of the porous carbon after thermal treatment

<sup>1</sup> Department of Sciences and Technological Innovation (DISIT), University of Eastern Piedmont.

<sup>2</sup> School of Engineering, University of Edinburgh.

## PARALLEL SESSION 2. THE INCLUSION OF THE SEX/GENDER VARIABLES IN RESEARCH:

### GENDER AND (MENTAL) HEALTH

**Session chaired by IrisTatjana Graef-Calliess and Ilaria Tarricone**

Department of general psychiatry and psychotherapy, KRH Psychiatry  
Wunstorf, Germany; University of Bologna

#### **Gender differences in severe mental disorders**

Sarah Tosato<sup>1</sup>

##### **Aims of the contribution**

Summarizing the most significant gender influences on mental health in terms of illness incidence and prevalence, mean age at onset, clinical presentation, course, and response to treatment

##### **Description of the research**

###### **Introduction**

Significant gender differences in terms of illness incidence and prevalence, mean age at onset, clinical presentation, course, and response to treatment have been reported for several mental disorders including major depression, bipolar disorder, anxiety disorders, and schizophrenia.

###### **Materials and methods**

A narrative review of the literature has been conducted in order to summarize the most significant gender influences on mental health.

###### **Results**

Depression and anxiety are twice more frequent in women than in men, while men present higher incidence rates of early onset schizophrenia and an earlier onset of obsessive-compulsive disorder. Women affected by depression show higher recurrence and atypical features, and more frequently than men, they attempt suicide (although lethal suicide is more likely to happen in men). Bipolar disorder in men is characterized by manic onset and recurrent episodes (versus depressive onset and recurrent episodes in females) and by lower treatment adherence. Schizophrenia also has significant gender differences: affected males, normally younger at the onset than females, present more severe negative symptoms, worse cognitive impairment, more frequent hospitalizations, and are more likely to commit acts of severe violence. Perinatal depression is a quite frequent (one mother out of

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<sup>1</sup> Section of Psychiatry, Department of Neuroscience, Biomedicine and Movement Sciences, University of Verona.

10 develops postpartum depression) and potentially severe condition. Eating disorders in the past were considered as almost exclusively female disorders, but that is changing rapidly. One million men have been shown to suffer from eating disorders.

### **Conclusions**

In mental health, significant gender differences in terms of illness incidence and prevalence, mean age at onset, clinical presentation, course, and response to treatment exist. Today, which biological, psychological and social factors could be involved in determining these differences, to what extent each of them contributes, and how they interplay, is a matter of open debate.

### **References**

Tomassi S., Tarricone I., Tosato S. (2019). *Psychiatric Disorders*, in Tarricone I. and Riecher-Rössler A. (eds), *Health and Gender. Resilience and Vulnerability Factors For Women's Health in the Contemporary Society*, pp. 215-235.

## Women in music : the case of the Italian Opera

Giuseppina La Face<sup>1</sup>

### Aims of the contribution

The article wants to illustrate three different instances of musical representation of disturbing states of mind in as many female characters of works by Giuseppe Verdi (Ernani, Macbeth, Traviata)

### Description of the case study

#### Introduction

Opera theater was, and still is, a powerful “school of feelings”, thanks to the ability of art music to represent ‘in the act’ (as if we were witnessing them live) the processes of the psyche and the emotional mechanisms which, by affecting the characters in the drama, indirectly influence the audience, too.

#### Materials and methods

Librettos and Scores of G. Verdi

#### Results

The sound representation is achieved through a specific organization of musical form which, even when not consciously objectivized by the listener, is always clearly perceivable.

#### References

Baldacci M. (2008). *La dimensione emozionale del curriculum: l'educazione affettiva razionale nella scuola*, Milano, Franco Angeli.

Baldacci M. (ed), (2009). *I profili emozionali dei modelli didattici: come integrare istruzione e affettività*, Milano, Franco Angeli.

Bianconi L. (2008), *La forma musicale come scuola dei sentimenti*, in La Face G. and Frabboni F. (eds), *Educazione musicale e formazione*, Milano, Franco Angeli, pp. 85-120.

La Face G. (2013). *La casa del mugnaio: ascolto e interpretazione della “Schöne Müllerin”*, Firenze, Leo S. Olschki (German edition: *Das Haus des Müllers: zur Interpretation von Franz Schuberts Liedzyklus “Die schöne Müllerin”*, Vienna, Praesens, 2013).

Powers H. (1987), “La solita forma” and “The Uses of Convention”, in «Acta Musicologica», LIX, pp. 65-90.

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<sup>1</sup> Department of Arts (DAR), University of Bologna

## **Women in the history of health**

Annagiulia Gramenzi<sup>1</sup>

### **Aims of the contribution**

To briefly review the role and the progress of women in the history of medicine focusing on the mechanism used by medicine throughout history to legitimise and justify the subordinated role of women as healers and as patients.

### **Description of the case study/research/experience/best practice**

#### **Introduction**

Women have played a substantial role in both health and healing since the beginning of history. However, the role of women in medicine has been largely neglected by historians, who have primarily focused on the great male university-trained physicians. Indeed, with the founding of medieval universities, women were formally and systematically excluded as students, thereby creating a male monopoly in the practice and history of medicine.

#### **Materials and methods**

A historical literature review

#### **Results**

Reasons behind gender inequality in medicine are numerous and complex. They are deeply rooted in the history of western medical thinking. Examples of historical gender inequality in medicine will be discussed.

#### **Conclusions**

The heritage of women in healthcare only began to receive significant historical attention from the 1970s. Recent historical studies suggest that the role of women in medicine, both as objects and subjects, has not been yet fully understood. Nowadays, researchers and medical historians point out the gender bias in the body of knowledge and practice of medicine built by men century after century. Further investigations on this topic are needed also for the implications for gender equality in medicine in the future.

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<sup>1</sup> Department of Medical and Surgical Sciences (DIMEC), Università di Bologna.

# Gender-specificity of depression? Results of the “Male Depression” study

Iris Tatjana Graef-Calliess<sup>1</sup>, Vanessa Rößner-Ruff<sup>2</sup>

## Aims of the contribution

Investigation of the following issues:

1. Do any gender-specific differences exist in the “atypical” expression of symptoms between male and female patients with a unipolar depressive disorder?
2. Do male depression-related factors like psychiatric comorbidities, gender-related norms or personality-related aspects effect the expression of “atypical” depressive symptoms?
3. Which scientific and clinical implications can be drawn for the mental health care of depressive disorders?

## Description of the research

### Introduction

Although depression is one of the most prevalent disorders, our understanding of potentially gender-specific expressions of depressive symptoms is still limited. The concept of male depression (MD) constitutes that women express so called “typical” depressive symptoms while men offer more so called “atypical” depressive symptoms like aggressiveness, anger attacks, irritability, substance abuse or alcohol misuse. Current evidence of studies on this topic are heterogeneous. Moreover, the effect of male depression-related factors like psychiatric comorbidities, gender-related norms or personality-related aspects to the expression of depressive symptoms is still unclear. The intention of this multicenter study is the inclusion of gender variables in psychiatric research and mental health care.

### Materials and methods

Male and female patients (>16 years) with a first diagnosis of depressive episode or recurrent depressive disorder (ICD-10), who are treated in in-patient or day clinic settings of the five participating psychiatric centers in Germany will be studied. There are no limitations to further diagnosis, age or other factors. To analyze the depressive symptoms and above mentioned male depression-related factors five self-rating questionnaires will be used. The intention of this multicenter study, designed as a quantitative survey, was to obtain 1000 test persons. The collection of data was from June 2017 until December 2019. The cases of number have already been achieved.

### Results and conclusions

The results of the study might possibly clarify whether there exist any gender-specific differences in the expression of depressive symptoms and by which male depression-related factors they might be caused. Results of the study will be presented.

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1 Department of General Psychiatry and Psychotherapy, KRH Psychiatry Wunstorf.

2 Department of Research and Development, Day clinic setting, Wahrendorff Clinic.



## PARALLEL SESSION 3

# THE INCLUSION OF THE SEX/GENDER VARIABLES AND OF GENDER EQUALITY ISSUES IN TEACHING CURRICULA

**Session chaired by Francesca Crivellaro and Elena Luppi**  
University of Bologna

### **Pathways and effects of gender pressure on academic/vocational choices: The role of schools and educational settings**

Vincenzo Bochicchio<sup>1</sup>, Cristiano Scandurra<sup>2</sup>, Manuela Stranges<sup>3</sup>

#### **Aims of the contribution**

The contribution is aimed at exploring the effects of gender pressure on child and adolescence development, specifically highlighting its outcomes on academic/vocational choices of young girls. Implications for regendering school settings and teaching curricula will be discussed and proposed.

#### **Description of the contribution**

##### **Introduction**

Gender pressure can be defined as a pressure for sex typing in early childhood and adolescence (Egan and Perry, 2001), that is extensively, commonly, explicitly, and implicitly present in all social interactions, particularly in children-adults interactions occurring in parenting and educational processes (Hines, 2004; Mesman and Groeneveld, 2018; Kollmayer, et. al., 2016).

Pressure for sex typing usually concerns gender role representations and stereotypes, and it is supposed to have a deep impact on academic and vocational choices, discouraging girls in further STEM studies.

##### **Materials**

A literature review on the contemporary theoretical frameworks of gender development shows that gender pressure differently affects children and adolescents, highlighting that effects and outcomes of gender pressure are strictly related to the age and stage of development. In particular, although toys and game for young children (pre-school and primary school) are strongly gendered – and this seems to discourage STEM-related activities (Coyle and Liben, 2018) –, female pupils seem to express a great interest in STEM subjects (Bauer, 2017) during primary school. Girls seem to become attracted to science,

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1 Department Of Humanities, University of Calabria.

2 Department of Neuroscience, Reproductive Sciences and Dentistry, University of Naples "Federico II"

3 Department of Economics, Statistics and Finance, University of Calabria.

technology, engineering and math particularly between the ages of 11 and 12, but that interest begins to drop off significantly between 13 and 15, with limited recovery. During high schools this trend tends to remain stable and seems to have a deep effect on the choice of the degree course (Bauer, 2017).

## Results

This analysis showed that female pupils tend to lose interest in STEM subjects during pre-adolescence (a period ranged from primary and high school). It is plausible to hypothesize that this is the stage of development during which gender pressure has the higher impact on academic and vocational choices in girls, discouraging them in further STEM studies and career. This would imply that governments, teachers, parents and universities would only have four or five years to nurture girls' passion for STEM subjects contrasting their loss of interest. Thus, the most favourable time for contrasting this gender pressure effect would be during middle school.

## Conclusions

Universities and other educational and governmental institutions are recently doing great efforts in regendering teaching curricula in order to increase the engagement of girls and women in STEM subjects and careers. Nevertheless, our analysis shows that intervention on academic teaching curricula, as well as on high school curricula, or any other activities aimed at regendering education and encouraging girls' interest in STEM after pre-adolescence, could have a limited impact as girls have probably already lost interest in STEM. Activities for regendering teaching curricula and orientation/vocational activities proposed by universities should involve especially students and teachers of middle school, following some suggestions present in scientific literature.

## References

- Bauer M. W. (2017). *Why Europe's girls aren't studying STEM*, Microsoft report retrieved from: [https://news.microsoft.com/uploads/2017/03/ms\\_stem\\_whitepaper.pdf](https://news.microsoft.com/uploads/2017/03/ms_stem_whitepaper.pdf)
- Coyle E.F., Liben L.S. (2018). "Gendered Packaging of a STEM Toy Influences Children's Play, Mechanical Learning, and Mothers' Play Guidance", in «Child Development», 91, 1, pp. 43-62.
- Egan S.K. and Perry D.G. (2001). "Gender identity: A multidimensional analysis with implications for psychosocial adjustment", in «Developmental Psychology» 37, 4, pp. 451-463.
- Hines M. (2004). *Brain gender*. New York, NY: Oxford University Press.
- Kollmayer M., Schober B. and Spiel C. (2016). "Gender stereotypes in education: Development, consequences, and interventions", in «European Journal of Developmental Psychology», 15, 4, pp. 361-377.
- Mesman J. and Groeneveld M.G. (2018). "Gendered parenting in early childhood: Subtle but unmistakable if you know where to look", in «Child Development Perspectives», 12, 1: 22-27.

