



D6.6 Resources on the Gender Dimension in R&I including minutes of Co-Creation Workshop

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Executive Summary

For several decades, the European Union has been campaigning for the gender dimension to be implemented into research and teaching content. Its 5th Framework Programme (1998-2002) already formulated the goal that 40 % of the members in committees and advisory groups must be women. In the upcoming 9th Framework Programme (*Horizon Europe*; 2021-2027), the gender category is a crosscutting priority that no longer refers only to a quota for women but also calls for the integration of the gender dimension into research and innovation content.

How exactly this integration should be done in practice still, however, poses a challenge for many institutions, especially in STEM disciplines. The implementation of the gender dimension in research and teaching is also hindered by so-called anti-gender movements, which are currently particularly evident in countries in Central Eastern Europe.

Accordingly, the aim of the second TARGET co-creation workshop is to discuss specific questions from partner institutions in this context. In concrete terms, the workshop aims at discussing

- possible ways of supporting the integration of the gender dimension into research content and curricula.
- how to deal with anti-gender movements in society as a research performing organisation (RPO) or a research funding organisation (RFO).
- how RPOs and RFOs in the STEM fields could consider the gender dimension in research, curricula and teaching.

Deliverable D6.6 includes the minutes of this co-creation workshop as well as some additional material on gender dimensions in research and innovation such as key definitions in the European Union, concrete good practice examples and an annotated bibliography.

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List of Abbreviations

AI	Artificial Intelligence
AKKA	AKademiska Kollegors Ansvar, leadership programme established by Lund University
AQU	Catalan University Quality Assurance Agency
BA	Bachelor of Arts
CEU	Central European University
EC	European Commission
ECTS	European Credit Transfer and Accumulation System
EGERA	Effective Gender Equality in Research and the Academia, project
ERA	European Research Area
EU	European Union
FP	Framework Program
FRS	Facial Recognition System
GARCIA	Gendering the Academy and Research: combating Career Instability and Asymmetries, project
GEECO	Gender Equality in Engineering through Communication and Commitment, project
GEP	Gender Equality Plan
GS	Google Scholar
HE	Higher Education
IAT	Implicit Association Test
IBE	International Bureau of Education
ICT	Information and Communications Technology
LGBTQI	Lesbian, Gay, Bisexual, Trans, Queer, Inter
LGBTQIT	Lesbian, Gay, Bisexual, Transgendered, Questioning, Intersexual, Two-spirited people
MA	Master of Arts
METU	Middle Eastern Technical University

MSP Institute	Multi-stakeholder Processes for Sustainable Development e.V.
NGO	Non-Governmental Organisation
NPM	Nanoscience, Nanotechnologies, Materials and New Production Technologies
NPO	Non-Profit Organisation
NRW	North Rhine-Westphalia (Federal State in Germany)
PhD	Doctor of Philosophy
R&D	Research and Development
R&I	Research and Innovation
RFO	Research Funding Organisation
RPO	Research Performing Organisation
STEM	Science, Technology, Engineering, Mathematics
STING	STEM teacher training innovation for gender balance project
SWG GRI	Working Group on Gender in Research and Innovation
TARGET	Taking a Reflexive approach to Gender Equality for institutional Transformation, project
U.S.	United States
UAB	Autonomous University of Barcelona
UN	United Nations
USA	United States of America
WHO	World Health Organization
WoS	Web of Science

1 Introduction

In 1996, the European Commission introduced gender mainstreaming and equal opportunities strategies for women and men in all institutions, policies, programmes and practices of the European Union (EU). With the *Women and science: mobilising women to enrich European research* document (Communication from the Commission 1999), measures to take the gender dimension into account in European research policy were outlined for the first time. The aims thereby were to share experiences on the underrepresentation of women in research and develop support for women in EU-funded research. In 1998, the Helsinki Group was founded with the aim of creating a dialogue between the EU Member States and associated countries on gender politics and gender indicators in research and innovation (R&I). This function has been assumed by the Standing Working Group on Gender in Research and Innovation (SWG GRI) since 2017.

In the European Research Area (ERA), the EU Framework Programmes for Research and Technological Development are very important instruments for integrating the gender dimensions into research and innovation. As part of Framework Programme 5 (FP5, 1998-2002), the Gender Watch System was developed, which aims, among other things, at achieving a 40 % share of women in committees and advisory groups, collecting sex-disaggregated data and promoting and funding gender research. This has not, however, been accompanied by a comprehensive gender mainstreaming approach in proposal preparation materials, policies, programmes, etc. (European Union 2011). Documents relating to the 6th Framework Programme (FP6, 2002-2006), such as guidelines on preparing a proposal and other materials, included references to the promotion of female researchers but did not mention any specific measures, practices or concrete goals. The target of a female participation rate of 40 % was still not reached (European Commission 2008). In the 7th Framework Programme (FP7, 2007-2013), the integration of the gender dimension made substantial progress, with FP7 stating that “the integration of the gender dimension and gender equality will be addressed in all areas of research” (Decision n° 1982/2006/EC of 18/12/2006, OJ L 412, 30/12/2006, p.1). In *Horizon 2020* (FP8, 2014-2020), gender equality must be considered in human resources (research teams) and in research content. Useful guidelines and checklists have also been provided (European Union 2011). In addition, training for scientists to expand their gender expertise was designated an eligible cost¹. In 2015, the European Parliament (2014/2251(INI)) emphasised the need to fund structural change projects and develop incentives and funding for gender standards (Genderaction 2019). In the upcoming 9th Framework Programme (*Horizon Europe*; 2021-2027),

¹ https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/gender_en.htm

the gender dimension must be integrated into research and innovation content by default, 50 % of the members of Horizon Europe related bodies, boards, expert groups, research teams and evaluation committees must be women, and gender equality plans (GEPs) have become an eligibility criterion.

All Member States are also called upon to implement the European strategy on a national level. However, this is done very differently in the individual countries, and there are still large gaps, especially with regard to the gender dimension in R&I content (Wroblewski 2018). The following quote by Julie Mertus and her colleagues illustrates, for example, why the implementation of gender in teaching plays such an important role for gender equality:

“The curriculum is one of the main motors in developing stereotypes, in terms of gender roles – expected roles for men and women – as well as in promoting acceptance of such stereotypes. (...) But school could also reverse gender role stereotypes and lead the fight against discrimination of girls and women.” (Mertus et al. 1995: 67)

Many institutions have already understood this potential but have not yet worked out how they can set concrete measures to achieve gender equality in practice. This is particularly evident in two areas :institutions in the **STEM fields** and institutions that have to deal with national **anti-gender movements**, as is the case in many Central Eastern European countries.

1.1 Gender in content in STEM disciplines

At present, during the COVID-19 pandemic, it is becoming clear that sex and gender are underrepresented in many studies in the STEM disciplines. It is also true, however, that gender and sex differences have an impact on SARS-CoV-2 infection, severity and mortality rates. Emer Brady and her colleagues analysed how gender and/or sex was taken into account in many of the studies that are researching new treatment sets and vaccines against COVID-19. They found that only a fifth of the studies they examined actually dealt with this dimension and then only in the context of the recruitment of study participants. Just over 5 % of the studies emphasised gender and/or sex reporting, and only 4 % planned explicitly to include gender/sex as an analytical variable. In clinical studies, disaggregated results by gender were only disseminated in 18 % of cases (Brady et al. 2021).

Studies show that women are still underrepresented in STEM studies despite national and international efforts. A **more balanced ratio** of women and men, but also the **inclusion of gender perspectives** in engineering studies, would have positive consequences. The inclusion of gender perspectives in curricula can sensitise students by demonstrating the problems and negative effects on society that arise when research and innovation do not consider such aspects. Since today's students are tomorrow's researchers, the inclusion of gender aspects in curricula can have

a lasting effect on socio-cultural and biological factors being taken into account right from the very start of a research project. As in all other subject areas, the aim thereby is to ensure that the **needs of women and men** are considered equally.

One aspect that is the case in many disciplines, but holds especially true for STEM disciplines, is that **male privileges** and **gendered norms** are not questioned. Girls and women are often advised to simply adapt to the system instead of the system itself being questioned (Jansson, Sand 2021). It is assumed that they lack confidence, networks and experience and should therefore “fix themselves”; **structural barriers remain invisible**. That is why, for example, some efforts are being made to use role models to motivate girls to study for a STEM degree. Yet even if these measures can – in individual cases – lead to more women actually finding their way into study programmes, the established system is not challenged, and there can therefore be no radical change in these organisations. What it takes, according to Ulrike Jansson and Jimmy Sand, is a broader approach. Theoretical research shows very clearly that there are gendered study choices, that the labour market is gender-segregated, and that the understanding and prevailing norms of gender, femininity and masculinity, etc. limit people’s scope of action.

Gender norms place expectations on girls and boys on how to behave and act in order to be rewarded and normalised. These gender norms are constructed, created and recreated in perpetual negotiations. There are strong connections between **men, masculinity and technology**, which are reinforced again and again in everyday life but which are neither natural nor universal. Notions of men and masculinity are seen as being of higher value than those of women and femininity. These links can also be found in the education system. Textbooks and course literature often still include gender stereotypes, are written in non-gender-sensitive language or do not consider intersectionality as an important factor. These norms determine to a large extent the study and career choices of women and men, both on an individual and a structural level – chiefly at the expense of women. If researchers or lecturers deal with the gender dimension at all, it is often the result of isolated **individual initiatives** on the part of female scientists; gender is not seen as a cross-sectional matter, and there are no institutional strategies in place. In order to make these problems visible, corresponding data is required, yet there is still a **lack of databases on gender-related projects and courses** in many countries² (Hofman, Mihajlović Trbovc 2015).

² Of course, there are already some universities with a STEM focus which have anchored gender in their curricula and projects. The GEECCO project analysed some of these universities (<http://geecco-project.eu/home>).

1.2 Anti-gender movements

In recent years, so-called anti-gender campaigns (Paternotte, Kuhar 2018) have become increasingly visible. However, they have, in fact, existed since the 2000s in the form of protests against same-sex marriages or partnerships or against sex education, e.g. in Spain, Croatia, Italy and Slovenia (ibid: 7). Nevertheless, there seems to have been a renewed strengthening of anti-gender movements in Central Eastern European countries, especially in the recent past.

These countries are united by the fact that they have recently undergone fundamental changes in their political and social systems. After World War II, the image of women as housewives who were responsible for families quickly changed to one of people who fought and worked alongside men for a socialist future. All people loyal to the regime had equal rights under the constitution. As a consequence, illiteracy declined, and the education and income levels of women rose sharply. After the fall of the Iron Curtain in 1989, the formerly socialist countries found themselves under pressure to transform their economies and create new social structures. In such a time of conflicting priorities, there was little room for gender equality policies (Jezerska 2018).

Nevertheless, “gender as a category of analysis reached Central Europe together with neoliberal market economy and Anglo-Saxon dominance in science after 1989” (Pető 2019: 1536). This new analytical category was, however, viewed with much scepticism, and people who supported it were seen as “propagandists of a particular epistemological order”(Boydston 2008: 560).

While the higher education systems also changed significantly, gender studies developed mainly outside them in the form of non-governmental organisations (NGOs). In countries like Croatia and Serbia, NGOs were the only institutions that provided university-level education in gender studies in the 1990s. It was not until the late 2000s that gender studies were represented at almost all universities in Eastern Europe, if only as electives or excursions. To this day, however, gender studies scholars in Eastern Europe remain underrepresented in European journals (Lykke 2004).

After the 2008 financial crisis, a new discussion about the connectedness of gender studies and the neoliberal market project emerged (Kováts 2016) which resulted in so-called anti-gender movements. “Anti-gender movements are populist neoconservative movements that, in response to the crisis of the neoliberal world order, use the concept of “gender” to mobilize not only against gender studies, but also against LGBTQIT rights, the Istanbul Convention, sexual education in schools and international organizations such as the EU, the UN and the WHO” (Pető 2019: 1543). However, anti-gender policies are not a new phenomenon in Eastern Europe alone but rather a global phenomenon that was already known in the 2010s. (Kuhar, Paternotte 2017). Some aspects such as reproductive rights have long been part of anti-gender politics, whereas the attack on gender studies is a new issue.

Probably because of the power of the Roman Catholic Church, Poland and Slovakia were the first countries in the EU where anti-gender movements appeared. The triggers for these debates differed in the individual countries, but one of the main carriers of the anti-gender discourse that is common to all countries is the portrayal of the EU and Western Europe as "cultural colonisers" (Kováts 2019). Randeria and Römhild (2013: 23f.) believe that it was unwise to refer to the areas as "old" and "new" Europe as this also brought about "inner hierarchies in Europe" due to the framed contrast between progress and backwardness. The fact that Central Eastern Europe is and was often undervalued also partly explains the popularity of the anti-gender discourse, i.e. as a revolt against Western Eurocentrism (Eisch-Angus 2019). The complicated power relations between Eastern and Western Europe have also contributed to gender studies being seen as something that has been imported from the West to the East but has nothing to do with Central Eastern Europe (Kováts 2021).

1.3 The role of Research Funding Organisations

When it comes to integrating the gender dimension into R&I, it is not only research performing organisations (RPOs) that are required to make changes but also research funding organisations (RFOs). National and international funding agencies have a big impact on advancing inclusion, diversity and gender equity.

Many researchers still do not know how to consider the gender dimension in their research (because this was not part of their curriculum) or may think that gender is not an important aspect in their research. In a recent interview, the author Londa Schiebinger pointed out that a gender dimension has to be considered in any field of science and engineering with a **human endpoint** (Elsevier 2017). This is the case in biomedicine, mechanical engineering, computer hardware, architecture, nanotechnology, etc.³ It is a responsibility of granting and funding agencies to endorse this type of training for researchers and to support a structural change at universities to directly integrate topics like gender, diversity, ethnicity, age, disability, etc. into curricula.

In Europe, it cannot be taken for granted that RFOs take all these aspects into account. Indeed, 17 out of 30 countries surveyed by the Helsinki Group do not take the gender dimension into account in their funding programmes. However, in countries like Austria, Switzerland, Cyprus, Germany,

³ The European Commission has published a list and description of case studies in different areas that show how sex and/or gender analysis can lead to new knowledge, discoveries and innovations. These case studies are in the areas of health studies, climate change/energy/agriculture, urban planning/transport, information and communication technology (artificial intelligence, machine learning, robotics), finance/taxation/economics and Coronavirus research.
https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ki0320108enn_final.pdf

Finland, Norway (and others), RFOs already included gender equality as a criterion in their programmes in 2013 (Lipinsky 2013).