## Best Practice in P.E. for gender equity

Monica Parri<sup>1</sup>

### Aims of the contribution

Many studies highlight that the main strategies used by P.E. (Physical Education) teachers are shaped by their personal views on the factors affecting male and female participation. These are embedded in stereotypes of gender and often do not reflect what is being advocated by literature (Murphy et al., 2014). The aim of this contribution is to outline a learning proposal for P.E. teachers or perspective teachers, starting from a reflexive approach to gender to help explain the gender issues and everyday practical constraints on P.E. teachers.

### Description of the research

#### Introduction

Male and female experiences in sport and P.E. are often a place where gender behaviours and norms develop and are enacted within an active identity. In schools, P.E. has historically been connected with gender stereotypes and hegemonic masculinity. Sport-based curricula and many P.E. programmes continue to be dominated by masculine elements. Knowing what teachers say and do in their P.E. classes, what activities they choose and how they organise their class is crucial because it has the potential to challenge assumptions based on gender. We interviewed a group of Italian P.E. teachers in first grade Secondary Schools about the factors affecting female and male student participation in P.E. and the strategies they used to engaged female and male student. Our findings suggest that there are perceived differences in many aspects of the personality and learning experience, however they often aren't carefully considered in the planning of activities. The study highlights the need for policies and programs aimed at supporting P.E. teachers to implement gender sensitive strategies in their daily practice. The recognition of socio-cultural gender influences requires a reflexive process that can lead the way to the deconstruction of stereotypes and the possibility to manage didactic actions in this sense (Ferrante and Sartori, 2012). In this process, it is crucial that the teacher focuses not only on their way of teaching, but also on their way of learning and reproducing concepts in relation to their biases, ideas and assumptions (Nigris, 2015). Therefore, it is necessary to activate reflexive processes. P.E. teachers could identify in workshops the conscious and non-conscious elements of their gender habits. This process will shed the light on assumptions that are often taken for granted, including ideals of masculinity and femininity in sports. On the other hand, reflectivity is defined as a "habitus" that can be improved through practice. Most studies encourage the inclusion of such reflective practices in the curricula of University Degrees in Physical Education.

#### Materials and methods

Schools play a crucial role in the education to gender, being places where values, norms, models and meanings of gender are part of daily activities. Following an analysis of relevant literature, we considered the implication of the hidden curriculum on the transmission of gender stereotypes in schools. We then focused on the findings of online interviews to P.E. teachers in first grade Secondary Schools, which aimed at investigating their gender

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<sup>1</sup> PhD, Department for Life Quality Studies, University of Bologna.

perspectives. We then outlined the possibility of unveiling the contents of the hidden curriculum with reflexive practice, as inferred from Dewey (Dewey and Monroy, 1961) and Schön's work (Schön, 2012). Lastly, we identified specific areas of development of P.E. teachers' workshops, also thanks to a reference to the categories of identity, learning and professional dimension.

## Results

The interview outcomes show a superficial consideration of gender, taking into account the complexities of teaching. Teachers tend to minimise the problem, and favour other issues that are perceived as more urgent in the current educational panorama.

## Conclusions

Increasing P.E. teachers' awareness of gendered discourses and practices through pre-service teacher training courses, workshops and professional development has been identified as an effective step in the process of gender reform in P.E. Further reflection is needed on both the offer for equal opportunities in P.E. practice and the valorisation of every student. The pedagogical idea of a reflexive workshop, as proved in this article, is still missing in school P.E. and deserves careful attention.

## References

- Dewey J. and Monroy A.G. (1961). *Come pensiamo: Una riformulazione del rapporto fra il pensiero riflessivo e l'educazione*, Firenze, La nuova Italia.
- Ferrante A. and Sartori D. (2012). "La riflessione pedagogica tra educazione formale e informale", in «Education Sciences & Society», 3, 2, pp. 235-253.
- Murphy B., Dionigi R.A. and Litchfield C. (2014). "Physical education and female participation: A case study of teachers' perspectives and strategies", in «Issues in Educational Research», 24, 3, pp. 241-259.
- Nigris E. (2015). "Teaching transposition: toward significance and legitimizing of knowledge", in «Education Sciences & Society», 6, 1, pp. 51-63.
- Schön D.A. (1993). *Il Professionista riflessivo: per una nuova epistemologia della pratica professionale*, Bari, Edizioni Dedalo.
- Scraton S. (2018). "Feminism(s) and PE: 25 years of Shaping Up to Womanhood", in «Sport, Education and Society», 23, 7, pp. 638-651.

## **Narrating gender cultures, creating social change. The sociological experience of the experimental workshop**

### **Genere, cultura, società of Sapienza University of Rome**

Gaia Peruzzi<sup>1</sup>, Vittoria Bernardini<sup>1</sup>, Raffaele Lombardi<sup>1</sup>

#### **Aims of the contribution**

Our paper aims to contribute to the debate on the promotion of gender awareness among undergraduate students by presenting the outcome of a multi-year workshop carried out within two courses in Sociology of Culture and Communication at Sapienza University.

Based on the evidence from this activity, we put forward some reflections on the following aspects of the inclusion of gender education at university level:

- the importance of integrating gender issues and intersectional perspectives into teaching curricula in the field of social sciences;
- the effectiveness of the sociological approach for promoting gender consciousness;
- the persisting resistance to gender equality that young Italian women and men face in their lives.

#### **Description of the experience**

##### **Introduction**

We intend to present the experience of the workshop *Genere, cultura, società* that took place at Sapienza University. The need to develop this activity emerged as the result of the following considerations:

- Despite recent efforts to include gender equality at all education levels (i.e. the "Buona Scuola" law), there is still scarcity of institutional occasions for young Italians to acquire gender competences and awareness.
- There is an urgent need for public universities to commit to promoting a scientific approach to gender.
- Gender awareness must be understood as a competence for global citizenship and as transversal to all academic curricula, rather than as a stand-alone subject.

The workshop proposes gender cultures as a site for analysis within the sociology of culture. Because the tension between culture and nature is central to studying gender, the sociological approach proves especially useful, since among its primary objectives is the deconstruction of informal, taken-for-granted cultural norms (Bourdieu 1998). Gender cultures represent an effective subject to develop the students' sociological eye (Hughes 1971) and apply the theoretical concepts they acquire.

The workshop was carried out as part of two courses in Sociology of Culture within two separate degree programmes, one in communication and one in fashion. The activity began in 2017-2018 and has been repeated for three years.

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<sup>1</sup> Department of Communication and Social Research, Rome University "La Sapienza".

The students were asked to write a “social autobiography” that focused on the dimension of gender in their lives. The topic was introduced through lectures and key readings on gender studies (Connell 2011), with the aim of providing a theoretical overview and competences to deconstruct the experience of gender. They were thus able to analyse the social construction of gender, the pressure and expectations of gender norms, and the persistence of inequalities.

The workshop served a two-fold purpose. It represents a formative process for the students, who gained new competences in gender education and applied them to their everyday lives. The workshop also functioned as action research, since it allowed to collect evidence on the students’ new awareness of gender.

### **Materials and methods**

The 250 social autobiographies make up the corpus for our analysis. The authors are between 19 and 25 years old, equally divided between men and women, reside in the Lazio region, and mostly come from central/southern Italy. Around 10% of them have immigrant background. Although this population is not statistically representative, it offers valuable access to individuals who are expected to occupy high-level positions.

Due to the quantity and heterogeneous nature of the corpus, we examined the texts through thematic analysis as a qualitative “method for identifying, analysing and reporting patterns” of meaning across a data set (Braun and Clark, 2006, p. 6) and re-constructed recurring trends and processes of meaning-making across the students’ experiences.

### **Results**

The workshop *Genere, cultura, società* is currently in progress, and we plan on continuing the activity in the coming years. The existing corpus already constitutes a significant outcome, especially in light of the fact there is little empirical research on young people’s gender perceptions in Italy.

Our analysis provides an important insight into the gendered lives of young Italians in a number of areas: stereotypes on gender roles; prejudice against equality; the role of family and school in reproducing disparities and discrimination; the gaps within national cultures between centre/periphery, urban/rural contexts, natives/migrants. The material shows that, through education and training, young people can be made aware of the influence of societal pressures on the construction of individuals’ gender identity. This offers a number of suggestions for the effective integration of gender issues within teaching curricula:

- The social autobiography is a valuable tool for introducing young people to gender studies.
- The sociological perspective is useful for understanding the cultural dimension of gender identity.
- The relational approach to gender stimulates participants to see themselves from new points of view.

Lastly, the workshop has created new relationships with different institutional subjects and external actors (e.g. the publishing house for *Il bias del gender*; see Peruzzi et. al., 2019).

## Conclusions

The main takeaway from our experience is the immediate reactivity of the students to a moderate stimulus. Their pre-existing interest in gender, combined with a short introduction to the subject, led to insightful reflections and new awareness. This offers promise for obtaining similarly favourable results in learning activities related to gender in the future.

Our workshop also shows the effectiveness of combining teaching tools and academic research, as it increases students' gender sensitivity and enriches scientific knowledge on young people and gender.

Finally, given the equally enthusiastic participation of students from different Faculties, we prove the transversality of the sociological approach and are confident that it can successfully be employed in other academic contexts.



The publication presents the first results of the workshop *Genere, cultura, società*.

## References

- Bourdieu P. (1998). *La domination masculine*, Paris, Editions du Seuil.
- Braun V. and Clarke V. (2006). "Using thematic analysis in psychology", in «Qualitative Research in Psychology», 3, 2, pp. 77-101.
- Connell R.W. (2011), *Questioni di genere*, Bologna, il Mulino.
- Hughes E.C. (1971). *The sociological eye*, Transaction publishers.
- Peruzzi G., Bernardini V., Lombardi R. (2019), "Le questioni di genere dei giovani. Un'indagine sulle percezioni e le esperienze di studenti e studentesse universitari", in AA.VV., *Il Bias del genere. Identità, biopolitica e sessualizzazione dell'esistenza*, Trani, Durango Edizioni, pp. 13-50.

## Acknowledgements

We thank the students for making their stories available.

# Popular Education and Feminism in the Bachilleratos Populares of Buenos Aires

Claudia Paganoni<sup>1</sup>

## Aim of the contribution

With this contribution, I would like to contribute to spread knowledge about the Bachilleratos Populares - the popular high schools - of Buenos Aires and the feminist and antisexist popular education practices that are carried out within them. At the present juncture, these schools are a fortunate meeting point between the tradition of Latin American popular education and the ferment of the fourth wave of feminism, which makes them very relevant yards of practices and theories, it is worth getting to know and explore.

## Description of the research

Between August and November 2018, as part of the Thesis Abroad project of the University of Bologna, I had the opportunity to stay in Buenos Aires to carry out qualitative field research on Bachilleratos Populares – popular high schools – and in particular on the fight against gender discrimination within these schools. From this research I developed my final thesis in Global Cultures entitled: Popular Education and Feminism in the Bachilleratos Populares of Buenos Aires.

The field work was carried out under the supervision of GEMSEP, the Grupo de Estudios sobre Movimientos Sociales y Educación Popular, of the Faculty of Sociology of the University of Buenos Aires. I went to Buenos Aires to study the Bachilleratos Populares, the popular secondary schools that, since 2004, are present in different districts of the city; once there, I decided to focus in particular on the way in which certain schools deal with sexuality and gender issues and fight against gender oppression. During the three months I spent in Buenos Aires, I was able to carry out my investigation in four Bachilleratos Populares of the city: Escuela Libre de Constitución, Parque Patricios, La Dignidad and Vientos del Pueblo. I was able to carry out 22 semi-structured interviews with various members of these schools: 6 teachers, 12 students and 2 psychologists - as well as 2 members of the GEMSEP group. My field work most of all consisted of participating observation during lessons and assemblies in these schools. In fact, during this period, I actively participated in the activities of the four schools, going to class every day and collaborating in different ways.

My thesis follows two macro research lines, because my desire was to retrace these two segments of history. On the one hand, I investigate the history of Latin American popular education and the way in which the Bachilleratos Populares fit in it. On the other hand, I present the recent developments of Argentine feminist and women movements. I outline the salient features of the so called wave of feminism in Argentina – above all framing Ni Una Menos & the Campaña Nacional por el Derecho al Aborto Legal, Seguro y Gratuito. The educational field is a privileged ground in which the feminist cultural battle takes place. These two histories, of feminism and popular education, find a field of articulation in the Bachilleratos Populares, that are starting to practice a popular education that is feminist.

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<sup>1</sup> University of Bologna.



Bachilleratos populares or bachis are evening secondary schools for young people (from 16 years) and adults, lasting three years, aimed at anyone who has left school and wishes to finish it. Some are managed by large organizations and social movements, others by territorial organizations, still others are completely autonomous. Most of these schools are located in Buenos Aires, where the phenomenon of BPs began, in 2004, three years after the Argentinian economic and political crisis, a time when the rate of school exclusion was very high because of the deep crisis of the public education system and the state in general. BP are located in specific territories, especially working-class neighborhoods or recovered factories. That of BP is a relatively limited response to state insolvency in numerical terms, but it has a very interesting political-pedagogical potential. In truth, even from a quantitative point of view, the phenomenon is not irrelevant: we know that today there are about 130 bachis throughout the country, most of them in Buenos Aires.

I assert the feminist wave is entering in the four bachis because of different data I observed, that I divided in three macro-areas. First of all, I analyzed the presence of specific projects activated by the schools to work on issues related to gender and sexuality. Just in the period in which I was in Buenos Aires, they activated new specific projects: kindergartens that allow mums to stay at school; workshops about Educación Sexual Integral (integral sexual education), an Espacio Varónes (a men's space), an Espacio Mujeres (a women's space), a Consultoria (women's counseling) and sex education lessons, usually during the hours of Science. Secondly, I investigated the crosscutting nature of the gender issue in the daily school life, within the different areas of study (like history, anthropology and also maths). Finally, I analyzed the contacts of teachers and students with feminist and women's movements: teachers are actually very active and they always talk about demonstrations and protests taking place in the country and some students also take part in them, sometimes for the first time thanks to the bachis.



Figure 1. Poster of the "Encuentro 2018 de redes de educadorxs populares".

Thanks to the research I have done, I have discovered that the Bachilleratos Populares, with their daily work, are building a great experience around the popular feminist education; my thesis is an attempt to frame and systematize part of this know-how, which could be useful and beneficial in many other contexts, including the educational institutions of our country.



Figure 2. Demonstration on 7 June 2018 of the Coordinadora de los Bachilleratos Populares en Lucha

## References

- GEMSEP (2015). *Cuadernillo para el Debate No 1: 10 años de Bachilleratos Populares en Argentina*. <http://gemsep.blogspot.com.ar/> .
- Gentili P. and Sverdlick I. (2008). "Movimientos sociales y derecho a la educación: cuatro estudios", Buenos Aires, Laboratorio de Políticas Públicas.
- Korol C. (2007). *Hacia una pedagogía feminista*, Buenos Aires, El Colectivo, América Libre.
- Korol C. and Castro G. C. (2015). *Feminismos populares. Pedagogías y Políticas*, Colombia, La Fogota Editorial.
- Sverdlick I. and Costas P. (2007). "Bachilleratos Populares en Empresas Recuperadas y Organizaciones Sociales en Buenos Aires", in «Ensayos & Investigaciones del Laboratorio de Políticas Públicas», 30.

# **G-CoRe: A pedagogical tool for gender mainstreaming in higher education**

Anna Isaksson<sup>1</sup>, John Lindgren<sup>2</sup>, Pernilla Nilsson<sup>1</sup>

## **Aims of the contribution**

The aim of this contribution is to present and further explore a pedagogical tool aiming to enhance gender mainstreaming in teaching and content in higher education.

## **Description of the research**

### **Introduction**

Previous research has demonstrated how teachers often experience gender mainstreaming in higher education (content, design and implementation) as a challenge (Heikkilä and Häyrén Weineståhl, 2009; Lindroth and Bondestam, 2014). In Sweden however, requirements for gender mainstreaming are high both in the Higher Education Act and the evaluations of the quality of higher education undertaken by the Swedish Higher Education Authority. Gender equality and gender mainstreaming are also key quality factors in the universities' own quality assurance systems.

Today, there are few methods that support teachers in their efforts with integrating a gender perspective into the teaching content. Hence, the need for scientifically based tools is widespread. In this study we investigate a pedagogical tool (Gender CoRe) that aim to help teachers integrate gender aspects both in the content and the teaching of that content. The main research question for the study is "How do teachers experience Gender CoRe (G-CoRe) as a way to enhance gender mainstreaming in teaching and content in higher education?"

### **Materials and methods**

Within the subject didactic research, a didactic reflection tool called Content Representations (CoRe) has been developed to support teachers in planning and teaching the content in a way that promotes student learning. Research demonstrates that CoRe is an effective tool for teachers to develop their ability to communicate content in a way that provides successful learning situations for students. When using CoRe, the teacher formulates a number of Big Ideas, important phenomena or concepts, within a specific subject area. Each of these Big Ideas is reflected on a number of pedagogical prompts e.g. what students need to learn and why, as well as students' possible difficulties in understanding the concepts (e.g. Nilsson and Karlsson, 2019; Nilsson and Elm, 2017; Hume and Berry, 2010, 2013; Loughran et. al., 2006). Based on this didactic research, researchers at Halmstad University, Sweden, have developed a so-called G-CoRe (Gender CoRe) where teachers are supposed to formulate Big Ideas and reflect on how it may be possible to integrate gender equality into the content.

During 2019-2020, five teachers at Halmstad University, Sweden, used the Gender CoRe for planning content where a gender perspective was included. In this presentation we present a case of how one of the five teachers (a teacher within the Construction Engineering programme) experienced the use of G-CoRe to integrate gender aspects, both in the content

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1 School of Education, Humanities and Social Sciences, Halmstad University.

2 School of Business, Engineering and Science, Halmstad University.

of and the actual teaching performance; What were perceived as possibilities and challenges with the G-CoRe? How could the G-CoRe be further developed to enable teachers in their work with gender mainstreaming?

## Results

In the data collected on teachers' experience of using G-CoRe there were several examples of how the G-CoRe was experienced as valuable as a reflective tool to integrate gender aspects in the content and teaching. In the particular case presented here the teacher in Construction Engineering highlighted the strength of the G-CoRe as it focuses on and describes their abilities and also their challenges in the classroom while working with gender mainstreaming in the classroom. Further, with the help of the G-CoRe, the teachers can reason together and think about what different gender aspects within the content they need to identify and implement within their teaching. It appeared that using a G-CoRe design encouraged collaborative discussion and reflection about integrating gender aspects when teaching certain big ideas linked to a topic. As such, our findings suggest that the G-CoRe has potential to overcome some of the challenges that many teachers experience in their efforts to integrate a gender perspective in their higher education practice.

## References

- Heikkilä M. and Häyrén Weineståhl A. (2009). *Kartläggning och analys av jämställdhetsinsatser vid svenska universitet och högskolor 2000–2009*, Stockholm, Delegationen för jämställdhet i högskolan, Rapport 2009:1.
- Hume A. and Berry A. (2010). "Constructing CoRes—A strategy for building PCK in pre-service science teacher education", in «Research in Science Education», 41, 3, pp. 341-355.
- Hume A. and Berry A. (2013). "Enhancing the practicum experience for pre-service chemistry teachers through collaborative CoRe design with mentor teachers", in «Research in Science Education», 43, 5, pp. 2107-2136.
- Lindroth M. and Bondestam F. (2014). *Godtycklig jämställdhet. Implementering av examensordningens mål för jämställdhet i professionsutbildningar vid Göteborgs universitet*, Göteborgs universitet, Nationella sekretariatet för genusforskning.
- Loughran J., Berry A. and Mulhall P. (2006). *Understanding and developing science teachers' pedagogical content knowledge*, Dordrecht, Sense Publishers.
- Nilsson, P. and Karlsson G. (2019). "Capturing student teachers' pedagogical content knowledge (PCK) using CoRes and digital technology", in« International Journal of Science Education», 41, 4, pp. 419-447
- Nilsson P. and Elm A. (2017). "Capturing and Developing Early Childhood Teachers' Science Pedagogical Content Knowledge Through CoRes", in «Journal of Science Teacher Education», 28, 5, pp.406-424.

## PARALLEL SESSION 4

### MEASURING GENDER EQUALITY IN ORGANISATIONS: INDICATORS AND MONITORING TOOLS

**Session chaired by Benedetta Siboni, Giovanna Galizzi,  
Klaus Schuch and Maria Schwarz-Woelzl**

University of Bologna, University of Bergamo, Centre for Social  
Innovation, Austria, PLOTINA Advisory Board

#### **Exploring Women Representation in Civil Engineering Teaching and Research in Slovenia. A Historical Perspective**

Barbara Vodopivec<sup>1</sup>

##### **Aim of the contribution**

Gender representation as well as the position of women in Slovenian civil engineering profession in the 20th Century and today are completely overlooked areas in Slovenian scientific and scholarly literature. This contribution is the first attempt to address the topics. It derives from measuring gender equality in education and research in a historical and comparative perspective (TU Vienna; Technische Universität Wien (Fig. 2) and it was based predominately on primary sources. The aim of the contribution is to shed light on this thus far neglected topic by establishing an in-depth knowledge on the empowerment of women in the past, as well as by creating bases to understand their representation in the sector today. At the same time, it aims to offer scientifically sound support for development and introduction of thus far non-existent indicators and measures for monitoring and fostering the progress of gender equality in Slovenian construction sector.

##### **Description of the research**

##### **Introduction**

The first woman Doctor of Science in civil engineering in Slovenia (1976) and a higher number of women graduates in the 1970s and in the 1980s indicate that the gender representation in this traditionally male dominated field started to be balanced more evenly in the decades after 1945. The purpose of this paper is to analyse the process and to discuss the causes and consequences of the development. The results of original quantitative empirical research are placed in a wider context of the position of women in Slovenia and Yugoslavia especially in the decades after the Second World War and in the context of the economic position of construction industry in Slovenia and Yugoslavia at that time.

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<sup>1</sup> Research Centre of the Slovenian Academy of Sciences and Arts, France Stele Institute of Art History.

## **Materials and methods**

Research work, the results of which are presented in the contribution, was conducted in the scope of the European research project MoMoWo – Women's Creativity Since the Modern Movement, the aim of which was to promote the overlooked heritage of women who established themselves in the 20th century in professions that were mostly in the domain of men, civil engineering among them. A quantitative analysis of women civil engineers in education and the world of academia in Slovenia, covers the period from the foundation of the University of Ljubljana (1919) until the independence of Slovenia (1991), while special attention is placed on the time after 1945, and especially on the decades between 1970 and 1990. Owing to the extent of this previously unresearched field, the research was based predominately on the study of primary sources: archival sources of relevant institutions and individuals, as well as of the leading civil engineering journal and reports of both universities. In order to understand historical context relevant literature was taken into consideration. Yet, the historical overview of the civil engineering development in Yugoslavia was done based on the secondary sources and represents another novelty of the contribution.

The scope of the contribution had to be limited. We therefore omit women in constructions business sector and this important field remains the subject of future exploration. In the future, it will also be necessary to carry out a systematic comparative study of the former republics of Yugoslavia and the neighboring countries, since some comparative perspectives are only tackled herewith.