Susanna Young Håkansson and Jimmy Sand (2021) show that these measures are always easy to implement, a situation they attribute to three main challenges. The first challenge is that RFOs face the dilemma of wanting to stipulate that the gender dimension is taken into account in the research projects when relevant, yet not being in a position to influence methods, theoretical perspectives, etc. (scientific freedom). Many RFOs have therefore only drawn up **vague definitions or guidelines** which are incomprehensible and not helpful to applicants. The second challenge is the **confusion between gender equality and the gender dimension in research content**, which is often the result of a lack of knowledge on the part of both the applicants and the reviewers. The third challenge for most of the RFOs examined is that they often focus more on the calls for proposals and less on whether the **appraisal committee** has the appropriate skills to evaluate elements of the gender dimension in research proposals. In other words, if the expert panels do not have the necessary expertise to evaluate this aspect, this can become problematic if the applicants are asked to justify whether the gender dimension is relevant for their project. Håkansson and Sand (2021) therefore recommend **clear instructions** and **training in gender methodology** for **applicants** and **experts**. When putting together expert committees, it must be ensured that they contain at least one expert with gender expertise. At a later point in a research project, the extent to which the gender dimensions have been taken into account as planned should be assessed. Expertise and sufficient resources are required to do so professionally.

1.4 Aim of the workshop

The aim of the second TARGET co-creation workshop is to discuss specific questions from partner institutions in this context. In concrete terms, the workshop aims at discussing

- possible ways of supporting the integration of the gender dimension into research content and curricula.
- possibilities for how to deal with anti-gender movements in society as an RPO or RFO.
- how RPOs and RFOs in the STEM fields can consider the gender dimension in research, curricula and teaching.

This deliverable includes the minutes of this co-creation workshop as well as additional materials on gender dimensions in research and innovation, such as key definitions within the EU, concrete good practice examples and an annotated bibliography.

2 Co-Creation Workshop

2.1 Agenda

Due to the COVID-19 pandemic, the planned meeting at École Centrale in Marseille, France was organised online via Zoom.

Wednesday, July 21st, 2021 “Resistances to gender studies or gender in content”

- 14:00 – 14:15 Welcome by Coordinator & Tour de Table
Angela Wroblewski, Institute for Advanced Studies
- 14:15 – 14:45 Anti-gender attacks on teaching gender studies
Andrea Pető, Central European University, Vienna
- 14:45 – 15:15 Action needed?! How to involve bystanders
Renate Dworczak, Karl-Franzens University, Graz
- 15:15 – 15:30 Break
- 15:30 – 16:20 Breakout Sessions
ARACIS case
ELIAMEP case
Moderation: Barbara de Micheli & Giovanna Vingelli
- 16:20 – 16:30 Plenary
- 16:30 End of day

Thursday, July 22nd, 2021 “Gender in curricula in STEM”

- 15:00 – 15:15 Welcome by Coordinator & Tour de Table
Angela Wroblewski, Institute for Advanced Studies
- 15:15 – 15:45 Identity and Gender - Reflecting Gender Roles in an Organisational Context
Sabine Köszegi, Technical University Vienna
- 15:45 – 16:15 Diversifying Power: Why Gender Matters in Climate and Energy
Jennie C. Stephens, Northeastern University, Boston, MA USA
- 16:15 – 16:30 Break
- 16:30 – 17:20 Breakout Sessions
RMEI – Aristotle University of Thessaloniki case
RMEI – École Centrale Marseille case
Moderation: Maria Caprile & Rachel Palmén
- 17:20 – 17:30 Plenary
- 17:30 End of day

2.2 Participants

Tilda Akiki	RMEI
Khaled Al-Sahili	RMEI
Dia Anagnostou	ELIAMEP
Nour Ayed	RMEI
Paola Bello	FRRB
Olivier Boiron	RMEI
Giusi Caldieri	FRRB
Maria Caprile	NOTUS
Monia Chouari	RMEI
Marcello De Amico	FRRB
Carmen De Francesco	FRRB
Barbara De Micheli	FGB
Daša Duhaček	UB
Renate Dworczak	University of Graz, Austria
Henda El Gharbi	RMEI
Victoria Englmaier	IHS
Moncef Ghiss	RMEI
Fyllio Katsavounidou	RMEI
Sabine T. Köszegi	Vienna University of Technology
Nouha Koussoun	RMEI
Angelina Kussy	NOTUS
Andrea Leitner	IHS
Ibtissam Medarhri	RMEI
Milica Miražić	UB
Rachel Palmén	NOTUS
Andrea Pető	Central European University, Vienna
Anastasia Pritsa	RMEI
Theodora Slini	RMEI
Jennie C. Stephens	Northeastern University, Boston
Paolo Strolin	RMEI
Alina Tariceanu	ARACIS
Giovanna Vingelli	FGB
Azougagh Wiame	RMEI
Angela Wroblewski	IHS
Anastasia Zampaniotou	RMEI

2.3 Welcome by coordinator (day 1)

TARGET coordinator Angela Wroblewski welcomed everyone to the second co-creation workshop. She explained that the co-creation workshops are aimed at answering questions that came up during the implementation of the gender equality plans (GEPs) at TARGET partner institutions and provide a great opportunity to discuss these questions with international experts. While it was originally planned to hold the workshop as an in-person event at École Centrale in Marseille, it had been switched to an online setting due to the COVID-19 pandemic.

The focus of the workshop lay on measures and approaches to strengthen the gender dimension in research content and teaching since several of the TARGET partner institutions had faced difficulties in this respect. Different forms of resistance became visible in the context of GEP implementation. One institution reported that it was very difficult to convince senior researchers to take gender into account in research and teaching. Junior researchers, in contrast, were easier to convince. The need to overcome such challenges and adapt measures in the GEPs was also triggered by the upcoming GEP requirement in Horizon Europe.

Wroblewski reiterated that the aim of the present workshop was not to present final solutions but to instead provide food for thought for further development of existing GEPs. It is also a great opportunity to discuss practical and strategic questions in this context with invited experts.

After a short tour de table and presentation of the housekeeping rules, Wroblewski outlined the agenda for the workshop.

2.4 Anti-gender attacks on teaching gender studies

Wroblewski then introduced the first speaker. Andrea Pető is a professor in the Department of Gender Studies at Central European University, which recently moved from Budapest to Vienna. She holds a doctorate from the Hungarian Academy of Sciences and teaches courses on European comparative social and gender history, gender and politics, women's movements, qualitative methods, oral history and the Holocaust. Her publication record is long, and her articles have appeared in many leading journals, including *Feminist Theory*, *NORA*, *Journal of Women's History*, *European Journal of Women's Studies*, *Clio*, *Baltic Worlds*, *European Politics and Society*, and the *International Women's Studies Forum*.

She has served as a training coordinator in her capacity as a core group member of GenderSte, COST Network of Women in Science, Technology and Environment and member of the Horizon 2020 Societal Challenge Advisory Group (2014-2016, 2016-2018) and as a member and vice chair of the European Commission's Advisory Group for Gender (2014-2016, 2016-2018). She has also

been a board member (2009-2014) and co-president (2011-2014) of Atgender, the European Association for Gender Research, Education and Documentation.

Wroblewski mentioned that Pető has not only researched resistance to gender studies, she has also experienced it herself. She assumed that both perspectives would feed into her input and then gave her the floor.

Pető began by saying that she was honoured to be part of this important enterprise. The topics discussed are very timely, and this is an important discussion at present in France, Denmark and Slovenia (among other countries). She sees the attacks on gender as an important part of the fight for liberal values in Europe. In 2000, when interviewing neo-Nazi and anti-feminist Hungarians, she encountered language that she could not classify. She determined that there was something new behind this language – a new discourse. More and more women have been mobilised for anti-gender movements, and Pető had the feeling that something was happening that she could not grasp. Together with her colleagues and students, she analysed the situation and came up with a new theoretical framework – the Polypore state – which represents one of the cornerstones of her presentation at this workshop.



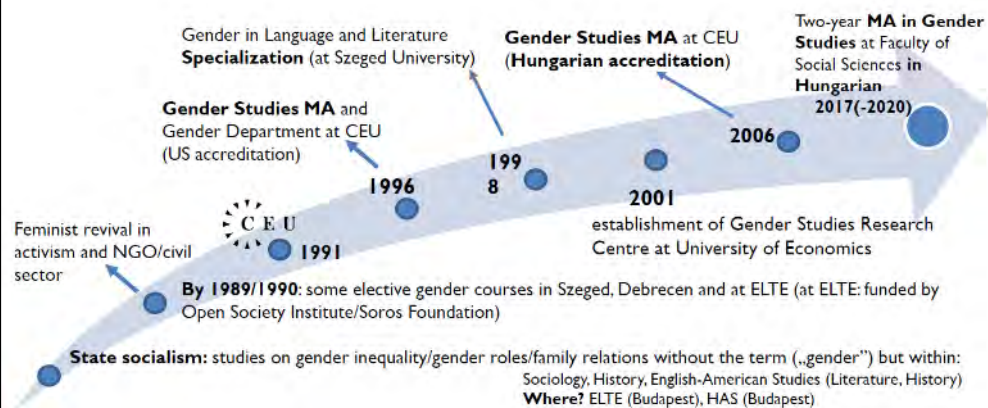
New theoretical framework

'Polypore state': it is new as a form of governance: parallel institutions, security narratives, privileging family over women's rights: familialism

„Gender as symbolic glue“



Brief history of gender studies in Hungary: the Milestones



Chronology of attacks

2017 Spring: attacks on gender studies

10 April Lex CEU

2018 August- October deleting gender studies from the accredited study list

2019 Autumn: move to Vienna



State of art:

„paradoxical recognition“
(Fassin)

1. Reevaluating the role of public-private universities
2. Gender Studies as pop-science
3. Return of the expert
4. Academic authorization process
5. New academic evaluation system
6. Impact of fear

Consequences

1. New survival strategies
2. New collaboration
3. New alliances



Lessons learned

1. Attention gained understood as a political possibility
2. Weakness of European infrastructure (gender studies, academic, educational) facing the polypore state
3. Reactive reaction, lack of political imagination
4. Failure to track transnational policy transfer to control humanities/social sciences (from Brasil, Russia, Turkey, Hungary)
5. Unexpected alliance: strike in Budapest 16 Nov, 2018

“Why are you afraid of the education?”





Further readings:

- [“Intellectual Freedom and Its New Enemies”](#), in Project Syndicate 28.2.2019. also in French, Russian, German, Hungarian, Chinese and Arabic, Macedonian.
- [„The gendered modus operandi of the illiberal transformation in Hungary and Poland”](#), Women's Studies International Forum 2018, Vol. 68. 2018. May June. 164 172. with Weronika Grzebalska
- [„Gender as a symbolic glue makes European freedom of education at stake”](#), The Progressive Post 22 Sept 2018. also available in Estonian, Spanish, Hungarian and German.
- [“Academic Freedom and Gender Studies: An Alliance Forged in Fire”](#), Gender and Sexuality Journal 2020. Vol.15. pp. 9 24.
- [“4 reasons why Gender Studies has changed because of illiberal attacks, and why it matters”](#), Böll Foundation 3 May 2021.

In the subsequent discussion, Pető was asked to elaborate on the finding that a re-evaluation of public-private universities is taking place. She explained that a privatisation of higher education is taking place in countries like Hungary, but the state is neither democratic nor supports liberal institutions and is only concerned with its own interests. This partly explains the shift which is currently ongoing.

She was then asked to what extent she felt that gender studies could be referred to as ‘pop science’. Pető responded that gender studies had not formerly featured in popular discussions, but that ordinary people were now discussing gender issues at lunch. She sees a popularisation of knowledge and the problem that it is not always clear who is a real gender expert. The media often invite people who are not gender experts to talk about the topic. The participant who had asked this question did not, however, agree that gender can be referred to as a popular science. In her opinion, it can only be referred to as a popular issue or topic as, in her understanding, ‘popular’ means that everybody shares the same knowledge. Pető referred in this regard to one of her journal articles in which she discusses precisely this topic.⁴ For her, popular is the outreach and language and the recognition that gender is a field of science.

Another question addressed the debate on academic freedom and gender studies. The participant who asked this question recognised a kind of tension between gender studies and the mainstreaming of gender. She wondered if this was perceived as a form of political correctness in the name of academic freedom. Pető responded that she finds the concept of academic freedom difficult to define: “you know academic freedom when you don’t have it”. She distinguishes between two different understandings of academic freedom: 1) individual freedom for individual scientists, whereby self-censorship is very difficult to measure, and 2) academic freedom related to the community, a privileged group of intellectuals with academic freedom as a community right. In Pető’s opinion, academic freedom will be one of the key discussions of the future.⁵

2.5 Action needed?! How to involve bystanders

Wroblewski then introduced the second expert, Renate Dworczak. While Pető had focused on external resistance, Dworczak looked at resistance within an institution.

Renate Dworczak is a professor of chemistry at the Karl Franzens University in Graz, Austria, where she also served for many years as vice rector responsible for gender equality and gender mainstreaming and is now the rectorate’s special representative for gender equality in diversity. The University of Graz has a long tradition of gender equality, and Dworczak has been a driving force behind these policies for some 20 years, supporting change to create working conditions which give equal opportunities to people of both genders to enable them to develop their scientific potential to the full.

⁴ <https://eu.boell.org/en/2021/05/03/4-reasons-why-gender-studies-has-changed-because-illiberal-attacks-and-why-it-matters>

⁵ Pető’s article on Academic Freedom and Gender Studies (2020) can be found in the bibliography section of this documentation.

She therefore has extensive experience with the implementation of gender equality policies, gender equality structures and all forms of resistance and attempts to counteract resistance.


Dworczak began her presentation with a reference to the motto of the University Graz: “We work for tomorrow”.