## **Results**

Indicators to measure representation of women in civil engineering education and research were: number of graduates in all study programs of the Faculty of Civil and Geodetic Engineering of the University of Ljubljana (UL FGG) and the University of Maribor, broken down by the level of education (PhD, MSc, BA, Fig. 1), number of women employed at the UL FGG, broken down by the position (assistant, assistant professor, associate professor) and number of female authors of scientific articles in journal *Gradbeni vestnik*.

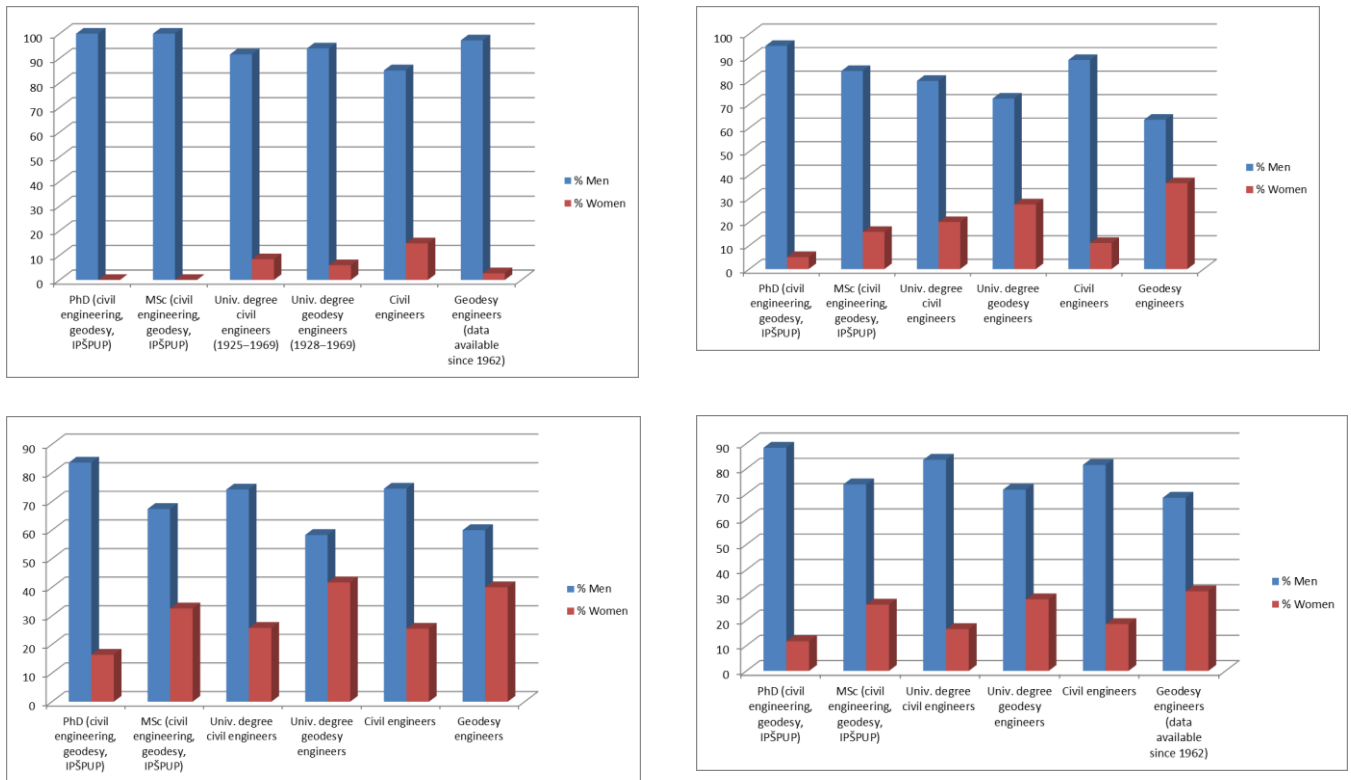


Fig. 1: Graphic representation of the ratio of men and women graduates of the study programs at the UL FAGG between 1935 and 2008, in percentages. The periodization of the chart and graphic representations follow the availability of data in the research sources. Source: B. Vodopivec based on the Majes 2009a data; Archive of the UL FGG Student Affairs Office.

Access to education, social politics inclined to women, the enrolment of the baby boom generation to the university and in view of the conjuncture of the appeal of the field of engineering, had an impact on a larger representation of women in the study of civil engineering and, consequently, in its academic world. The breakthrough of women in the 1980s was surely connected also to the implementation of the so called Young researchers program. The first woman Doctor of Civil Engineering was Darinka Batellino (b. 1940) in 1976, while the number of women doctors increased only after 1990.

Important for greater representation of women among the graduates of the University of Ljubljana, Faculty of Civil and Geodetic Engineering (UL FGG) is the interdisciplinary IPŠPUP study program; by the end of the program, there were 48% of women among the graduates, which is the highest percentage among all study programs discussed in this paper. At the end of the 1980s, women presented approximately 20% of researchers and the pedagogical employees at the UL FAGG, however, their positions were lower than that of their male colleagues.

Women authors appeared in the pivotal sectoral scientific journal *Gradbeni vestnik* early on, as early as the 1950s, which can be attributed solely to articles by civil engineer Carmen Jež-Gala (1925-1965). At the end of the 1960s and in the 1970s the number of women authors increased, owing especially to articles reporting about the achievements in the field of economy.

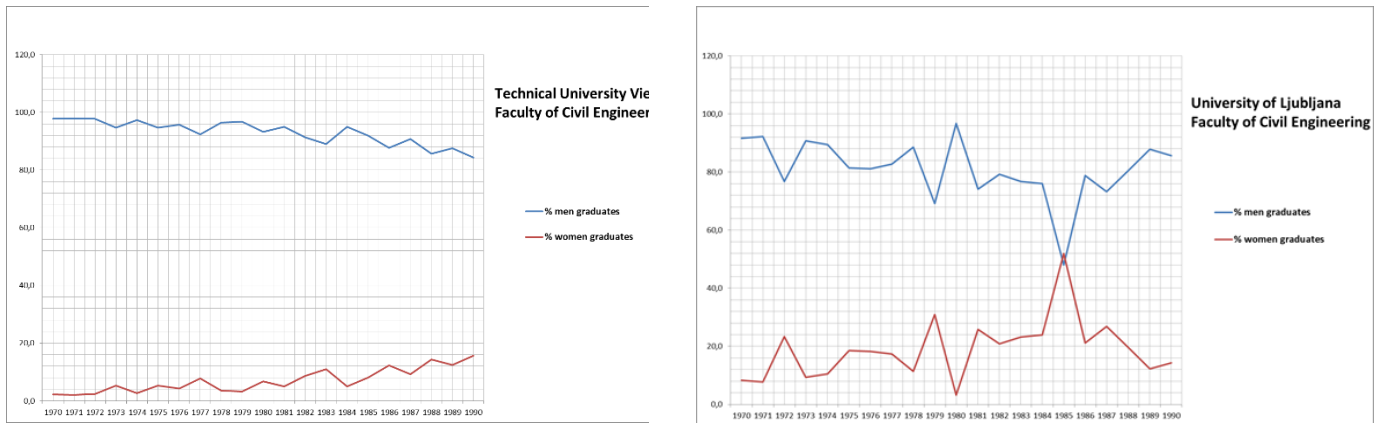


Fig. 2: Comparison between graduates of Civil Engineering at the TU Wien and graduates of Civil Engineering (Bachelor of Civil Engineering) at the UL FAGG between 1970 and 1990. Shown in percentages based on gender. Source: B. Vodopivec based on the data of the TU

## Conclusions

The results of a quantitative analysis presented in this contribution attests that the breakthrough of women in engineering occurred in educational as well as the academic environment precisely in the period under consideration. An in-depth analysis of the social and developmental context and the development of the construction profession in the second half of the 20th century offers an understanding of the reasons for the breakthrough, among which stand out the legalisation of equal rights, demographic trends and the economic role of engineering.

## References

- Antić Gaber M. (ed), (2011). *Ženske na robovih politike*, Ljubljana, Sophia.
- Archive of the *Gradbeni vestnik* journal.
- Archive of the Institute of Metal Constructions.
- Archive of the Postgraduate Student Affairs Office, Faculty of Civil Engineering, Traffic Engineering and Architecture of the University of Maribor.
- Archive of the Student Affairs Office Archive, Faculty of Civil and Geodetic Engineering of the University of Ljubljana.
- Battelino D. and Bleiweis J. (1989). *Gradbeniško šolstvo*, in Dermastia A. (ed), *Enciklopedija Slovenije* 3, Ljubljana, Mladinska knjiga, p. 354.
- Berend T.I. (2013). *Gospodarska zgodovina Evrope v 20. stoletju*, Ljubljana, ZRC SAZU and Modrijan.
- Brezar V. et al. (1994). *Faculty of Architecture, Civil Engineering and Geodesy*, in Repež M. (ed), *75 years of continuous work of the University of Ljubljana 1919–1994*, Ljubljana, Univerza v Ljubljani, pp. 40-45.
- Bubnov S. (1989). *Gradbeni vestnik*, in Dermastia A. (ed), *Enciklopedija Slovenije* 3, Ljubljana, Mladinska knjiga, p. 358.



Bubnov S. (1984). "Gradbeništvo v procesu gospodarske stabilizacije", in «Gradbeni vestnik», 7, pp. 151-152.

Čadež V. (1964). "Osnove za perspektivni program razvoja gradbeništva in industrije gradbenega materiala 1964–1970", in «Gradbeni vestnik», 8/9, pp. 149-162.

Čadež V. (1989). *Gradbeništvo*, in Dermastia A. (ed), *Enciklopedija Slovenije 3*, Ljubljana, Mladinska knjiga, pp. 354-358.

Chronomomowo. International Travelling Exhibition MoMoWo | 100 Works in 100 Years | European Women in Architecture and Design | 1918–2018. Ljubljana, Atrij ZRC, Novi trg 2, Ljubljana, Slovenia, 4 April – 4 May 2017.

Črepinšek E. (1981). "Razvoj fleksibilne stanovanjske gradnje v GIP Ingrad Celje", in «Gradbeni vestnik», 12, pp. 284-289.

Črepinšek E. (1986). "Montažni system Ingrad iz ploskovnih elementov", in «Gradbeni vestnik», 8/9, pp. 137-137.

FGPA. *Fakulteta za gradbeništvo, promet in arhitekturo Univerze v Mariboru*, <http://www.fgpa.um.si/>

Gabrič A. (2000). *Univerza v Mariboru*, in Dermastia A. (ed), *Enciklopedija Slovenije 14*, Ljubljana, Mladinska knjiga, pp. 55–57.

Glažar J. (1988). "Gospodarski položaj gradbeništva in IGM Slovenije v preteklem in tekočem srednjeročnem obdobju", in «Gradbeni vestnik», 4/6, pp. 58-61.

Györkö J. and Glavič Novak T. (eds), (2016). *>30. Več kot 30 let programa Mladi raziskovalci*, Ljubljana, ARRS.

Jeraj M. (2005). *Slovenske na prehodu v socializem. Vloga in položaj ženske v Sloveniji 1945–1953*, Ljubljana, Arhiv Republike Slovenije.

Jež Gala C. (1955-56). "Prispevek k računanju nosilcev na elastični podlagi", in «Gradbeni vestnik», 39/40, pp. 113-117.

Jež Gala C. (1956-57). "Današnje stanje raznih predpisov o stabilitetnih problemih pri jeklenih konstrukcijah", in «Gradbeni vestnik», 47/50, pp. 129-136.

Jež Gala C. (1956-57). "Uporaba plastostatike pri jeklenih konstrukcijah", in «Gradbeni vestnik», 47/50, pp. 159-171.

Judt T. (2007). *Povojna Evropa: 1945-2005. Vol. 1*, Ljubljana, Mladinska knjiga.

Koželj J. and Zemljič V. (eds), (1989). *Fakulteta za arhitekturo, gradbeništvo in geodezijo 1979-1989. Jubilejni zbornik ob sedemdesetletnici Univerze v Ljubljani in Fakultete za arhitekturo, gradbeništvo in geodezijo v Ljubljani. Gradbeništvo in geodezija*, Ljubljana, FAGG.

Majes B. (2009b). *Zgodovinski pregled razvoja Fakultete za gradbeništvo in geodezijo 1919–2009*, in Majes B. (ed), *Fakulteta za gradbeništvo in geodezijo: 1989–2009. Jubilejni zbornik ob devetdesetletnici Fakultete za gradbeništvo in geodezijo Univerze v Ljubljani*, Ljubljana, UL FGG, pp. 491-513.

- Majes B. (ed), (2009a). *Fakulteta za gradbeništvo in geodezijo: 1989–2009. Jubilejni zbornik ob devetdesetletnici Fakultete za gradbeništvo in geodezijo Univerze v Ljubljani*, Ljubljana, UL FGG.
- Marksel M. (2011). *Vpliv svetovne finančne krize na gradbeništvo s poudarkom na Sloveniji*, BA Thesis, Maribor, Univerza v Mariboru, Ekonomsko-poslovna fakulteta.
- Megušar M. (1970). "Program dolgoročnega razvoja v gradbeništvu", in «Gradbeni vestnik», 11, pp. 312-217.
- Mikoš M. and Hudin R. (eds), (2001). *Poročilo UL FGG za leto 2001*, Ljubljana, UL FGG.
- MoMoWo. *MoMoWo. Womens' Creativity since the modern Movement*, [www.momowo.eu](http://www.momowo.eu)
- Odluka o proglašenju ustava Federativne Narodne Republike Jugoslavije*, in «Službeni list Federativne Narodne Republike Jugoslavije», 10, 1 February 1946, pp. 74–94.
- Pogačnik A. (ed), (1998). *25 let Interdisciplinarnega podiplomskega študija prostorskega in urbanističnega planiranja (IPŠPUP) na Fakulteti za gradbeništvo in geodezijo Univerze v Ljubljani*, Ljubljana, Univerza v Ljubljani.
- Private archive of Anton Smolej.
- Private archive of Darinka Battelino.
- Saje M. *Poročilo o strokovnem in raziskovalnem delu v letu 1981-1990*, Ljubljana, UL FAGG.
- Seražin H. (2018). *Female Pioneers in Slovene Architecture, Civil Engineering and Design*, in Franchini C. and Garda E. (eds), *Women's Creativity since the Modern Movement. An European Cultural Heritage*, Torino, Politecnico di Torino, pp. 174-181.
- Skulj S. (1982). "Gradbeništvo včeraj, danes, jutri", in «Gradbeni vestnik», 11, pp. 194-197.
- Skulj S. (1984). "Gradbeništvo v pogojih gospodarske stabilizacije", in «Gradbeni vestnik», 7, pp. 157-160.
- Spasojević D. (1974a). "Vloga, ekonomski pomen in mesto našega gradbeništva v zadnjih letih", in «Gradbeni vestnik», 5, pp. 42-148.
- Spasojević D. (1974b). "Vloga, ekonomski pomen in mesto našega gradbeništva v zadnjih letih", in «Gradbeni vestnik», 6/7, pp. 186-189.
- Štor M. (2002). *Največje ekonomske krize in njihov vpliv na svetovne kapitalske trge*, BA Thesis, Ljubljana, Univerza v Ljubljani, Ekonomska fakulteta.
- Stropnik J. (ed), (1965). *65 let začetka študija strojništva, 40 let visokošolskega študija strojništva v Sloveniji*, Ljubljana, Univerza Edvarda Kardelja v Ljubljani, Fakulteta za strojništvo.
- Trauner L (1990). "30 let študija VTO gradbeništvo", in «Gradbeni vestnik», 1/2, pp. 2-4.
- Turnšek V. (1970). "Doseženo stanje tehničnega razvoja v gradbeništvu in njegove perspektive", in «Gradbeni vestnik», 11, pp. 304-307.
- Valentinčič J. (1964). "Poročilo o problemih in pogojih za razvoj gradbeništva v SR Sloveniji", in «Gradbeni vestnik», 10, pp. 188-192.
- Verginella M. (2006). *Ženska obrobja*, Ljubljana, DELTA.

- Vižintin J. (1980). "Dejavnost in cilji ZRMK", in «Gradbeni vestnik», 10, pp. 213-217.
- Vodopivec B. (2017). *Darinka Battelino*, in Šterbenc Svetina B. (ed), *Novi slovenski biografski leksikon, Vol. 2*, Ljubljana, ZRC SAZU, pp. 179-180.
- Vodopivec B. (2018a). *Women in Conservation Profession in Socialist Yugoslavia: Some Comparative Perspectives*, in Seražin H. et al. (eds), *MoMoWo: women's creativity since the modern movement (1918-2018): toward a new perception and reception*, Ljubljana, Založba ZRC, pp. 280-288.
- Vodopivec B. (2018b). *Carmen Jež Gala: Beograd, 1925 – Ljubljana, 1965*, in Franchini C. and Garda E. (eds), *MoMoWo: women's creativity since the modern movement. An European cultural heritage*, Torino, Politecnico di Torino, p. 158.
- Vodopivec B. (2018c). *Sonja Lapajne Oblak: Ljubljana, 1906 – Ljubljana, 1995*, in Franchini C. and Garda E. (eds), *MoMoWo: women's creativity since the modern movement. An European cultural heritage*, Torino, Politecnico di Torino, p. 150.
- Vodopivec B. (2019). *Maruška Šubic Kovač.* V *ospredje 4: pionirke slovenske arhitekture, gradbeništva in oblikovanja, exhibition*, Ljubljana, Galerija DESSA, 4 March – 11 April 2019.
- Vodopivec B. *Interview with dr. Darinka Battelino, civil engineer*, at MoMoWo 2nd International Conference-Workshop Women designers, architects and engineers between 1946 and 1968, Research Centre of Slovenian Academy of Sciences and Arts, France Stele Institute of Art History, Ljubljana, 4 October 2016.
- Vodopivec P. (2010). *Od Pohlinove slovnice do samostojne države. Slovenska zgodovina od konca 18. do konca 20. stoletja*, Ljubljana, Modrijan.
- Vrečko F. (1985). "Zakaj ni učencev v gradbenih šolah", in «Gradbeni vestnik», 9, pp. 192-193.
- Zavodnik Lamovšek A. (2018). *Prostorski načrtovalci 21. stoletja*, Ljubljana, UL FGG.
- Zemljič V. (1990). "Študij gradbeništva skozi 70 let", in «Gradbeni vestnik», 10/11, pp. 198-205.
- Zemljič V. (ed), (1979). *Fakulteta za arhitekturo, gradbeništvo in geodezijo 1919–1979. Ob šestdesetletnici visokošolskega študija arhitekture, gradbeništva in geodezije v Ljubljani*, Ljubljana, FAGG.
- Žitnik D. et al. (eds), (1989). *Sto let gradbene šole v Ljubljani in gradbenega šolstva na Slovenskem*, Ljubljana, Srednja gradbena šola Ivana Kavčiča Ljubljana.
- Žižek A. (ed), (2004). *Ženska skozi zgodovino*, Ljubljana, Zveza zgodovinskih društev Slovenije.

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# Accounting potential and gender research drivers and challenges in Italy: first proposals

Maria-Gabriella Baldarelli<sup>1</sup>

## Aim of the contribution (poster)

To fill the research gap of “accounting potential”(Broadbent, 1995, 1998) that concerns the role of female scholars in the field of accounting providing an innovative contribution on a topic that has remained marginal or “left out of” the scientific debate in a non–Anglo-Saxon-setting (Italy) (Komori, 2015)This paper aims to contribute to the research gap that concerns the role of female scholars in the field of accounting providing an innovative contribution on a topic that has remained marginal or “left out of” the scientific debate in a non–Anglo-Saxon-setting (Italy). The research question is: “How to investigate and to manage the research gap of “accounting potential ?”. The research design follows a multidimensional scheme, based on the dimensions of the bodies of knowledge and social practices, used to analyse the scientific productivity, the career progression and the visibility of women scholars among the governing bodies of Italian academia and the Italian schools of thought. Findings point out the processes and mechanisms that they encountered during their research process and networks creation in academia, in order to develop the research capital and gain visibility and reputation. Therefore, the work provides useful insights into the challenges faced by women accounting scholars in progressing in their career, achieving recognition and participating in accounting academic debates.

## Research Design

The research design follows a multidimensional scheme, based on the dimensions of the bodies of knowledge and social practices, used to analyse the scientific productivity, the career progression and the visibility of women scholars among the governing bodies of Italian academia and the Italian schools of thought (quantitative analysis) and the story telling of women accounting scholars in Italy

## Literature review

Bodies of knowledge and social practices (Hopwood, 1987; Kirkham, 1992; Lehman, 1992; Loft, 1992) used to analyze the scientific productivity, the career progression and the visibility of women scholars among the governing bodies of Italian academia and the Italian schools of thought is more difficult to reach than men with exceptions (Di Stefano, 1993; Centorrino and Pulejo, 2013; Coronella, 2014; Cooper, 2001; Fletcher et al., 2007; Baldarelli et al., 2019).

## Insights

Therefore, the relationship between ‘bodies of knowledge’ and social practices is progressively changing. Still in Italy, an identity of the woman as mother and wife, and therefore relegated to the private sphere. That has implication to find the drivers of the challenges about the “recognition” of: the scientific productivity, the career progression and the visibility of women scholars among the governing bodies of Italian academia and the Italian schools of thought.

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<sup>1</sup> Department of Management (DISA), University of Bologna.

# Editorial leadership of academic journals: a question of gender imbalance?

Mara Del Baldo<sup>1</sup>

## Aims of the contribution

The work aims to investigate the existence of a specific type of discrimination against women in the scientific world, namely, the gender imbalance in the composition of the editorial boards of scientific journals. Specifically, the work is finalised to assess the presence (or the absence) of women scholars in the leadership of the most prestigious international journals of accounting and verify if there is a glass ceiling (Lehman, 1992; Baxter and Wright, 2000; Cotter et al., 2001; Goodmann et al., 2003) and a crystal cliff phenomenon (Broadbent and Kirkham, 2008) in the governance of scientific journals.

## Description of the research

### Introduction

Discrimination in science is not easily recognised by all researchers since they feel that science cannot be affected by this kind of bias. Scientific research is considered an outstanding activity, generally accepted as neutral, practised by highly educated people and continuously in competition with others at an international level (Genova et al., 2014). However, in recent decades, gender inequalities and gender imbalance within the university system and academia (i.e. leading academic organisations of different scientific fields, including accounting and business administration, among others), have been emerging as important topics of the national and international scientific and political debate (Blum, 1991; Sala, 2008; Sala and Bosisio, 2009; Broadbent, 1995; Broadbent and Kirkham, 2008; Siboni et al., 2016; EC, 2016). The gender balance at the highest levels of journal editorial leadership, such as editorial boards of academic journals, represents a rather under-investigated topic among the literature stream on diversity in top academic positions.

The editorial boards of academic journals are important gatekeepers and trendsetters in the creation and dissemination of knowledge (Pan and Zhang, 2013). Membership on journal editorial boards usually signals scholarly stature and professional advancement (Topaz et al., 2016; European Commission, 2012; She Figures 2015 – EC, 2016; National Science Foundation, 2004 and 2012).

Prior studies on gender representation on editorial boards have been carried out addressing the field of Medicine (Morton and Sonnad; Amrein et al., 2011; Galley and Colvin, 2013; Keiser, Utzinger and Singer, 2003), Environmental biology and Resource management (Cho et al., 2014), Ecology (Fox, Burns and Meyer, 2011), Science (Mauleón et al., 2013) and Information systems (Lamp, 2007; Canabac, 2012). By contrast, a minor number of contributions have quantified the gender composition of editorial boards in Economics (Addis and Villa, 2003), Political science (Stegmaier et al., 2011), Social sciences (Addis and Villa, 2003; Green, 1998; Stark et al., 1997), Management (Metz and Harzing, 2009) and Business administration and management (Metz and Harzing, 2012)

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<sup>1</sup> Department of Economics, Society and Politics (DESP), University of Urbino.