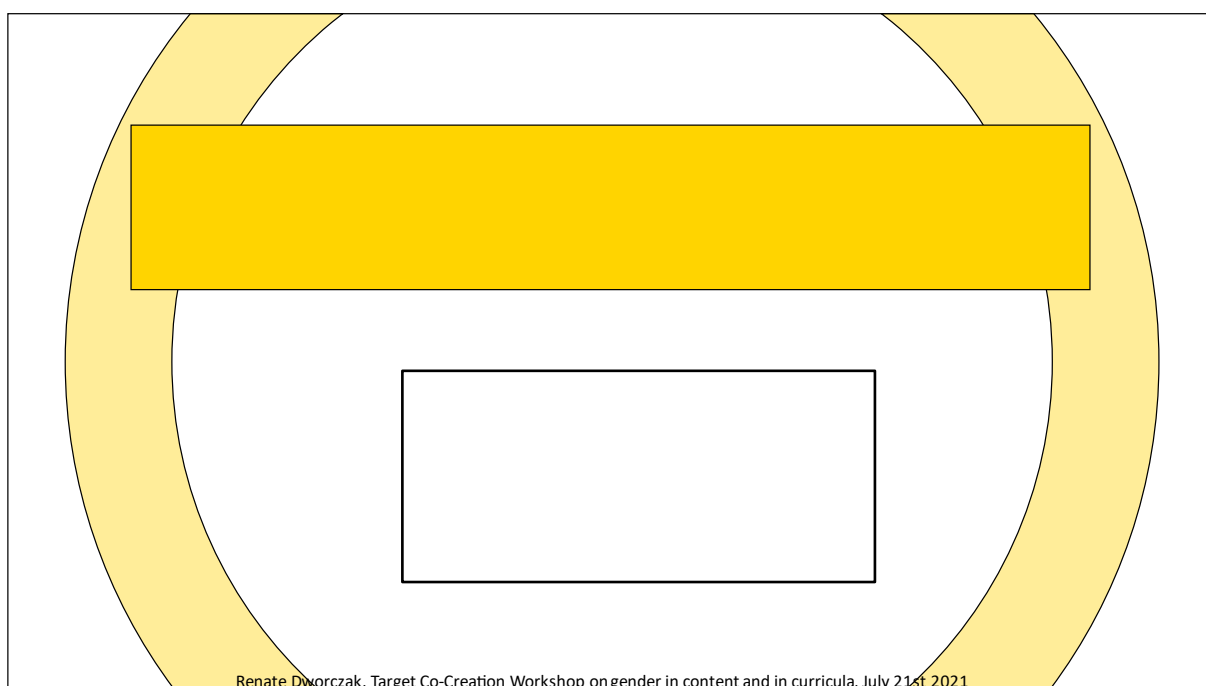
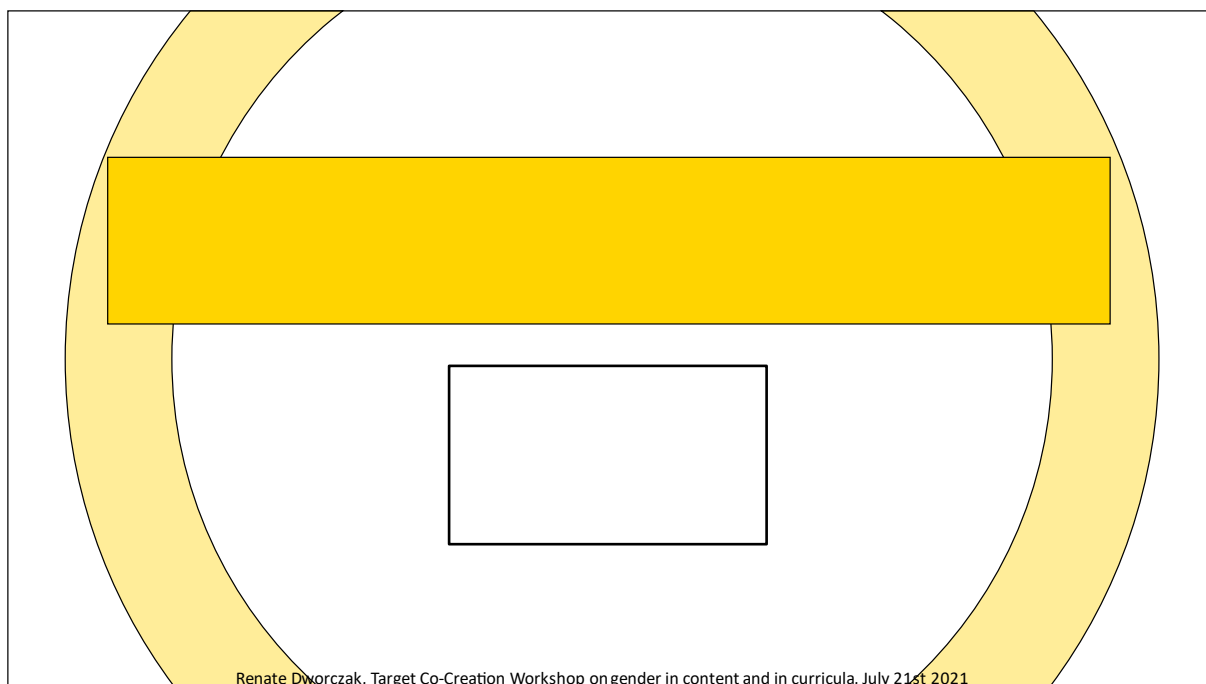


**Action needed?!
How to Involve Bystanders**

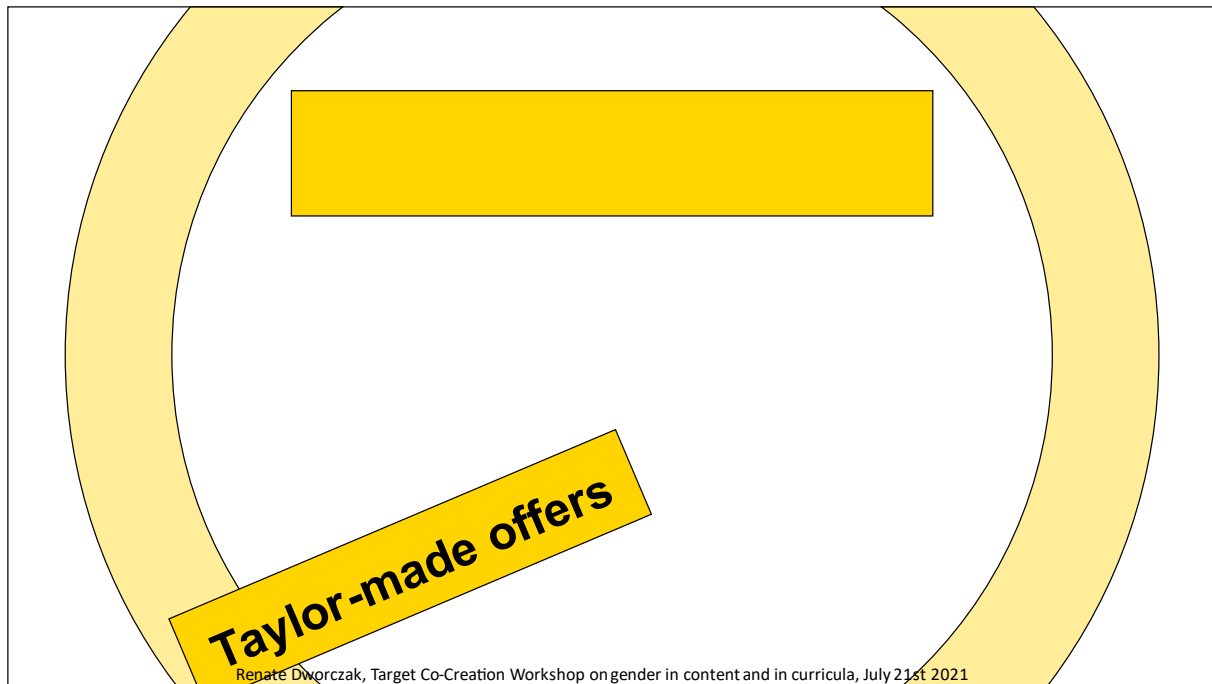
Renate Dworczak
Target Co-Creation Workshop on gender in content
and in curricula, July 21st 2021

*We work for
tomorrow*









One participant asked whether people are rewarded at the University of Graz if they publish papers on gender issues. Dworczak responded that this was not the case but that it could be an option. She added that, in her experience, not everybody wants to do gender studies. But when it comes to proposals for research projects, people are asked about the gender aspect of their research. If there is none, the proposal will not receive funding. That could be another way of getting gender dimensions into research content. However, she would definitely take the idea of giving 'goodies' for gender publications back with her.

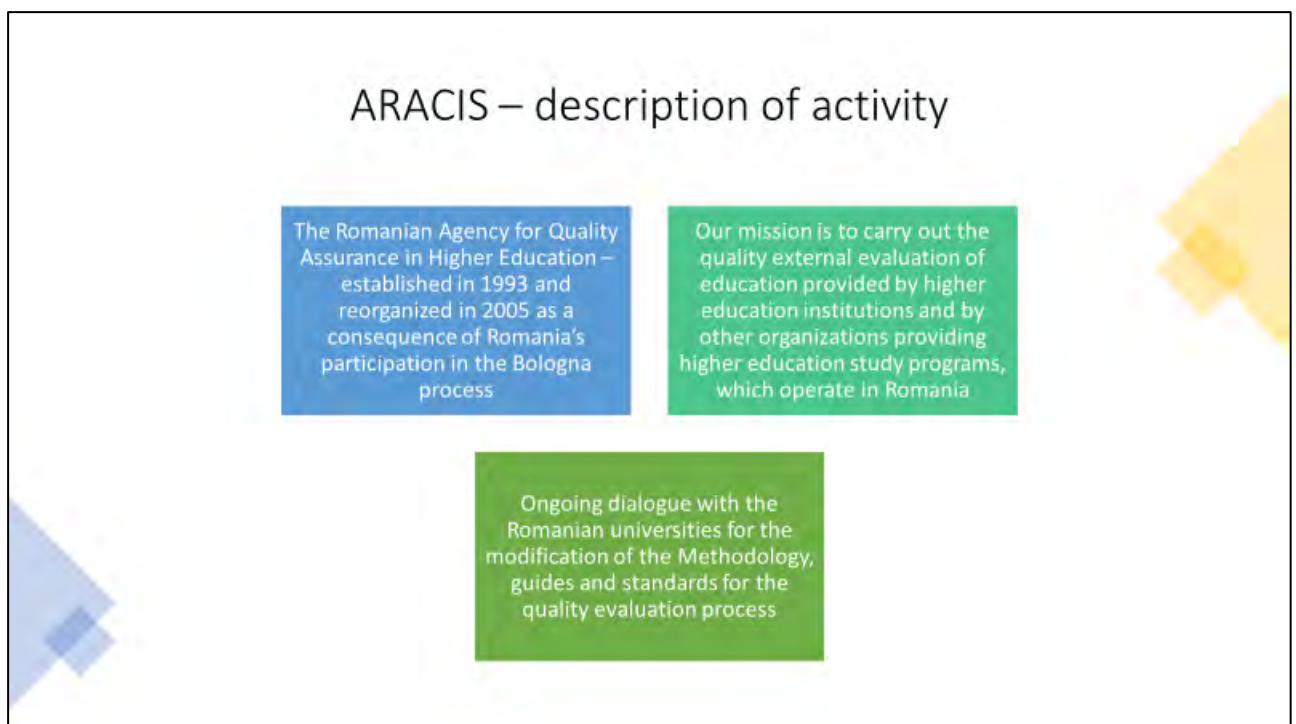
Another participant asked how she evaluates if measures have been successful. Dworczak noted that this was very difficult. In seminars and workshops, the participants can be asked if they have learned something useful. In training courses for members of appointment committees, some differences should become evident in the long run, for example, fewer gender biases and fairer processes overall. At the University of Graz, they also evaluate the impact factor of a paper in gender studies and how important the paper is in an international context. They do this using impact factors. This is a very difficult task, and a great deal of effort is also needed when it comes to acceptance by the community. A lot of information and discussions are required to make it clear that this is an important topic. Leadership in particular has to demonstrate that gender issues and publications on gender issues are wanted and that these are not topics that are only dealt with by a small group of people. The top-down approach is very important.

Angela Wroblewski thanked both experts and also the participants for raising interesting questions. After a break, the workshop participants were then directed into two breakout rooms in the Zoom meeting.

2.6 Discussion of ARACIS case

ARACIS's GEP and context description had been sent to Andrea Pető in advance, and she joined this breakout session as an international expert. The session was moderated by Giovanna Vingelli.

Alina Tariceanu presented the ARACIS case and related questions to Andrea Pető.



TARGET at ARACIS: aims



TARGET Objectives – What was accomplished so far



TARGET Objectives – What was accomplished so far

Increasing the number of women in the technical apparatus and the decision-making body and a more gender balanced structure of the personnel

In its Procedure of selecting and appointing of new members of the Permanent Specialty Commissions, "gender balanced representation" is stated as one of the principles, which reflects a commitment of ARACIS to promoting gender equality

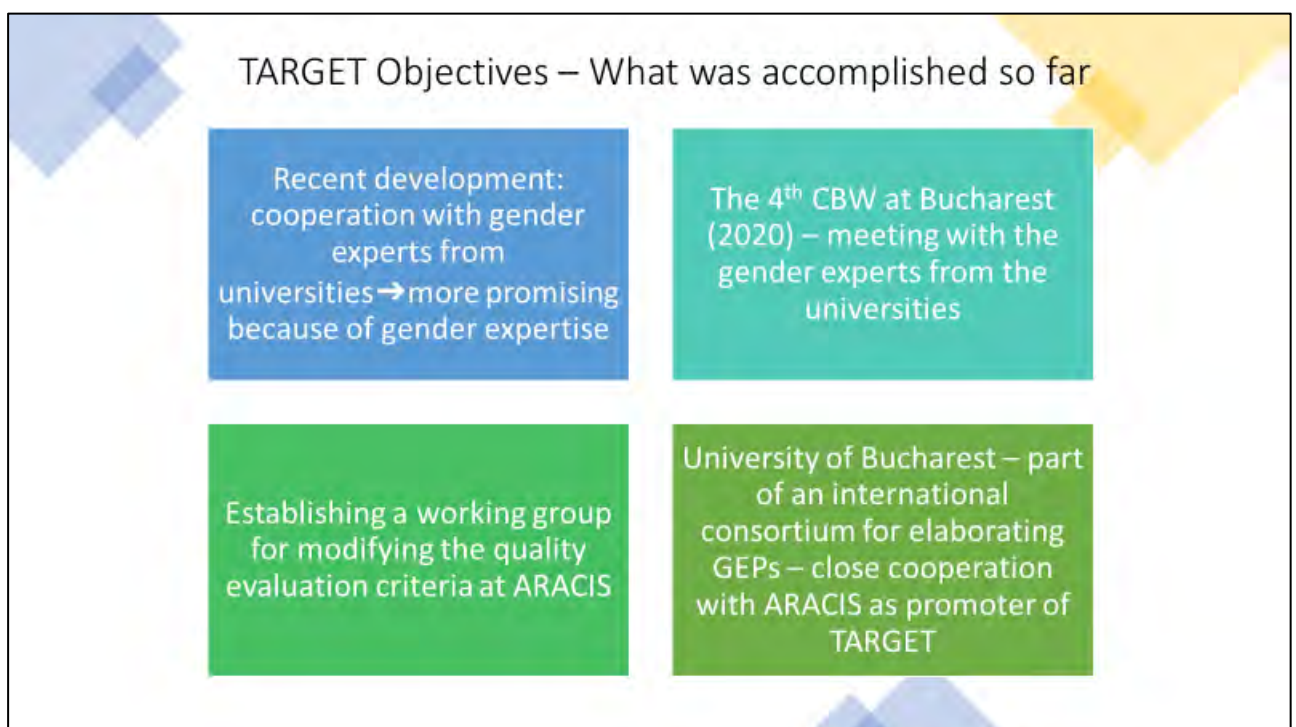
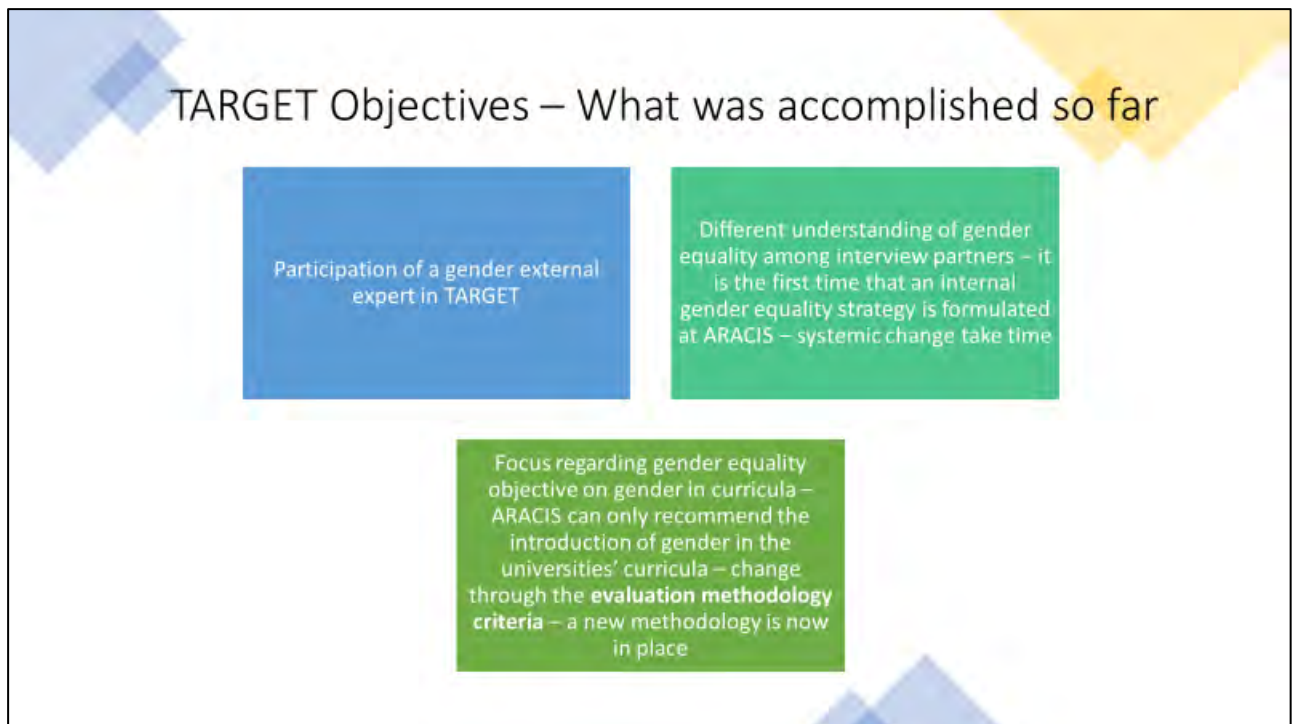
The same gender proportions were maintained within the Commission of Permanent Experts that carry out the evaluation activities done by ARACIS. The recruitment procedure of these experts is established by internal rules and regulations and there is a gender equality specification in their recruitment

TARGET Objectives – What was accomplished so far

GEP: first time formulation of an internal gender equality strategy – a breakthrough in the Romanian higher education system

GEP internal document, adopted by management – and supported by modifying all internal documents of ARACIS – gender statement

GEP implementation supported by an external expert – ARACIS now has a research department. It will hire experts and one of them will have gender related responsibilities



In the discussion, Pető emphasised the importance of the support provided by ARACIS for gender studies in Romania through its inclusion of gender as a criterion in the evaluation of study courses. Hungary does not consider gender in the evaluation of university courses. Referring to the question of how to define quality in this context, Pető mentioned two important aspects. First, the definition of expert or expertise. Who is considered a gender expert? Is the definition based on a self-assessment, a degree in gender studies or scientific expertise in the field? The definition has practical and political implications, and experiences from the European funding programmes

show how difficult it is to arrive at a concise and practical definition. Second, she recommended considering the institutional embeddedness of gender experts, which defines their academic standing. In addition, it is important to support an understanding of gender that is in line with the current academic discourse. Experiences in EU funding programmes have shown that a definition of gender expertise based on a self-assessment leads to an inflationary claim of gender expertise.

ARACIS has tried to identify gender experts in universities based on their teaching of gender studies and related academic record. These experts have been asked to participate in an ARACIS gender working group. While the universities are generally supportive, they are also trying to figure out what is expected of them in the gender context. The main question asked is “What is a qualitative programme?” Pető referred in this regard to the syllabus content and the definition of expertise.

She was also asked how she perceived the potential impact of the European GEP requirement in Horizon Europe on gender studies in new EU Member States. She expressed doubts that this requirement would influence national support for gender studies in Central Eastern European countries. However, it might support individual researchers who are interested in the topic in an international context. At national level, a lack of EU funding is compensated by national funding which does not call for a consideration of gender.

2.7 Discussion of ELIAMEP case

As in the previous case, ELIAMEP’s GEP and context description were sent in advance to Renate Dworczak, who joined this breakout session as an international expert. The session was moderated by Barbara De Micheli and began with a short presentation by Dia Anagnostou from ELIAMEP based on the information that she had sent Dworczak in advance in the following documents:

Hellenic Foundation for European and Foreign Policy (ELIAMEP)

Athens, Greece

ELIAMEP is a research institute and independent policy think tank that prides itself in carrying out high quality research and in providing evidence-based policy recommendations. Its origins and areas of interest were in fields that were traditionally male dominated, such as foreign policy, international relations, and political science. At the same time, ELIAMEP evolved, especially over the past 10-15 years, to develop expertise in the area of EU integration. It has become an extrovert, liberal and internationally reputable foundation, placing a premium on

values of meritocracy, equality, and an unwavering commitment to EU integration and the values that underpin it.

In view of the above, and despite its espousing of liberal European values, gender equality as an explicit principle was not part of its organisational culture. Even though its areas of research and expertise greatly expanded into regional studies (Program on Southeast Europe, Program on Turkey and Greek-Turkish relations, Middle East), migration, democracy and human rights, economy and the labor market, among others, the gender dimension was not incorporated into the content of its research or action projects, with some notable exceptions to be sure. Notably, this has begun to change recently. There is expressed interest among some researchers and research programs to address gender and incorporate it as a theme in their proposals and funded research projects.

In our work in the frame of TARGET, it became clear that it is more difficult to convince and motivate senior scholars and researchers to engage with gender in their research, while is easier to attract the attention and interest of younger researchers.

At ELIAMEP, gender is almost never considered as a research topic or analytical category. In the second year of the TARGET project, the team organised a training workshop on gender with two very experienced experts. However, this was a negative experience because most of the researchers were senior scholars and were difficult to convince to collaborate.

In the third year, the team organised another workshop that was targeted at younger students, which was more successful on an individual level but not on the organisational level. The team is now planning another activity to promote gender equality in ELIAMEP. Anagnostou asked two concrete questions in this regard:

1. How can senior scholars be convinced to take gender seriously as a topic that will benefit their research? Or should this attempt be given up and the focus placed solely on younger researchers?
2. Interested bystanders often don't have the knowledge and tools to do gender research. What is the best way to work with such researchers to make them feel comfortable? How can they be convinced that they can do research on gender even if they are not yet gender experts?

Dworczak said that she would never give up on senior staff and suggested that they be kept in the process so that they might develop a positive opinion of this topic and did not hinder younger researchers who show interest in it. Even if they remain passive, if senior researchers develop a positive attitude this can help a lot and influence the research of younger scholars.

For a project in the field of economics, for example, an external feminist economist could be brought in to talk about relevant gender aspects. Sometimes people collected data on men and women but did not segregate them. Since it is often not too big a task to look at these data and thus gain more knowledge without doing a lot of work, this might be a way of convincing them.

Dworczak also emphasised that women's rights are human rights, and that everybody who wants to be a member of a think tank has to consider men and women and other genders. Everything else is "old school" and not politically correct. It sometimes works to put gender and diversity in one pot. Diversity can often be brought in more easily than gender because people understand that it is important to protect minorities. While women are, of course, not a minority, they are nevertheless treated like one. People are different, and that has to be considered in research content, otherwise there is something missing.

When it came to the young people who are afraid of having too little knowledge, Dworczak suggested sending them out and letting them learn from external experts. When they returned, they would have knowledge that the senior scholars did not. At the University of Graz, new incomings attend a training programme known as "UNISTART"⁶, where they learn about various topics like Austrian law, university internals and gender issues. These people take this knowledge with them into their departments. Two or three years after the launch of "UNISTART", the senior professors asked if they could also have such training. So now there is also a mandatory "UNISTART" programme for new professors. Dworczak reminded the participants that these things take time, maybe a whole lifetime, and that they should not expect too much at one time.

Anagnostou said that she had the impression that gender studies are something extra but not included in other curricula. Dworczak responded that she knew this struggle. At the University of Graz, they gave additional money to the deans who were responsible for curricula if gender was integrated in their study programmes. This strategy worked well. However, they also tried to implement gender into the chemistry curricula, and this did not work. Her experience is that it works better if there is extra payment for external or internal experts teaching gender. The University of Graz also requires that every BA course includes two hours of gender lectures.

Another participant shared her experiences at the University of Barcelona. They had made training resources available for faculty to learn how to integrate the gender dimension into their research and teaching content. In addition, the Catalan Accreditation Body only accredits curricula if they also take the gender dimension into account. The university has defined five basic

⁶ <https://personalressort.uni-graz.at/de/abteilungen/personal-und-organisationsentwicklung/unistart/>
German only.

competences that every student has to learn. One of these is gender. This is another example of a top-down approach by university management.

All the participants agreed that these were great suggestions and concurred that supportive management seems to be crucial. Dworczak supported this point of view and added that when universities in Austria talk with the Ministry of Education about their funding, they each have to have at least one gender goal. This is seen as a push factor as well: a little help from outside is always useful – especially when money is involved.

2.8 Close of day 1

Wroblewski regretted that the discussions could not be continued due to time restrictions and asked the moderators to briefly summarise their discussions.

She then closed the first day's proceedings by thanking the Andrea Pető and Renate Dworczak for their valuable insights and NOTUS for the technical support and organisation of the Zoom meeting.

She also reminded participants that the focus of the second day would be on the integration of gender into curricula in STEM fields.

2.9 Welcome by coordinator (day 2)

Angela Wroblewski began by welcoming the participants to the second day of the workshop. She summarised the first day's proceedings and repeated the background and goals of the co-creation workshops for those who had not been able to participate on the first day.

The focus of the second day was on the gender dimension in curricula in STEM fields. How can gender elements be integrated into curricula? How can engineering students be supported in reflecting gender norms and gender stereotypes? After an introductory round and some housekeeping rules, Wroblewski introduced the day's first speaker, Sabine Köszegi.

2.10 Identity and Gender – Reflecting Gender Roles in an Organisational Context

Sabine Köszegi is a full professor for Labour Science and Organization at Vienna University of Technology and Academic Director of the Entrepreneurship and Innovation MBA programme. She received her PhD in Social Sciences from the University of Vienna. Her research background is in negotiation and mediation support systems, organisation studies and gender studies. She was a visiting scholar at the University of Aarhus (DK), University of Ottawa (CA) and Victoria University Melbourne (AU). Her current research focuses on issues relating to social robotics and new ways of work. She is member of the High-Level Expert Group on Artificial Intelligence of the European

Commission and Chair of the Austrian Council of Robotics and Artificial Intelligence, an advisory board of the Austrian Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology. The council identifies and discusses current and future opportunities, risks and challenges arising from the use of robotics and autonomous systems (RAS) as well as artificial intelligence (AI) and its gendered dimension. The gender dimension forms an integral part not only of her research but also her teaching, where her aim thereby is to support engineering students in reflecting gender stereotypes. Given her background, Wroblewski pointed out that her input would be extremely valuable for the TARGET partners and gave her the floor.

Köszegi thanked Wroblewski for the kind introduction and noted that since she had been told that the project sought to go to a practice level, she had kept her slides to a minimum and would focus in her presentation on her experiences in teaching gender aspects.