## Materials and methods

The research design includes a theoretical analysis derived from a review of papers on gender imbalance in science and academia manifested in the scientific journal editorial leadership. Secondly, the work presents the first result of an empirical investigation focused on the scientific journals in the field of Accounting ranked in the list proposed by the Association of Business Schools (ABS) in 2015 and included in the Italian ANVUR list (2018).

Following Cho et al., 2014 and previous research (Kennedy et al., 2001; Gollins et al., 2017; Morton and Sonnad; 2007; Topaz et al., 2016; Metz and Harzing, 2012; Teghtsoonian, 1974), the analysis addresses the following questions: (1) What proportion of Editorial board members of Accounting journals are women? (2) How many women serve in leadership positions, i.e., as Editors-in-Chief or Associate Editors?

We focused on the accounting domains of research in order to provide useful insights to fill a gap in this specific area and verify whether there is a lack of visibility of the female component within the gender composition of the editorial teams of highly regarded journals of accounting. We then decided to take into consideration the ABS ranking list because it represents the most notable and influential list in the context of UK business schools (ABS Guide, 2015) that includes a total of 1,401 journals based on three impact factors related to citation information (JCR, SJR and SNIP). In addition, we used a second source, namely the ANVUR (Italian) list of class A journals in the scientific area 13 (updated 09/03/2017). Selecting the journals included in both lists using “accounting” as the keyword, we identified 18 accounting journals. For each journal, we considered the last issue published in 2017 chosen as starting point to depict a “state of the art”.

## Results

Results confirm the underrepresentation of women and their reduced visibility in the governance of journals, as it happens (and happened) in other STEMs or non-STEM disciplines (i.e. management and marketing). Among the members of the editorial teams of the accounting journals, 76% are occupied by men, and one can suppose that at the time of selection, editors preferred individuals of their own sex by virtue of the mechanisms empirically assessed in previous research that generate gender imbalance, and can be considered discriminatory deriving from the fact that the inclusion of women scholars in prominent editorial positions determines a greater percentage of women also in the other organs (Cho et al., 2014). Results point out that gender equity in editorial leadership in accounting (as well other disciplines) has not yet been reached and still represents a challenge (Gollins et al., 2017). In this regard, our analysis confirms a gender bias from the quantitative point of view.

## Conclusions

The gender imbalance in editorial leadership positions affects different areas and scientific fields. Editorial board positions provide valuable opportunities for intellectual and professional growth because allow communicating the recognition received by the scientific community, nationally and internationally, Being an editor, but even more an editor-in-chief of a scientific journal, implies determining the direction and content of the research. Excluding or limiting women from such positions translates into damage both for publishers and more generally for the whole society potentially interested in the progress generated by the advancement of scientific research, because it deprives the scientific field of women’s contributions and perspectives (Loyd et al., 2013). By contrast, gender balance in editorial teams can trigger a broader diversity of research topics, contributors, and approaches (Stegmaier, Palmer and van Assendelft, 2011) and increase a journal’s impact (Addis and Villa, 2003; Pearson et al., 2006).

Therefore, we assume that the monitoring women's (under)representation on the boards of scholarly journals contributes at raising awareness and sustaining positive change (Logan, 2016).

Accordingly, our study serves two main purposes. First, it provides a snapshot of gender composition of editorial teams of accounting journals, which to our knowledge has not before been measured. Second, it provides a benchmark to which future measurements can be compared, thus enabling longitudinal assessments of any changes over time.

## References

ABS Guide (2015). <https://charteredabs.org/academic-journal-guide-2015/>

Addis E. and Villa P. (2003). "The Editorial Boards of Italian Economics Journals: Women, Gender, and Social Networking", in «Feminist Economics», 9, 1, pp. 75-91.

Amrein K., Langmann A., Fahrleitner-Pammer A., Pieber T.R. and Zollner-Schwetz I. (2011). "Women Underrepresented on Editorial Boards of 60 Major Medical Journals", in «Gendered Medicine, 8, 6, pp. 378-387.

Beyer J. (1978). "Editorial policies and practices among leading journals in four scientific fields", in «The Sociological Quarterly», 19, 1, pp. 68-88.

# Gender and Scientific Careers in the Italian Academia: the Case of the University of Turin between Progresses, Persistences and Emerging Criticalities

Rosy Musumeci<sup>1</sup>

## Aim of the contribution

The goal of this contribution is to analyse, from a sociological and gender perspective, the scientific careers at the University of Turin, in the period from the years immediately before the introduction of Gelmini's Law (2010) and nowadays.

A special focus is placed on the trends regarding the new positions as temporary researchers introduced by Gelmini's Law. The previous position as researcher with open-ended labour contract has been substituted with two new categories of *temporary* researchers: RTD-A, a 3 up to 5-years labour contract as "junior" researcher without guarantee of being hired as professor in the Italian academia at the end of the contract, and RTD-B, a 3-years tenured labour contract as "senior" researcher with an higher income and that (differently from RTD-A) allows the researcher to be hired as associate professor at the end of the contract if he/she has obtained the National Academic Qualification (ASN).

What are the scientific fields and the departments where the mechanisms of "glass ceiling", "leaky pipeline", "horizontal and vertical segregation" (Bettio and Verashchagina, 2009; Poggio, 2017; Barone 2011) are stronger?

Does the process of transformation of the academic position as researcher from a *permanent* labour contract (before the Gelmini's Law) to a *temporary* one (after the Gelmini's Law) penalize or not the female scientists? If yes, especially in what scientific fields and departments?

Studies show that women are more exposed than men to non-tenured positions (Glazer-Raymo, 2008). Is this also the case of the University of Turin? Are women underrepresented in the new more guaranteed RTD positions (i.e. RTD-B)?

Are there any differences in the temporal articulation (for example in the time spent in each position) of female and male careers?

Secondary quantitative data from database of MIUR (Italian Ministry for Education, University and Research) and data provided by the personnel office of the University of Turin are analysed.

The results show that although the (slow) progresses, the glass ceiling persists in UniTo.

Women are the majority in the first phases of the academic career (among degree students, PhDs, research fellows and pre-Gelmini researchers), while they are the minority among associate and full professors and in the key governance roles.

Gelmini Law seems to deep gender gap at the first steps of the scientific career: Women are the minority among RTD-A and especially B (in 15/27 departments women are the minority among the tenured RTD-B) (but the effect is more evident in the first years of the Law introduction).

There is a variety of situations between departments. Some as for example Chemistry, Cps, Law, Psychology, Medicine are characterized by a strong vertical segregation. Other as for example

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<sup>1</sup> Department of Cultures, Politics and Society (CPS), University of Turin.



Surgical sciences and Management by a strong horizontal segregation. At the department of Mathematics: women are the majority among pre reform researchers and near the half among full professors.

## References

Barone C. (2011). "Some Things Never Change: Gender Segregation in Higher Education across Eight Nations and Three Decades", in «Sociology of Education», 84, 2, pp. 157-176.

Bettio F. and Verashchagina A. (2009). *Gender segregation in the labour market. Root causes, implications and policy responses in the EU*, Technical Report.

Glazer-Raymo, J. (2008). *Unfinished Agendas: New and Continuing Gender Challenges in Higher Education*, Baltimore, Johns Hopkins University Press.

Poggio B. (ed.), *Women and Men in Scientific Careers: New Scenarios, Old Asymmetries*, «Polis», 1.

# **Towards a European GEP System (EGEPS): a strategy to measure and promote gender equality**

Rita Bencivenga<sup>1</sup>

## **Aims of the contribution**

This paper links the measurement of gender equality in academe to the fundamental rights of EU citizens: to move freely, live, work and study in any EU state. Gender Equality Plans (GEPs) could provide a useful comparable tool among higher education institutions if data requirements were harmonised, using a standard template. This would allow evaluation and strategic planning at international level to promote gender equality. The resulting European GEP System (EGEPS), would accelerate the process toward gender equality and facilitate researchers and students in their choice to work/study at institutions across the EU.

## **Description of the research**

### **Introduction**

The EU has been promoting the implementation of gender equality plans in research performing organisations (RPO) for almost two decades and higher education institutions are engaged in creating and implementing GEPs. Despite the numerous dissemination and exploitation activities connecting past and current EU funded projects, the learning and training material available through the outputs of previous projects and the support offered by the EU and EIGE, each project establishes a specific way to create a GEP. All institutional GEPs are similar in their aims, but their structure and contents differ. This hinders the possibility of evaluating and using GEP data at EU and even national level.

Ireland has adopted the Athena Swan Charter (AS) to promote gender equality in the academic sector to promote good employment practices in higher education. The Higher Education Authority the Athena SWAN award a requirement for institutional and research funding. In Italy, the law 183/2010 established the creation of Unique Guarantee Committee for Equal Opportunities in Public Administrations for workers' wellbeing and against discriminations (CUG - Comitati unici di garanzia per le pari opportunità, la valorizzazione del benessere di chi lavora e contro le discriminazioni). Public Administrations (and therefore Universities) must adopt a Positive Action Plan (PAP). The plan lasts three years and must assure the removal of all obstacles hindering equal opportunities at work between men and women. Attempts have been made to confront PAPs at national level (Galizzi and Siboni, 2016).

### **Materials and methods**

The presentation draws upon experience of three EU funded Projects. INTEGER (FP7) and SAGE (H2020), in which the Trinity College Dublin acted as a partner/coordinator. An INTEGER (now SAGE) Wheel model was produced to support the implementation of institutional GEPs around four main themes: career progression; work-life balance; institutional governance and engendering knowledge, underpinned by the collection of gender-disaggregated data. FIAGES (MSCA H2020), a Project promoting gender equality in Higher Education through an in depth knowledge of pros and cons of different strategies.

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<sup>1</sup> Trinity Centre for Gender Equality and Leadership, Trinity College Dublin.

Other primary data were collected in Ireland on Athena SWAN and in Italy on the national association of the equality bodies – CUGs for Italian Universities. In addition, desk research through the collection and analysis of scientific literature, legislative documents, EU gender equality projects on GEPs, websites and other materials, was conducted. These data allowed a deeper understanding of the similarities and differences between the Italian and Irish initiatives (Bencivenga, 2019) and contributed to the general debate about GEP implementation (Drew, Bencivenga, Ratzer, Poggio and Sağlamer, 2018).

GEP-related data were examined through the lenses of two initiatives: the European Credit Transfer System (ECTS); and the Functional Independence Measure (FIM) System. ECTS is an essential element of the Bologna process to help international students make the most of their study abroad. The FIM is a measurement tool that explores an individual's physical, psychological and social function (Linacre et al., 1994). The FIM System® includes a centralised database and statistic service, allowing organisations to understand the quality of health services offered and improve them in case the comparison shows levels lower than the average.

## Results

The EU attaches increasing importance to the free movement of citizens, including opportunities for training and education. The internationalisation of the academic sector is one of the key priorities assigned to Higher Education institutions. In addition to Horizon 2020, other EU programs such as ERASMUS+, the European programme for Education, Training, Youth and Sport, stimulate the mobility of students, researchers and teachers. There is increasing recognition of the difficulties related to gender issues experienced by undergraduate, graduate, doctoral students and researchers (Murgia and Poggio, 2018). Such students/research staff would benefit from access to an open and transparent system that demonstrated the degree of commitment to gender equality, through GEPs, in host institutions. This would require the harmonisation of GEPs to allow cross institutional comparisons to be undertaken, similar to the European Credit Transfer System. The FIM System® demonstrates the advantages of comparing institutional results nationally and internationally. A European GEP System (EGEPS) could become a standard for comparing the level of gender equality in higher education across the European Union and other collaborating countries. It could stimulate, as a virtuous circle, the path towards gender equality.