Agenda

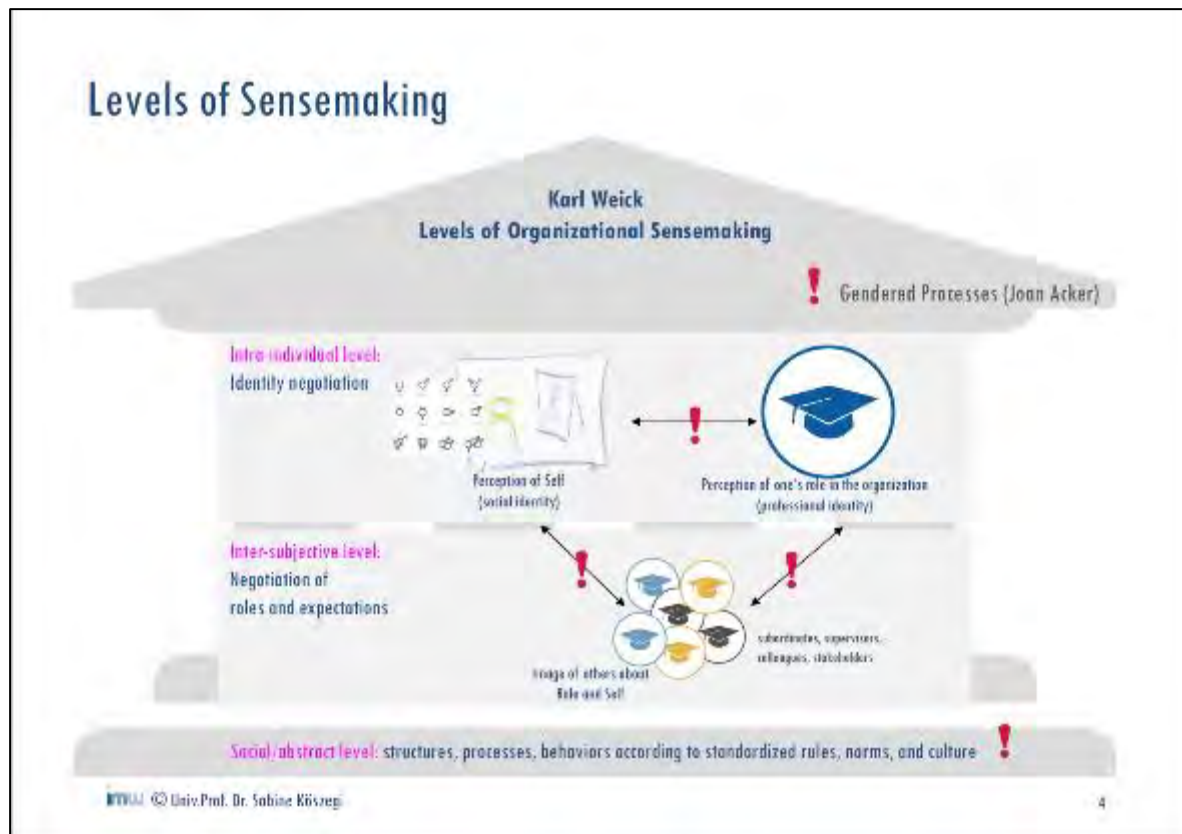
- ❖ What are Gendered Organizations?
- ❖ How are gendering processes embedded in organizations?
- ❖ How can gender competences be improved through identity reflection?

Gendered Organizations

“First, **gender is constitutive of organizing**; it is an omnipresent, defining feature of collective human activity, regardless of whether such activity appears to be about gender. Second, the **gendering of organization involves a struggle over meaning, identity, and difference**; this ongoing discursive struggle occurs amid, and acts upon, gendered institutional structures. Third, such struggle (re)produces social realities that privilege certain interests.” (Ashcraft & Mumby, 2004)

„Gender is not something that people are, in some inherent sense, [...]. Rather, for the individual and the collective, **it is a daily accomplishment that occurs in the course of participation in work organizations** as well as in many other locations and relations“ (Acker, 1992, p. 250)

„The term **gendered processes** means that advantage and disadvantage, exploitation and control, action and emotion, meaning and identity are patterned through and in terms of a distinction between male and female, masculine and feminine“ (Acker, 1990, p. 146)

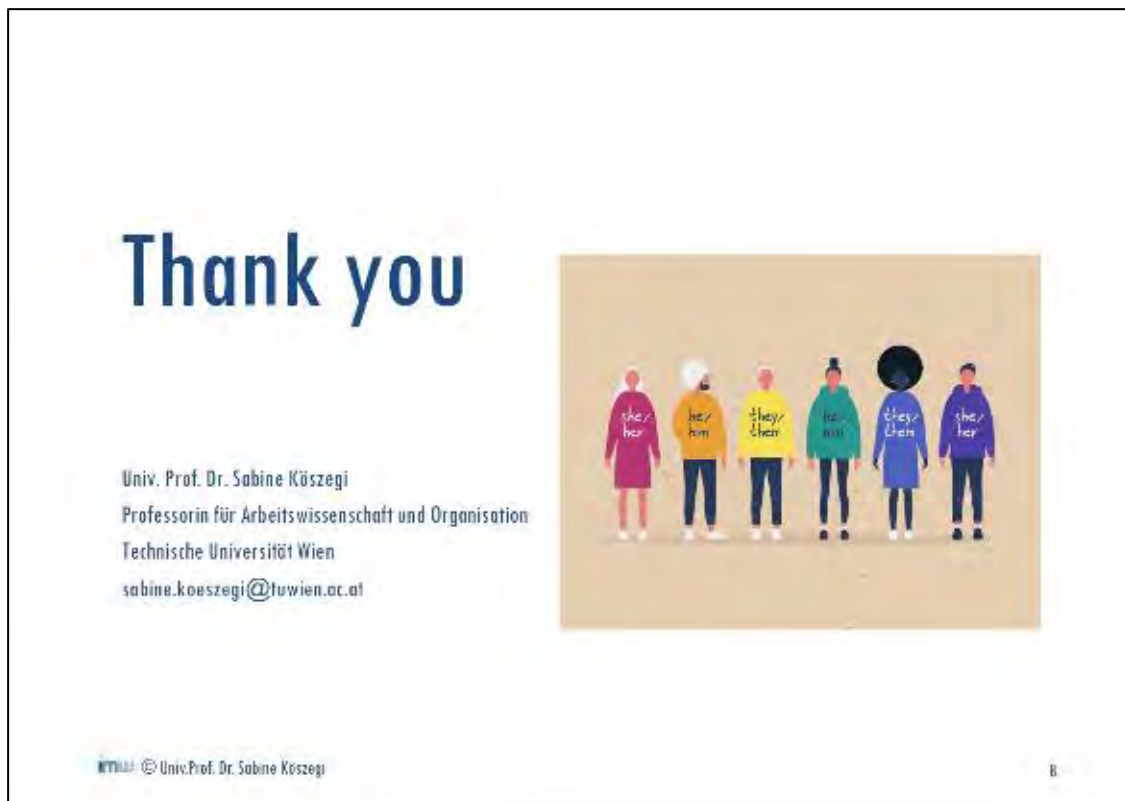


Gender Competences



Example for Workshop (1.5 hrs)

- Find a partner of opposite sex — observe masculinity/femininity
(5 mins — without talking); Exchange observations (5 mins)
- Find a partner of same sex — observe masculinity/femininity
(5 mins — without talking); Exchange observations (5 mins)
- Find a partner and describe your understanding of your own masculinity/femininity;
 - What makes me a man/woman/diverse?
 - When do I feel particularly masculine/feminine/diverse?
 - (How) is my gender identity related to my body? (20 mins)
- Describe the ideal engineer/scientist — Does your gender identity support/contradict this profession norm... Describe situation in which you experienced identity conflicts ... (10 mins)
- Find stories, symbols or artefacts in your organization that are used to justify gendered divisions of work (10 mins)
- Debriefing in plenary (30 mins)



The participants agreed that the course was a great example for the personal development of students and asked if it was a component of the curricula or an extracurricular course. Köszegi clarified that Vienna University of Technology has introduced an obligatory course for all students, so it is not extracurricular but in the curricula. In this course, they talk about technology and society and about technology being a gendered concept per se. Technology is by no means anti-social or objective but deeply gendered. Because of that, reflecting on how gender identity is associated with gender norms fits anywhere. Male students are on board as well as female and diverse students.

When asked how the course is evaluated, Köszegi replied that it is a regular course with 3 ECTS. She grades students by rating their reflection reports or thought papers on the texts they read in advance.

One participant noted that defining gender is not so easy, especially when it comes to non-binary approaches. Köszegi agreed. She teaches in English, which is easier than doing so in German as the language makes it more difficult to include diverse people. She tries her best to reflect on that.

The last question addressed the potential impact of the course. Köszegi said that she has a sense of the course's impact on individual students because they have to write a reflection report. However, she is also interested in the long-term effects.

Wroblewski closed the discussion by saying that this was a big and challenging question. However, initiating a first reflection for students as part of the curricula is a genuine and major step forward.

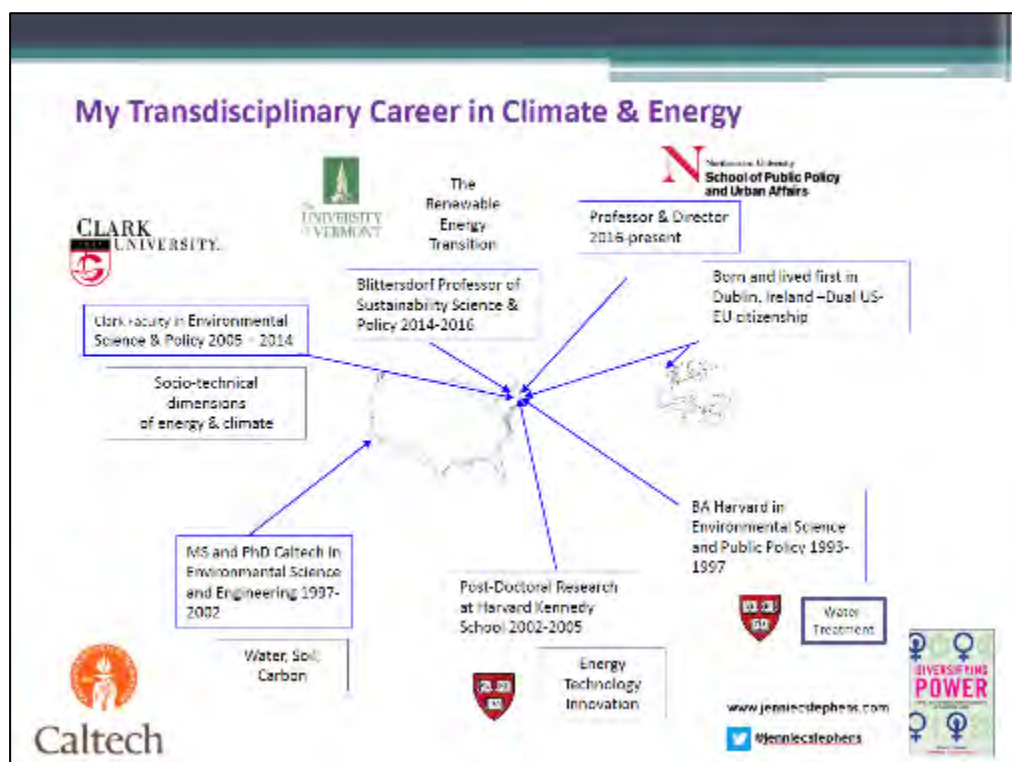
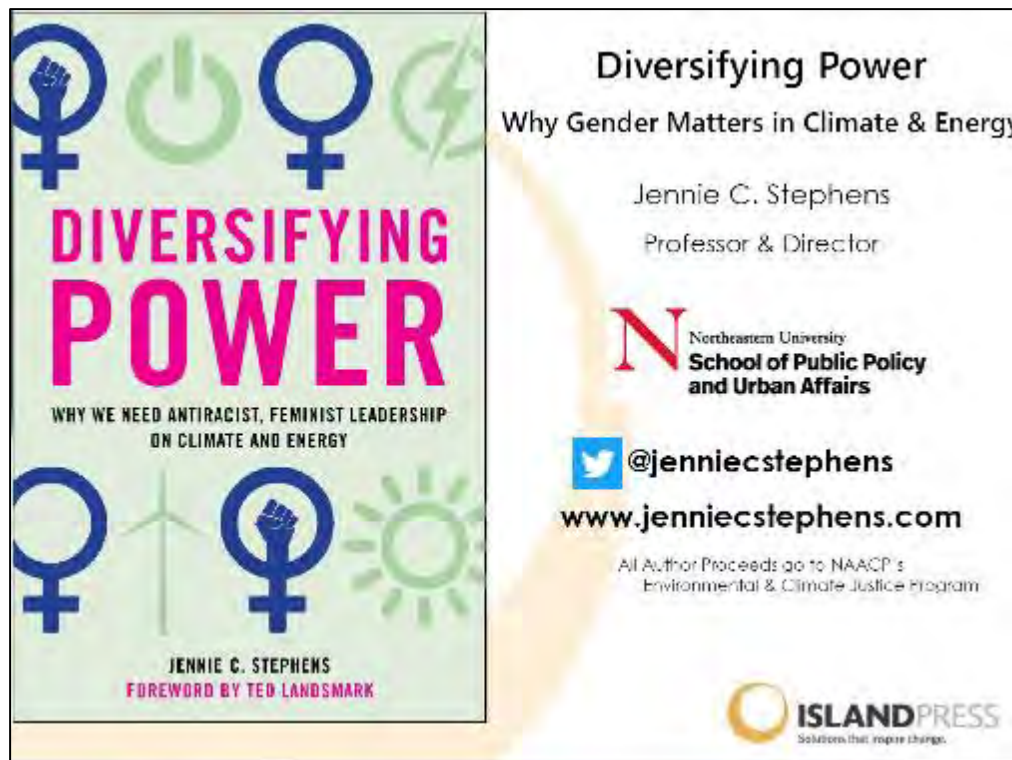
2.11 Diversifying Power: Why Gender Matters in Climate and Energy

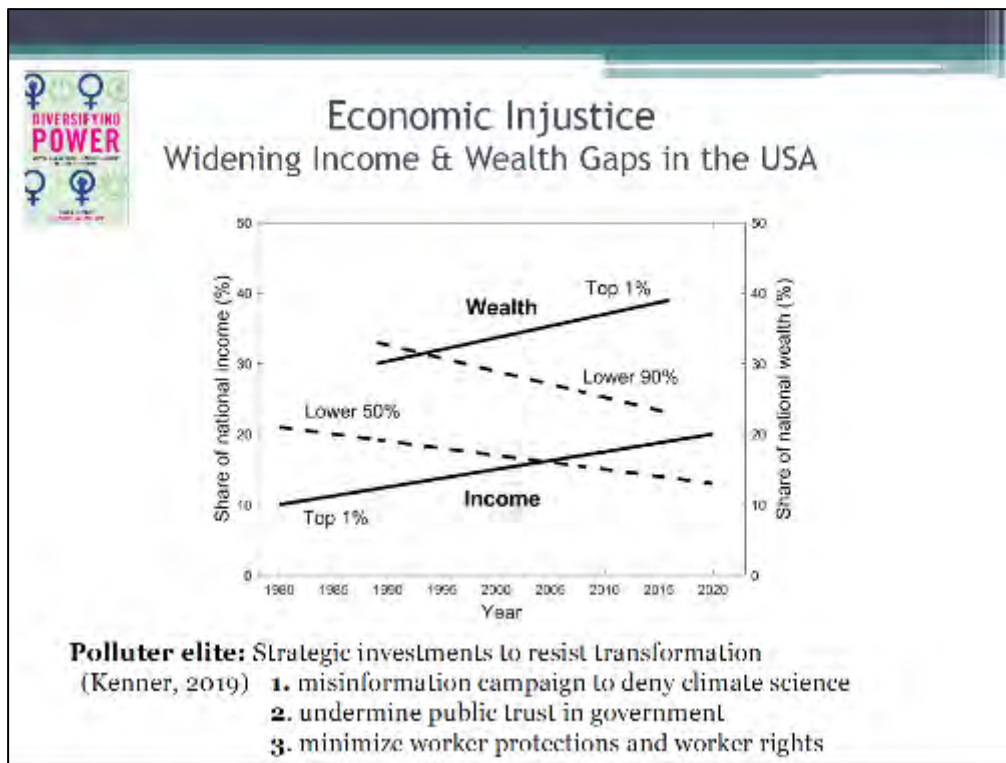
The second speaker on day two was Jennie C. Stephens from Northeastern University in Boston. She is Director of the School of Public Policy & Urban Affairs, Professor of Sustainability Science & Policy and Director for Strategic Research Collaborations of the Global Resilience Institute. Her research, teaching and community engagement focus on social-political aspects of renewable energy transformation, energy democracy, climate resilience, reducing fossil-fuel reliance, gender diversity in energy and climate, and social, economic and racial justice in climate and energy policy. Before going to Northeastern, she taught at the University of Vermont, Clark University, Tufts and MIT.

Stephens' publication list is long and impressive, so Wroblewski limited her introduction to her latest book "Diversifying Power: Why We Need Antiracist, Feminist Leadership on Climate and Energy (Island Press, 2020)". In this book, Stephens argues that the key to effectively addressing the climate crisis is diversifying leadership so that antiracist, feminist priorities are central. All politics and all policies, from housing to health, now have to integrate climate resilience and renewable energy. Similarly, there is also a gender dimension in energy production.

This led directly to the topic of the workshop: How to address the gender dimension in curricula of so called "hard sciences"? On that note, Wroblewski gave the floor to Jennie Stephens.


Stephens introduced some of her ideas in her new book, which is not an academic work and was instead written to be accessible for all readers, thus communicating to a broad audience that one of the reasons why we have been so ineffective with renewable energy is because we have a narrow perspective and a lack of diversity in science and engineering, and we often miss the gender perspective when thinking about the climate crisis.






Growing the Squad

Patriarchal Leadership



- Based on domination, exclusion & competition
- Concentrates wealth & power
 - prioritizes investments to maximize corporate profits
- Exacerbates inequities and racial/gender disparities
- Denies systemic problems to sustain status-quo

Antiracist, Feminist Leadership



- Based on collaboration, inclusivity & participation
- Distributes wealth & power
 - prioritizes investments in communities & workers rights
- Reduces inequities/disparities by centering racial justice
- Leverages transformation by linking problems

Resisting the Polluter Elite



Jacquie Patterson, NAACP Environmental & Climate Justice





Maura Healey, MA Attorney General






Jasmine Banks, UnKoch My Campus












Jobs & Economic Justice




Varshini Prakash, Sunrise



Rep. Alexandria Ocasio-Cortez, (D-NY)

Resisting precarity

Reclaiming the power of public investment

Restructuring for inclusive prosperity



Erica Mackie
Grid Alternatives



Esteban Kelly, US Federation of Worker Cooperatives



Rouwenna Altemose
All In Energy



Health, Well-Being & Nutritious Food for All



Robert Bullard
Texas Southern U



Gina McCarthy,
White House
National Climate Advisor



Mustafa Santiago Ali
National Wildlife Federation



Dorceta Taylor
Yale



Mildred McClain, Hirambee House
Citizens for Environmental Justice



Jillian Hishaw, F.A.R.M.S



Jacinda Ardern
New Zealand

Clean Transportation for All

CREDIT REPORTS
REP. AYANNA PRESSLEY
Massachusetts, 7th District
South, Chelsea, Somerville

Rep Ayanna Pressley (D-MA)

Michelle Wu, Boston City Councilor

Greta Thunberg

www.jenniestephens.com

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Housing for All

Rep Ilhan Omar (D-MN)

Dominique Walker
 Moms 4 Housing

Kanahus I'freedom Manuel
 Tiny House Warriors

Eviction in Oakland, CA Jan 14 2020
 Photo: Katie Ferrari

www.jenniestephens.com

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Our Collective Power for Transformation



BRING U.S. TOGETHER

VOTE CHISHOLM 1972
UNBOUGHT AND UNBOSSED

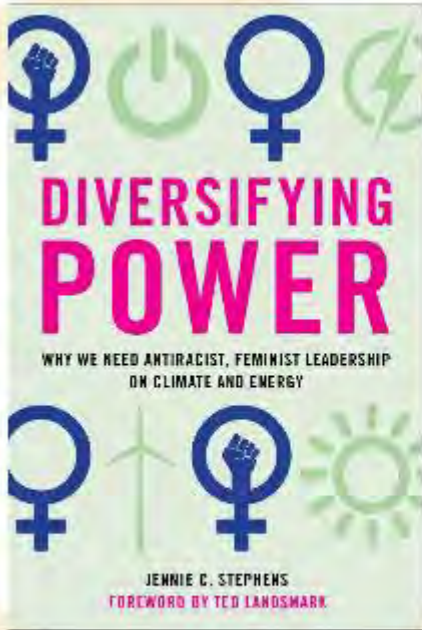


Mary Robinson
Former President of Ireland

- Lead and act to inspire new leaders
- Advocate for system change
- Understand & unlearn racism and sexism
Talk about racism and sexism
- Vote and help others to vote
Engage with your elected officials
- Prioritize diversity, equity & inclusion everywhere
- Advocate for local community renewable energy
- Leverage data, science and information for change
- Support cooperatives and novel economic structures
- Connect across the divide – listen and learn




www.diversifyingpower.com
 [@diversifyingpower](#)



Diversifying Power


Why We Need Antiracist, Feminist Leadership on Climate and Energy

Jennie C. Stephens
Professor & Director
Northeastern University
School of Public Policy and Urban Affairs

 [@jenniestephens](#)
www.jenniestephens.com

All Author Proceeds go to NAACP's Environmental & Climate Justice Program

Book available at all book sellers


ISLANDPRESS
Solutions that inspire change

The participants agreed that it is important to link gender issues with all these other key issues and that leadership is also very important when it comes to gender content, especially in STEM fields.

One participant asked provocatively how much power the people shown really have. They clearly inspire others, but to what extent are they able to influence the centres of power? Additionally, when women or people of colour take positions in the centre of power, they sometimes act completely different than before. Stephens responded that she could not understate the influence that these younger politicians have. It is clear that the older ones are still there, but there are many young people coming through – a situation which makes her optimistic. The shift of power is taking time, but it is coming. What is more, it is getting harder and harder to be OK with sexist or racist norms of organisations, also through the pandemic.

In the workshop chat, one participant posted the following links to further reading materials which deal with gender issues in the context of climate change:

- <https://www.iisd.org/articles/gender-climate-change>
- <https://www.iucn.org/resources/issues-briefs/gender-and-climate-change>

Wroblewski thanked both experts for their inputs. After a short break, the participants were directed into the day's breakout rooms.

2.12 Discussion of RMEI – Aristotle University of Thessaloniki case

The session was moderated by Rachel Palmén. Anastasia Zampaniotou presented the status quo of gender in engineering subjects at Aristotle University and the development of existing structures for gender equality. Furthermore, she described the integration of gender equality in RMEI's mission statement and the measures implemented within the RMEI network.



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

TARGET } 

This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No. 741672

Gender in Content and in Curricula of Engineering School, Aristotle University of Thessaloniki, Greece

Anastasia Zabaniotou, prof
 Aristotle University of Thessaloniki, Engineering School
 Elect vice president of RMEI

Co-Creation Target
workshop 22-7-2021 1







Engineering Studies today

- ✓ Systems
- ✓ Dynamics of systems
- ✓ Exchange of energy and matter
- ✓ Function and maintenance of ordered structures directly or indirectly supplied and maintained by natural systems.
- ✓ Systems and time

Global challenges



Global Challenges of the 21st Century

Anthropogenic Climate Changes and Social Upheavals



Climate C.H.A.N.G.E.


Climate Change, Anthropogenic & Natural Global Problems

YOU DECIDE

ECONOMIC, GOVERNANCE, IMMIGRATION



Vision of Sustainable Development




Quest for Change

It is becoming increasingly clear that the quest for sustainable development requires integrating

- economic,
- social,
- cultural,
- political and ecological factors.

8



Vision of Sustainable Development

- **SYSTAINABILITY**
- **SYSTEMS AND COMPLEXITY**
- It requires the simultaneous consideration of the **local and**
- **the global dimensions**
- **and of the way they interact.**

9



Vision of Sustainable Development

- **Quest for Change**
- And it requires broadening the
- space and time horizons to accommodate the need for
- **intra-generational as well as**
- **intergenerational equity**
- **Gender equality**
- **Inclusion**

10



Vision of Sustainable Development

Quest for Change

- It requires the constructive articulation of the
- ⊗ **top-down approaches to development** with
- ⊗ **bottom-up initiatives.**



New perspective for engineers and researchers under sustainable development

It is necessary to provide a **more scientific approach**, and to highlight relations between different systems and between systems and the environment.

Innovative tools are required for identifying the high complexity of engineering studies.

The task of researchers, aware of the complexity of the contemporary systems, **is to increase the capacity to manage human activities pursuing welfare and prosperity in sustainable word**

Vision of Sustainable Development

Engineering Education Excels in Technical Content

Students are Creative but not necessarily innovative

We also Need the Implementation of Invention – Innovation

“Innovation occupies our attention today because the solution of almost every major problem is thought to depend on innovation. How will we raise the quality of life for every citizen? The answer is through innovation.” – Dan Mote III, President, University of Maryland

Innovation Requires Leadership

13

Vision of Sustainable Development

LEADERSHIP

• Technical

- We do best at this

• Entrepreneurial

- The part of innovation that engineers are not as good at

• Societal

- All Levels of Government, Community, The Challenges and Sustainable Growth

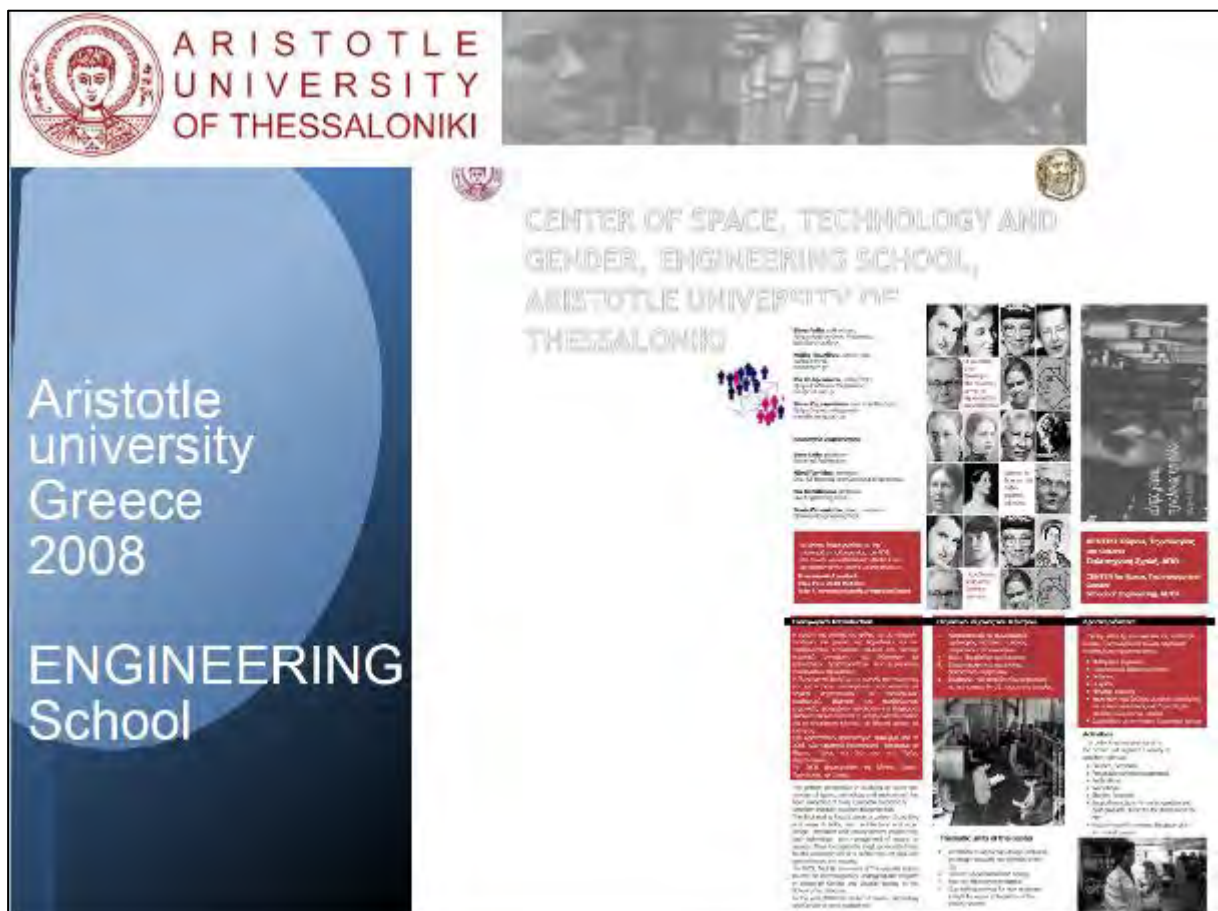
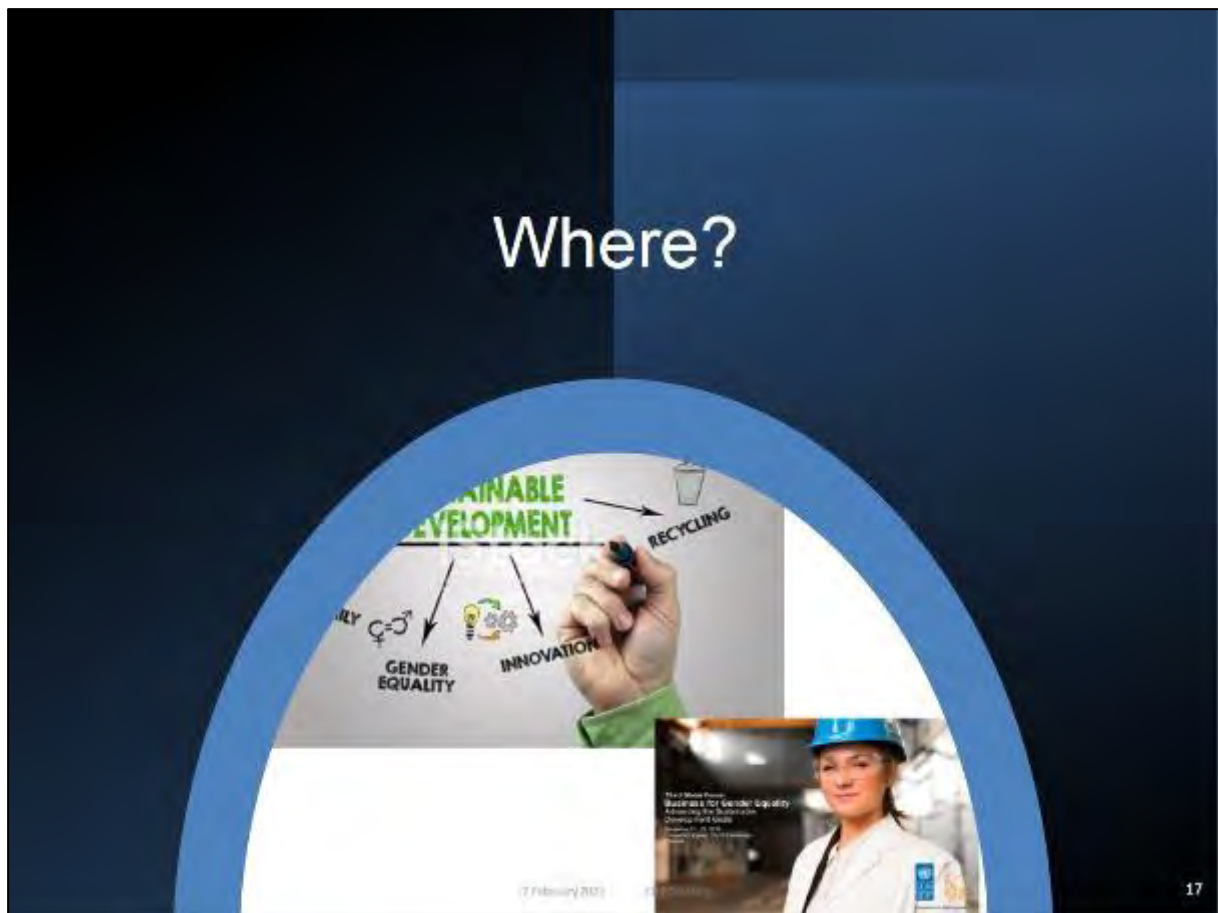
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Gender equality in Engineering
Education