## Conclusions

The principles of gender equality are embedded in the EU treaties and Member States are progressing at different speeds. In all countries, gender inequality is being addressed to some degree in the academic sector. However, what is lacking is the harmonisation of terminology, tools and measures that would allow the academic sector to benchmark, exchange experience and reflect collaboratively on the future challenges. The pooling and engagement of expertise and experience for GEPs would accelerate the process toward a harmonised and integrated European GEP System (EGEPS) with a common goal, while respecting cultural and social diversity.

## References

- Bencivenga R. (2019). *Gender Equality in Academia: Comparative Perspectives From Feminist Institutionalism*, in Paoloni P., Paoloni M. and Arduini S. (eds.), *Proceedings of the 2nd International Conference on Gender Research ICGR 2019*, Rome, Università RomaTre, pp. 66-72
- Drew E., Bencivenga R., Ratzer B., Poggio B. and Sağlamer G. (2018). "Gender in Horizon 2020: The Case of Gender Equality Plans", in «AG-AboutGender», 6, 12, pp. 326-355.

Galizzi G. and Siboni B. (2016). "Positive Action Plans in Italian Universities: Does Gender Really Matter?", in «Meditari Accountancy Research», 24, 2, pp. 246-268.

Higher Education Authority. (2016). *HEA National Review of Gender Equality in Irish Higher Education Institutions*, Dublin.

Linacre J., Heinemann J., Wright B., Granger C. and Hamilton B. (1994). "The structure and stability of the functional independence measure", in «Archives of Physical Medicine and Rehabilitation», 75, pp. 127-132.

Murgia A. and Poggio B. (eds.), (2018). *Gender and Precarious Research Careers. A comparative Analysis*, Abingdon, Routledge.

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## A journey toward the gender report: lessons learnt

Chiara Oppi<sup>1</sup>, Caterina Cavicchi<sup>2</sup>, Emidia Vagnoni<sup>2</sup>

### Aims of the contribution

The paper tries to investigate the interplay of accounting, management, control and reporting approaches, with reference to gender equality issues. The gender report (GR) journey of the University of Ferrara is analyzed, focusing on the enablers and criticalities faced when addressing the integration of the GR with the planning and control cycle of this higher education institution.

### Description of the research

#### Introduction

In the national context, measures to achieve gender equality have been strengthened, while academia lacks in specific measures to protect the less represented gender, and generally invokes the fulfilment of the constitutional principle of gender equality. As specific legislation is missing, the establishment of rules on equal opportunities in statutes and regulations has been delegated to the autonomy of the universities. However a series of recommendations and guidelines have followed over time to incentivise the adoption of a gender perspective and its integration in performance measurement (Legislative Decree 150/2009; Italian National Agency for the Evaluation of Universities and Research Institutes, 2019), while also stressing the relevance of the gender equality accounting in this sense and the gender equality bodies (Public Function Department, 2019; Italian Conference of University Rectors, 2019), with reference in particular to the GR.

However, although in practice the GR is gaining relevance, its investigation is still lacking in literature. Research addressed the mechanisms that prevent women's full involvement in academia (Nowotny et al, 2001; Prages, 2009), highlighting the need to take actions to fight female under-representation in science (European Union, 2013; 2019). Consistent to this, and focusing on the Italian university context, Galizzi and Siboni (2016) focused on Gender Equality Plans (GEPs) and on the positive actions implemented to deal with inequalities, calling for a "future 'gender agenda'" that includes the analyses of the lessons learnt in accounting for positive actions and for their results and impacts. However, there is still lack of debate concerning gender and academia, with reference, in particular, to the link between strategic management and accounting processes on the light of the changing organizational and extra-organizational contexts (Parker, 2008). Thus, the debate should focus on the relevance of the GR not only as a monitoring and communication tool, but as an instrument that can potentially be interwoven with the organizational strategy, in order to produce internal and external change. Indeed, scholars urged to develop sustainability assessment, reporting, management and control in an integrated manner; as Maas et al. (2016, p. 245) argue with reference to corporations "such an integrated approach is needed as creating transparency effectively cannot only address external stakeholders but is also about creating transparency to company internal stakeholders and thus linked to those actors who are in charge of managing and measuring sustainability performance". Universities that benefit from reporting practices can leverage strategic benefits such as attractivity and reputation in front of stakeholders (del Mar Alonso-Almeida et al., 2015). However, universities that adopt these sustainability oriented reporting practices are still limited in number and criticalities linked to reporting have been widely addressed by literature (Findler et al. 2019; Lozano, 2011; Fonseca et al., 2011); these unfortunately includes the lack of focus on the business case (Adams, 2013). In addition, how GR

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1 Department of Law, University of Ferrara.

2 Department of Economics and Management (DEM), University of Ferrara.

can affect the organizational strategic orientation and practices is still underinvestigated at the university level.

This research aims at presenting the case of the GR at the University of Ferrara. Having been published since 2011, the GR was subjugated to a series of changes and its managerial role has changed over time. Thus, the research aims at identifying the patterns of development of the GR, in particular with reference to its potential integration with the organizational planning and control cycle, drawing some lessons from the case.

## **Materials and methods**

A single case study was performed (Bryman and Bell, 2011). Data collection involved regulations, publications, the university GRs content analysis, and direct observations to trace the development of the GR of the university since 2011 to 2019.

## **Results**

The role of the GR evolved over time from accountability purposes toward a performance management tool.

In the 2011-2013 GEP the GR was enclosed among the objectives related to the production of gender statistics and promotion of female presence in decision-making level. It was first published in a separate chapter of the Social Report and then published as a stand-alone document, where statistics related to students, academic staff and technical and administrative staff were reported. At that time, the role of the GR mainly pertained accountability, consistent with the reports produced at European level (European Union, 2013).

With the implementation of the 2014-2016 GEP, which referred to the GR as a permanent monitoring tool of gender equality policies and actions, the GR assumed a role of performance management instrument. In this sense, the GR monitoring role concerning results and impacts of positive actions was strengthened, aiming at supporting decision-making. At the same time, attempts had been made to increase the strategic relevance of the GR, although the GEPs continued to be aimed at creating a friendly environment for women and at increasing the awareness about discrimination, rather than acting as a mean for a change in the society (Galizzi and Siboni, 2016). In 2016, the new university statute enclosed the approval of the GR among the duties of the board of directors and in 2016 the Strategic Plan enclosed for the first time the GR among the university strategic objectives. However, the strategic relevance of the instrument appears to be limited in this sense, and a lack of integration of the GR in the university strategy (as recommended by national guidelines, such as the Italian National Agency for the Evaluation of Universities and Research Institutes one) emerges. In this sense, the gender equality objectives were included in the university Strategic Plan and in the Performance Plan in a single, stand-alone chapter, and also the experimentation of the gender budget that was provided in the 2017-2019 Strategic Plan has not been implemented. This drove the need for conducting in-depth researches within the university to trace the reasons behind the scarce integration of the GR in the university strategy. These investigations, although limited to the technical and administrative staff in charge of preparing drafts of strategic documents based on the indications of the governance bodies, allowed to recognize the factors that are inhibitor of integration. In this sense although the GR is a well-known instrument, the personnel lacks of education about gender equality accounting, while in some cases resistances were highlighted. Further, the misalignment in times of publication of the GR with the strategic documents threatens the integration. Overall, the personnel did not acknowledge the value of an integrated approach of the GR integration in the overall strategy and some resistances were detected in this sense.

## Conclusions

The GR changed its role over time, from accountability to performance management, while the integration of the GR in the university strategic processes has not been accomplished yet.

The results of the investigation conducted to trace the reasons for the limited strategic relevance of this tool conduct to identify managerial implications for universities.

First, the need to train to gender equality accounting the staff involved in the preparation of strategic documents emerges, in order to explain the processes of integration of the GR in university strategy and the advantages related to this, as well as to reduce resistances.

Second, the role of the gender equality bodies in the preparation of the GR emerges, to align the publication of the report with the strategic documents and to incentivise the adoption of gender equality data for strategic purposes (as foreseen by the newly published Directive of the Public Function Department, 2019).

## References

Adams C. A. (2013). "Sustainability reporting and performance management in universities: Challenges and benefits", in «Sustainability Accounting, Management and Policy Journal», 4, 3, pp. 384-392.

Bryman A. and Bell, E. (2011). *Business research methods*, Oxford, Oxford University Press.

del Mar Alonso-Almeida M., Marimon F., Casani F. and Rodriguez-Pomeda J. (2015). "Diffusion of sustainability reporting in universities: current situation and future perspectives", in «Journal of Cleaner Production», 106, pp. 144-154.

European Union (2013). *She Figures 2012. Gender in research and innovation*, Luxembourg, Office for Official Publications of the European Communities.

European Union (2019). *She Figures 2018*, Luxembourg, Office for Official Publications of the European Communities.

Findler F., Schönherr N., Lozano, R. and Stacherl B. (2019). "Assessing the Impacts of Higher Education Institutions on Sustainable Development—An Analysis of Tools and Indicators", in «Sustainability», 11, 59, pp. 1-19.

Fonseca A., Macdonald A., Dandy E. and Valenti P. (2011). "The state of sustainability reporting at Canadian universities", in «International Journal of Sustainability in Higher Education», 12, 1, pp. 22-40.

Galizzi G. and Siboni B. (2016). "Positive action plans in Italian universities: does gender really matter?", in «Meditari Accountancy Research», 24, 2, pp. 246-268.

Italian Conference of University Rectors (2019). *Linee Guida per il Bilancio di Genere negli Atenei Italiani*, Fondazione CRUI.

Italian National Agency for the Evaluation of Universities and Research Institutes (2019). *Linee Guida per la gestione integrate dei cicli della performance e del bilancio delle università statali italiane*, <https://www.anvur.it/wp-content/uploads/2019/01/Linee-Guida-per-la-gestione-integrata-del-ciclo-della-performance-e-del-bilancio.pdf>

Italian Parliament (2009). *Legislative Decree no.150, 27th October. Attuazione della legge 4 Marzo 2009, n. 15, in materia di ottimizzazione della produttività del lavoro pubblico e di efficienza e trasparenza delle pubbliche amministrazioni.*

Lozano R. (2011). "The state of sustainability reporting in universities", in «International Journal of Sustainability in Higher Education», 12, 1, pp. 67-78.

Maas K., Schaltegger S. and Crutzen N. (2016). "Integrating corporate sustainability assessment, management accounting, control, and reporting", in «Journal of Cleaner Production», 136, pp. 237-248.

Nowotny H., Scott P. and Gibbons M. (2001). *Re-thinking Science. Knowledge and the Public in an Age of Uncertainty*, Cambridge MA, Polity Press.

Parker L.D. (2008). "Strategic management and accounting processes: acknowledging gender", in «Accounting, Auditing & Accountability Journal», 21, 4, pp. 611-631.

Prages (2009), *Guidelines for gender equality programmes in science*, <http://ec.europa.eu/research/>

Public Function Department (2019). *Misure per promuovere le pari opportunità e rafforzare il ruolo dei Comitati unici di garanzia nelle amministrazioni pubbliche*, in «Gazzetta Ufficiale Serie Generale», 184 del 07-08-2019



# Measuring the power of women in academia through gender equality indicators

Silvana Badaloni<sup>1</sup>, Lorenza Perini<sup>2</sup>

## Aims of the contribution

In the framework of the FP7 EU Project GenderTIME ([www.gendertime.org](http://www.gendertime.org)) we addressed the problem of measuring gender equality in Academia with the aim to define and develop a gender equality index (UNIPD-GEI) specifically tailored for Universities and Research Institutions. The main objective was to monitor the under-representation of women in the scientific research environment and to improve their working conditions and career opportunities. The case study we are going to describe in the first part of the paper will be represented by the application of the indicator UNIPD-GEI to the University of Padua and more specifically we will analyse in deep the results obtained in the domain of “Power”. In the second part of the paper we would like to compare the value obtained in this domain with similar values obtained using different type of indicators in different context, in order to show how the problem of reaching the apical positions for women is the same at any level and in any type of environment. Quotas seem to be the only possible solution to overcome the disparity.