15

"Gender equality is not a woman's issue, it is a human issue. It affects us all."

16



Aristotle
university
Greece
2019

Engineering
School
2020

Ministry of
interior
affairs
2021



ΕΠΙΤΡΟΠΗ
ΙΣΟΤΗΤΑΣ ΤΩΝ ΦΥΛΩΝ
ΑΠΘ

**GENDER EQUALITY COMMITTEE
AND SUSTAINABLE DEVELOPMENT**

[#GIL4W]: Center for innovation
and Gender Equality

19

Resistances to gender studies or gender in content and
gender in curricula in core engineering

Engineering
Curricula




*TEACHING
ENGINEERING*
Second Edition
Philip C. Marshall and Frank S. Ormrod

Mechanical Engineering

Resistances to gender studies or gender in content and gender in curricula in core engineering

Engineering Curricula

ARISTOTLE UNIVERSITY




Urban Street Design Guide

My experience

SDGs LEARNING

ENGINEERING CHANGE

TARGET } Taking a Reflexive approach to Gender Equality for institutional Transformation

Mediterranean TARGET } 



RMEI
Forum of Mediterranean Schools of Engineers

UNESCO
Organisation des Nations Unies pour l'éducation, la science et la culture

uniTwin
Chaires UNESCO
« Innovation pour le développement durable »

GENDER EQUALITY TARGET } 

Game

22

Mission





Organisation des Nations Unies pour l'éducation, la science et la culture

Chaire UNESCO

Le développement durable

Le développement durable

The network's mission is the promotion of Sustainable Development of the Mediterranean basin by bridging the Mediterranean countries and its people through the common history, cultural heritage, natural resources, the environment, energy, technology, innovation, new entrepreneurship, mobility and engineering education and gender equity.

TARGET } With a network approach
to gender equity in
science, technology,

23

Youth and Education

GAMeNews@Med

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Newsletter n°1 2019





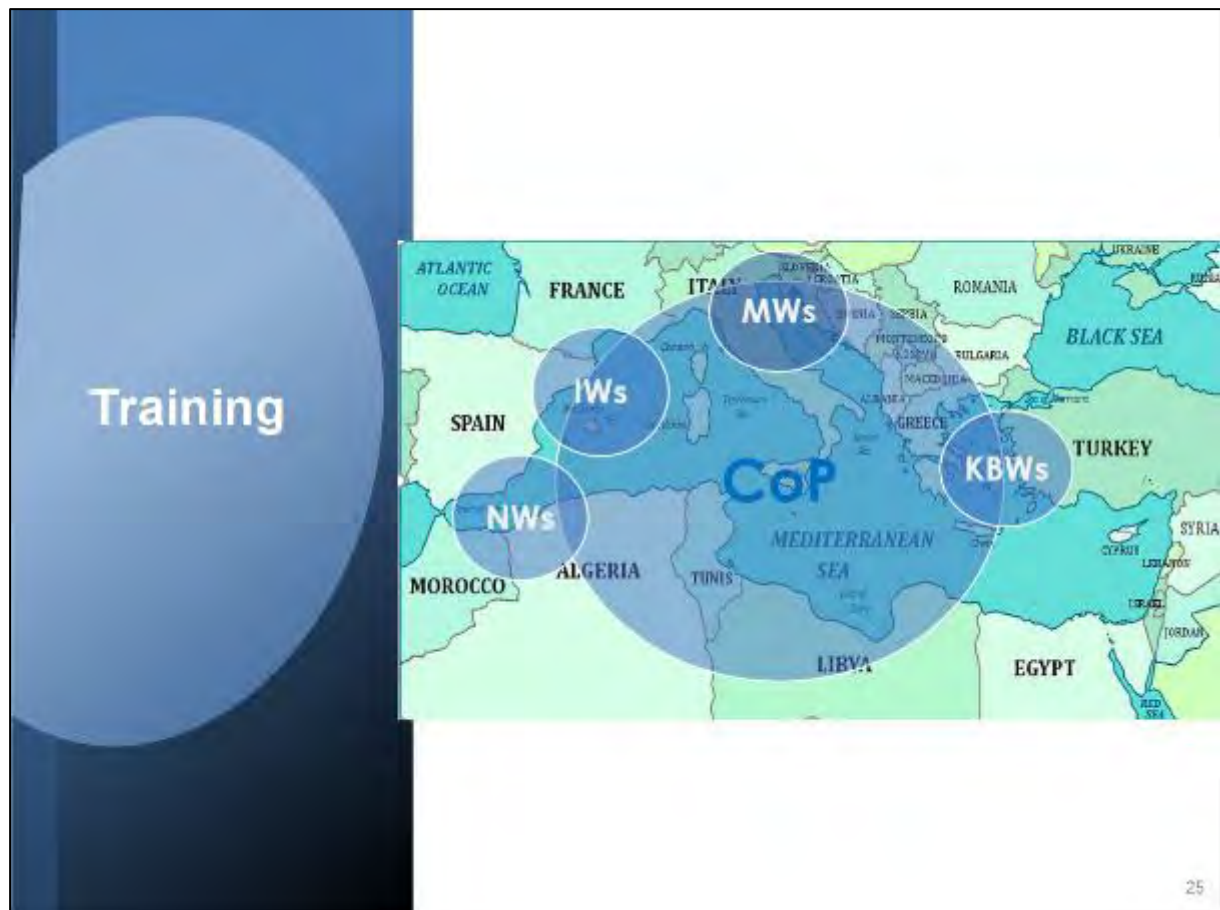

Ten shades of green

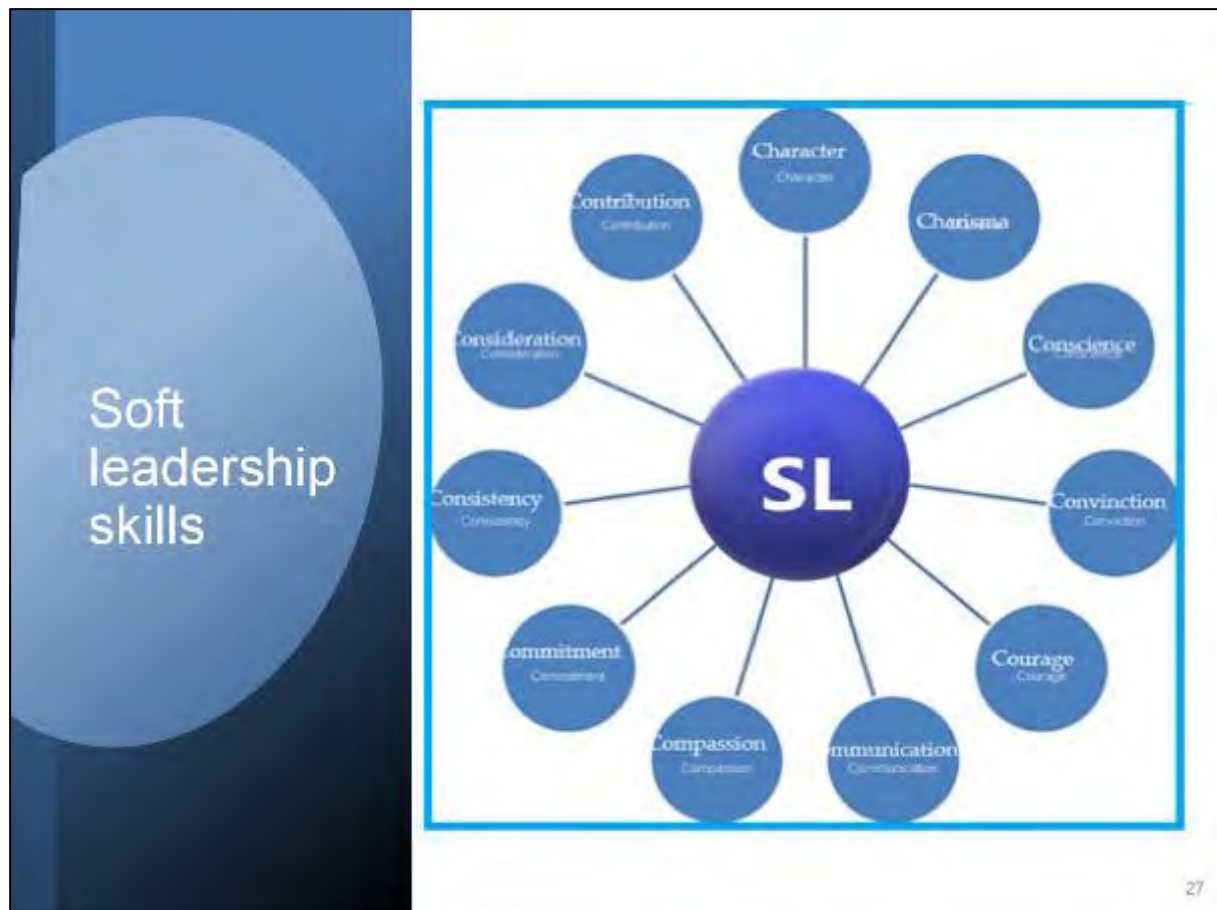
I'm Francesca Romana Vertani, an Italian member of GAMe. Despite I am Security Engineering student, I











Blue Economy

Or

Green Economy of Oceans

Benefit from women's participation

Broader talent pool.


Prioritizing women in ocean science, particularly marine conservation and renewable oceans energies:

Climate Change
women and girls are hardest hit by the effects of climate change.


Thus, responding appropriately requires representation of women in science and in **all levels of research and decision-making processes.**

Sea-GEM, Civitavecchia, 28-3-2019

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ARISTOTLE
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THESSALONIKI

TARGET }  The programme outlined hereby from the
European Union Research and Innovation Programme
under GTC agreement No. 741672

Gender in Content and in Curricula of Engineering

Questions

- Which arguments support introducing gender equality in core engineering curricula of chemical engineering, mechanical and electrical engineering?
- - Do you think it is more appropriate to integrate gender in compulsory courses or in elective courses?

In the discussion, the introduction of a mandatory course like that presented by Sabine Köszegi was mentioned as a possible and important first step. The participants agreed that such a course should be mandatory.

One participant referred to the supportive legal trend in recent years in Greece (the establishment of gender equality centres at universities) and reminded the audience of the situation in other countries, where gender equality is not seen as a priority and therefore even more difficult to address in curricula.

Stevens mentioned the importance of qualified teachers when it comes to gender issues. Faculty often does not have enough gender expertise to deal adequately with gender issues in their teaching. She called for targeted training for teachers. She also suggested thinking about the titles of such courses: including the terms gender equality or racial inequality might only attract those who are already interested in these topics. Furthermore, she stressed that such courses should be mandatory and that such approaches have to be supported by university management. Gender competence has to be formulated as one of the required core competences of teachers and form part of the profile of teachers and institutions.