## Description of the case study

In order to design a reliable measuring tool, we have collected information on many different aspects of the academic life related to permanent and temporary teaching staff in scientific research, such as: the quality of work, access to funds for research, scientific issues and patents, space for research, involvement in decision-making, the quality of work-life balance and several other issues that can be sensitive from a gender point of view in academia. As conceptual model for collecting data we adopted the domain-based model elaborated by the European Institute for Gender Equality EIGE GE to deal with population. The six core domains considered by EIGE are: work, money, knowledge, time, power and health, each of which is divided into sub-domains, key issues to which the index tries to “answer” through a system of indicators (EIGE Report, 2017). We considered also the domain space and we declined all the seven domains for the Academia (Badaloni and Perini, 2016). Other indicators for Academia have been proposed such as the University Gender Inequality Index developed at the University of Bologna in the framework of the Project PLOTINA UNIBO-UGII (CRUI, 2019).

## Materials and methods

In UNIPD-GEI, after collecting information thorough survey and services, data were coded into variables, adequately normalized in order to allow comparison. We decided to compute the elementary indicators for Female and Males for each variable of interest

$$I_W = \sum I_{Wi} / n_W \quad \text{with } I_W \in [0; 1]$$

$$I_M = \sum I_{Mi} / n_M \quad \text{with } I_M \in [0; 1]$$

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1 Department of Information Engineering (DEI), University of Padua.

2 Department of Political Science (SPGI), University of Padova.

where  $I_{wj}$  is the value of the elementary indicator for female  $I$ , normalized in 0-1 interval, and  $n_w$  is the number of females in the sample (and similarly for males). Then the comparison was carried out by dividing the indicators

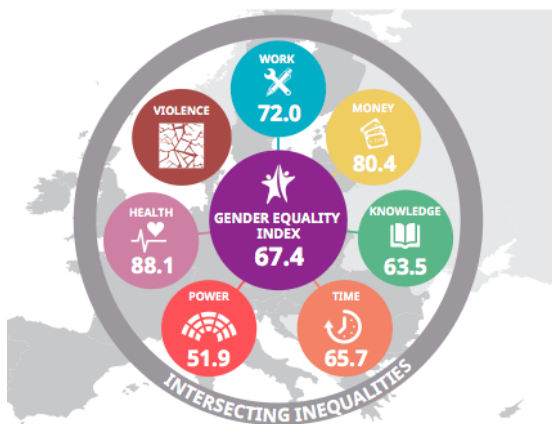
$$I = I_w / I_m$$

If this ratio assumes a value of 1 it means that women and males have the same value in between 0 and 1. Instead, this ratio assumes values less than 1 when the indicator for men is higher than the one obtained by women, which means that men experience a better condition than women regarding that topic. This procedure was applied for each sub-domains

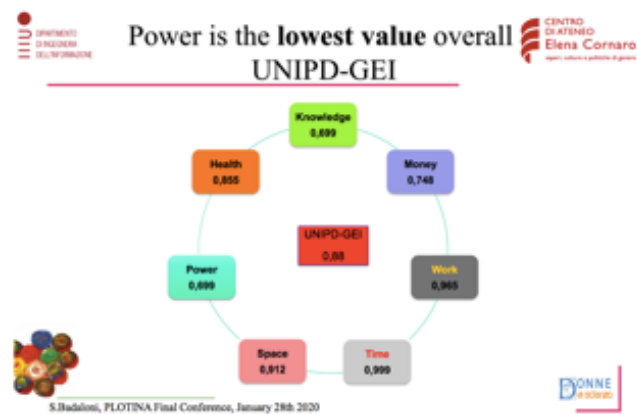
## Results

In the domain power the value that we found for the university of Padua is 0.699 thus measuring a gender gap against women of 30,1 % in the domain power. The sub-domains considered to calculate this indicator are Vertical segregation and Presence in Academic Bodies. It is also the lowest value overall.

The Eige Index achieves the same result for the EU's score in the domain of power: it is the lowest overall 51.9 points, despite the biggest improvement: 13-point increase since 2005 (+ 3.4 points since 2015). The highest scores in the sub-domain of political power (parliaments, ministries and regional assemblies) belong to Sweden, France and Finland, and the lowest to Hungary, Cyprus and Malta.



EIGE Gender Equality Index



Unipd Gender Equality Index

Overall, 10 Member States instituted legislative candidate quotas to increase gender balance in parliaments (BE, IE, EL, ES, FR, HR, IT PL, PT and SI). With the exception of Croatia, women's representation has improved since the application of a quota. Men continue to dominate the boards of the largest listed companies and central banks across the EU. Six Member States (BE, DE, FR, IT, AT and PT) introduced quotas to address the gender imbalance in boardrooms. The difference between action and inaction is striking. In 2018, the four countries, which first introduced binding quotas (BE, DE, FR, IT), had 38 % women on boards, representing a rise of 28 p.p. since 2010.

## Problem

The problem of the gender gap in places where decisions are taken is therefore a constant reality everywhere.

The Global Gender Gap Report (2020) benchmarks 153 countries on their progress towards gender equality through four thematic dimensions: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment and provides country rankings that allow for effective comparisons across regions and income groups. The 2020 Report's key finding is that, weighted by population, the average progress on closing the global gender gap stands at 68.6% — meaning an average gap of 31.4% remains to be closed worldwide across the four Index dimensions in order to achieve universal gender parity.

But how long does it take to close the gap?

If we extend the current trends in the years to come, the overall global gender gap will close in 99.5 years, on average, across the 107 countries covered continuously since the first edition of the report.

Lack of progress in closing the Economic Participation and Opportunity gap leads to an extension of the time it will be needed to close this gap. At the slow speed experienced over the period 2006–2020, it will take 257 years to close this gap.

The second area where gender gaps will take longest to close is Political Empowerment. This year's evolution speeds up the pace of progress towards parity, yet it will still take 94.5 years—even at this faster rate—to close the gender gap.

Third, the Educational Attainment gender gap is on track to be closed over the next 12 years, mainly thanks to advancements in some developing countries.

To conclude, it is not a matter of comparison between academia and other contexts, but a matter of pointing out how the persistence of this disparity does not currently find any solution beyond quotas, which, moreover, are often opposed by women themselves. Moving the numbers in a credible time is the goal of this type of research to continue.

## References

Badaloni S. and Perini L. (eds), (2016). *A model for building a Gender Equality Index for academic Institutions*. Padova University Press,  
<http://www.padovauniversitypress.it/publications/9788869380983>

EIGE European Institute for Gender Equality (2017). *Gender Equality Index 2017. Methodological Report*, Luxembourg, Publication Office of the European Union,  
<https://eige.europa.eu/publications/gender-equality-index-2017-methodological-report>

World Economic Forum (2019). *Global Gender Gap. Report 2020* (2019).  
[http://www3.weforum.org/docs/WEF\\_GGGR\\_2020.pdf](http://www3.weforum.org/docs/WEF_GGGR_2020.pdf)

# Virtues and deficiencies of positivist elements in the evaluation of GEPs

Nela Šalamon<sup>1</sup>

## Aims of the contribution

The contribution reflects issues arising from an aspired positivist assessment of gender equality plans (GEPs) and their progress in the short- and long-term by means of specially designed indicators and their combination into an index. It aims to identify the positive aspects and reinforce their potential, but also to underline some recorded problematic aspects stemming from a purely positivist approach, that implicitly threaten to endanger the goal of institutional and societal change, by replacing the goal (and the reflection of its hitherto unattainability) with the means of measurement.

## Description of the case study/experience

### Introduction

The underlying contribution is based on observations made during the interim and final evaluation phase of the GEPs developed, implemented and assessed within the H2020 PLOTINA project. During the project, 7 different research performing organisations (RPOs) designed and implemented GEPs, which were twice assessed by external gender experts. One method of monitoring and evaluation implemented was the calculation of a pre-defined set of indicators at three different (pre-defined) points of time. During the evaluation process, multiply perceived misalignments between the indicators' performance and the effort invested in the realisation of relevant actions were recorded. In some cases, for example, the stark incorporation of a strict equal-attendance principle for events (for both men and women) and penalizing of deviation therefrom seemed to hinder the intended compensation and advancement of specific soft-skills especially identified to be needed by the women of one of the RPOs. Based on these and other recorded issues, a discourse emerged within the project's consortium, which in its recorded, reflected and textualised form here seeks to highlight both positive aspects but also shortcomings of indicators as evaluation tools, and summarise and exemplify them along the lines of this specific case study.

### Materials and methods

The contribution's design is an analysis of the observations and their background dynamics, as well as a theoretical reflection with reference to recent literature on the subject of indicators. It further draws upon the theoretical framework of pre-existing reflections and impulses of the positivist and methodological dispute within social research.

### Results and Conclusions

Evidence-based monitoring and evaluation along pre-defined indicators is indispensable to the success of programmes and policies. The positive aspects include a guarantee of neutral assessment, comparability over time, the benchmarking of certain aspects (wherever this is deemed reasonable and desirable) and the possibility of automated monitoring (assuming infrastructure availability and the instalment of necessary data gathering practices). However, while the advantages of reduction to numbers are alluring as they suggest objectivity in its purest (possible) form, shortcomings persist. In the case of evaluation of GEPs, these pertain to the

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<sup>1</sup> Centre for Social Innovation, Austria.

temporal dimension of change and the general question of impact measurement; long career cycles in academia and the intrinsic stickiness of institutional frameworks and therewith associated change; and most importantly, that the reduction of a complex social reality – which is the background of the implementation of a GEP – to a however sophisticated quantitative measure: erases the context that produced it and thus remains silent on the reasons that make women (willingly or less so) refrain from certain paths in academia. Furthermore, indicators can do that – indicate – but lack ability to interpret any data within the aforementioned context; and least but not last, foresight and thus the ability to issue recommendations for the time being remains at the hands of sentient beings with a vast expertise – in this case study, gender equality experts. Thus quantitative assessment and evaluation criteria need to be submitted to interpretation by external, independent experts, who have access to “insider” (institution specific) knowledge. Only the combination of both can produce a reasonable evaluation and positively feed back into the implementation process, through recommendations and rectifications of the path followed.

While the quantitative aspect of evaluation and monitoring of processes intending to promote gender equality over time is indisputably a necessary and highly valuable asset, qualitative methods of evaluation in such a process are equally substantial. They ensure the correct interpretation of changes (by identifying idiosyncratic elements) and facilitate the full exploitation of possibilities that are given in each context – according to the complexity resulting from diverse national frameworks that regulate the possibilities of actions, but also in the magnitude of organisational forms of RPOs.

## References

Adorno T.W. (1972). *Soziologische Schriften*, Frankfurt am Main, Suhrkamp.

Herborth B. (2011). “Methodenstreit — Methodenzwang — Methodenfetisch”, in «Zeitschrift Für Internationale Beziehungen», 18, 2, pp. 137-151.

Karner I., Simon J. and Šalamon N. (2018). *PLOTINA monitoring tool*, GitHub repository, <https://github.com/zsi-vienna/PLOTINA>

Schwarz-Wölzl M., Šalamon N., Schuch K. and Gerlach A. (2018). *Deliverable 5.3. Interim Evaluation Report of the PLOTINA project*, Vienna, ZSI.

Šalamon N., Schuch K. (forthcoming). *Deliverable 5.4. Final Evaluation Report of the PLOTINA project*, Vienna, ZSI, 2020.

Wroblewski A., Kelle U. and Reith F. (eds), (2016). *Gleichstellung messbar machen : Grundlagen und Anwendungen von Gender- und Gleichstellungsindikatoren*, Berlin Heidelberg New York, Springer-Verlag.

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