One participant shared her experiences of the top-down approach at the University of Barcelona, which was already mentioned in the discussion of the ELIAMEP case. There, specific training

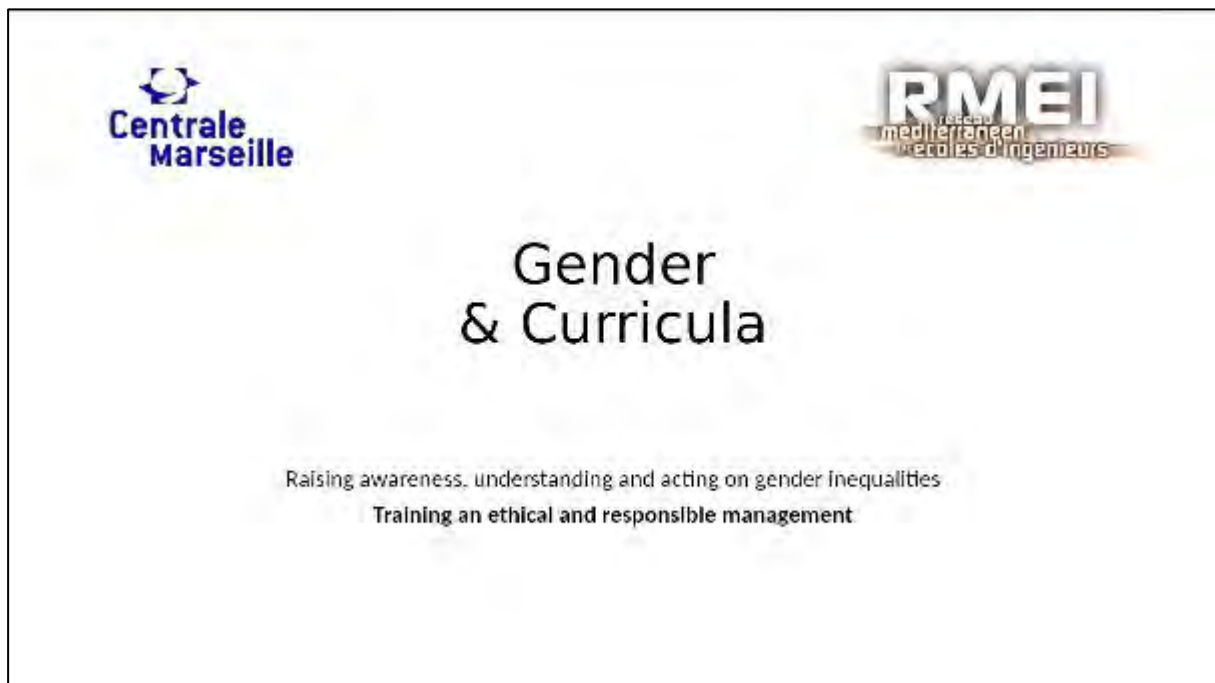
resources have been made available for faculty to learn how to integrate the gender dimension into their research and teaching content. Gender is one of five basic competences that every student has to learn. In addition, the Catalan Accreditation Body only accredits curricula if they also take the gender dimension into account.

It was also suggested that competence building for teachers not be framed as training but instead organised in an academic setting (e.g., workshops, seminars) to increase its acceptance.

Finally, the relevance of a critical mass of scientists dealing with gender issues within an organisation was mentioned along with the need to support collaborations between those interested in the topic. This requires a great deal of commitment on the part of change agents to convince colleagues and should be supported by the management.

2.13 Discussion of RMEI – École Centrale Marseille case

Maria Caprile, who moderated this session, began by introducing the speaker, Olivier Boiron. Boiron is a professor at École Centrale in Marseille and an RMEI member. He presented the case at his institution.



Gender situation regarding STEM before entering in HE system

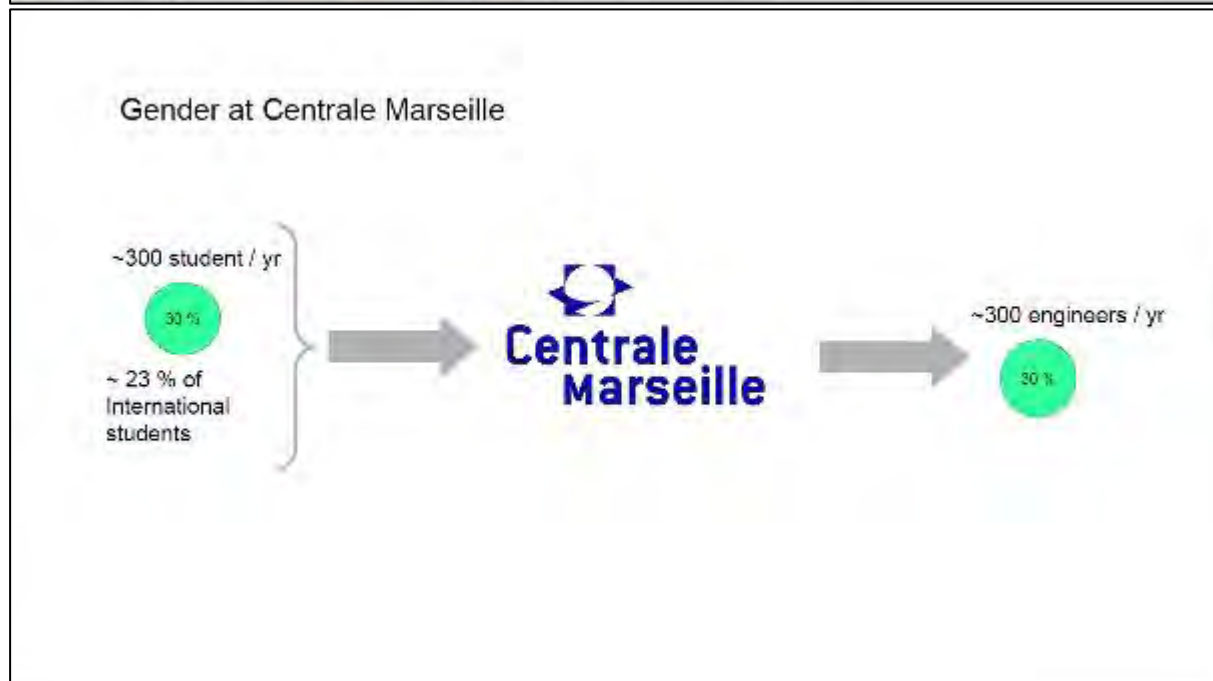
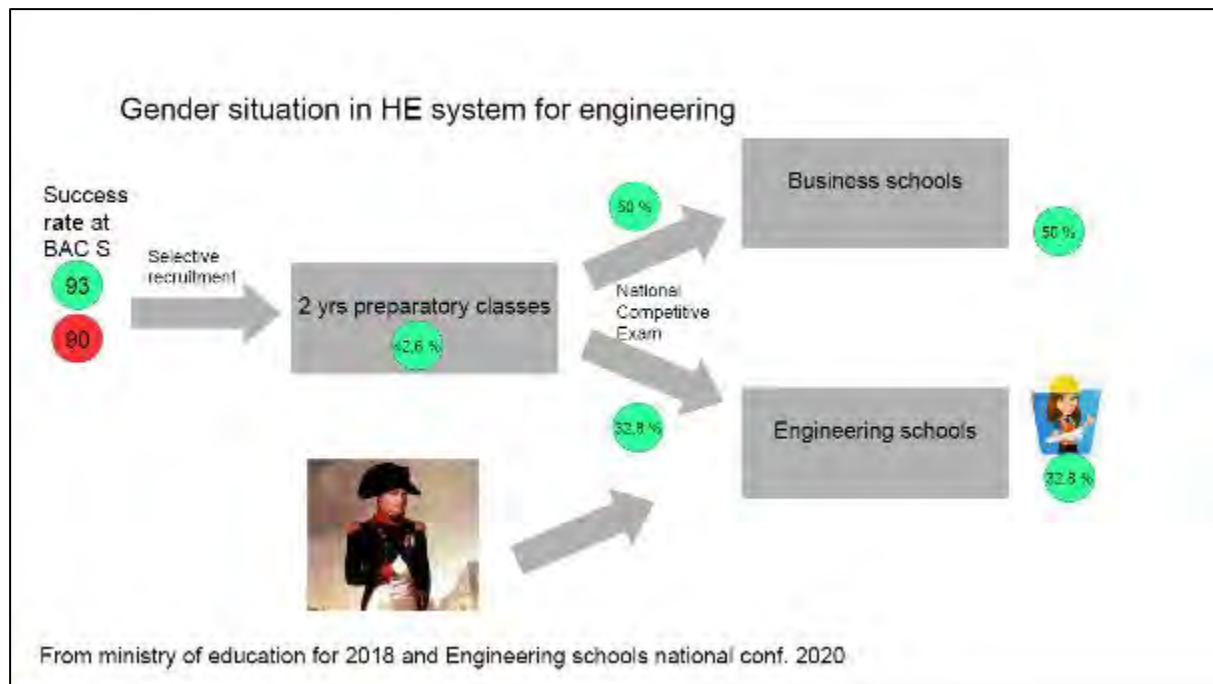
	Total diplomas awarded	Girls (%)
Baccalauréat général	359 455	57,1
Bac S (scientifique)	187 629	47,9
Bac ES (économique et social)	119 178	61,2
Bac L (littéraire)	52 648	80,1
Baccalauréat technologique	138 570	48,3
Bac ST2S (sciences et technologie de l'industrie et du développement durable)	32 795	7,2
Bac STL (sciences et technologie de laboratoire)	11 449	57,7
Bac STAV (sciences et technologie de l'agronomie et du vivant)	3 028	46,2
Bac STMG (sciences et technologie du management et de la gestion)	63 590	52,5
Bac ST2S (sciences et technologies de la santé et du social)	22 546	88,1
Bac STD2A (sciences et technologies du design et des arts appliqués)	3 267	76,0
Bac STMD (musique et danse) et hôtellerie	2 595	84,5
Baccalauréat professionnel	179 262	44,6
Production	81 091	15,6
Services	98 171	68,5
Total des baccalauréats	677 287	52,0

From ministry of education for 2018

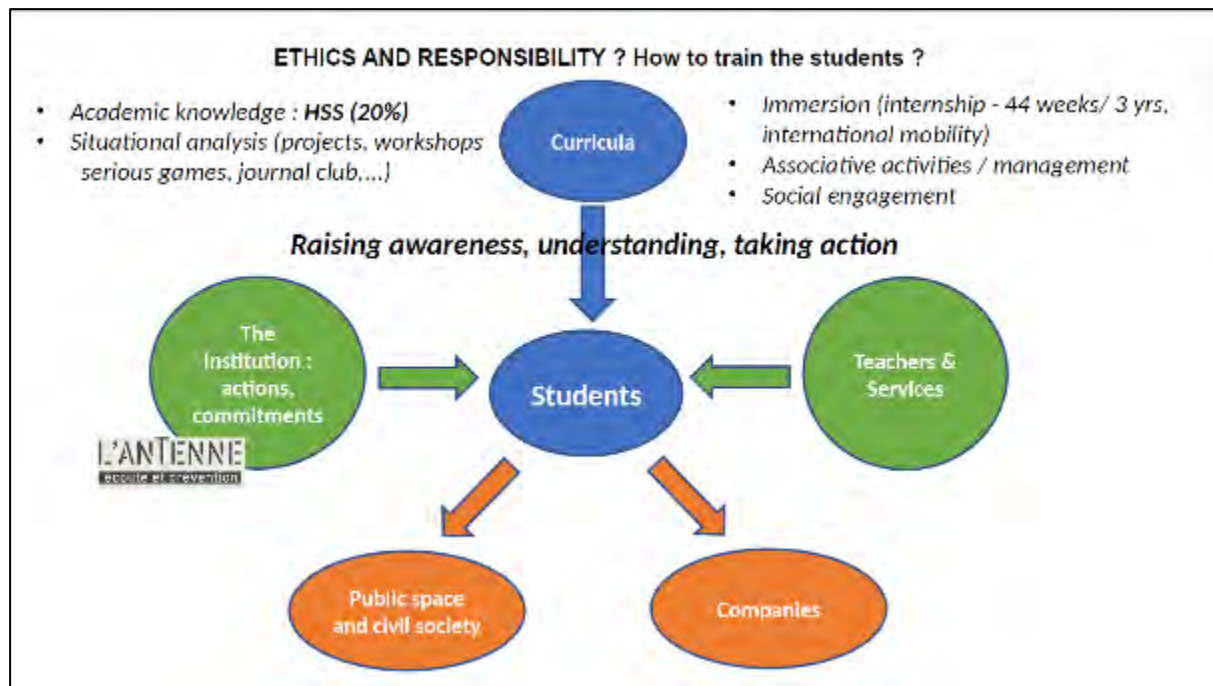
Gender situation regarding STEM before entering in HE system

Enseignements de spécialité	Girls	Boys
Mathématiques	61,4	27,8
Physique-chimie	69,0	36,5
Sciences de la vie et de la terre	44,0	40,6
Sciences économiques et sociales	42,4	35,1
Histoire-géographie, géopolitique et sciences politiques	39,1	29,6
Langues, littératures et cultures étrangères et régionales ¹	34,9	20,1
Humanités, littérature et philosophie	25,3	9,0
Numérique et sciences informatiques	2,6	15,2
Sciences de l'ingénieur ²	1,6	17,1
Matières artistiques ³	8,0	8,0
Littérature et LCA, latin ou grec	0,4	0,2

From ministry of education for 2019







Caprile welcomed the commitment by École Centrale to the fact that numbers are not enough and asked if these courses on ethics and management are currently under discussion. Boiron answered that they are not under discussion at present but that École Centrale does want to improve them. They try to use different approaches to tackle this issue in civic societies, not only in the curricula but also in their teaching and scientific counsel.

Sabine Köszegi was asked for her opinion since she already has experience of implementing gender aspects into curricula in universities of technology. She said that when they first discussed implementing “Technology for People” in the university senate, it had been blocked for a year by many people who considered it not relevant to their curricula. She had experienced particular resistance towards the gender issue. When she talked about climate change and gender, etc. the resistance was much lower. She recommends always linking gender to other topics because the focus is then ‘hijacked’ by the other topics and shifts away from gender.

When asked about the soft-skills training measures at the École Centrale, Boiron told the audience that these include management and team-building training and special coaching for women for their first professional job, e.g. to help them become more effective in salary negotiations.

Köszegi was asked if she could say something about how gender is addressed in Austrian technical curricula, since she also teaches mandatory and elective (transferable skills) courses. She noted that she teaches gender aspects in all her classes and sees this as an easy challenge because every technical aspect has aspects of power and inequality, people are all affected differently and there is no such thing as neutrality or objectivity. There had been a discussion in her department about

their values in teaching, and one of these was that the gender dimension should feature in every class taught. While it would be a possibility to do a transferable skills class with feminist readings as an additional course, there is a gender dimension in every (mandatory and additional) class.

One participant, who herself teaches gender studies, said that she had experienced resistance in introducing gender not only into STEM disciplines but also into social sciences like philosophy or history. However, she did have the impression that this is now changing, albeit it not for “objective sciences” like mathematics. For her, it was understandable that it is much easier to argue for the gender dimension in applied sciences, and engineering definitely has its gender issues. However, in theoretical physics or mathematics, she often heard from scholars that gender was not relevant in their research field.

Köszegi proposed taking a look at epistemologies of different disciplines as they are related to gender and political aspects. She also suggested using the argument that a university is educating its students for specific professions and that professional norms are definitely gendered. That could be one argument for why it is important to reflect on the topic. Even formal sciences like mathematics are applied somewhere with a certain approach.

2.14 Close of the day 2 and end of the workshop

Angela Wroblewski reported on an exciting discussion in her group that could have continued longer but had to be ended due to time constraints. She asked the moderators of the two breakout sessions for a brief summary of the respective discussions.

She then closed the workshop by thanking the experts for their inspiring inputs, the participants for the lively discussion, all four moderators for hosting the breakout sessions and NOTUS for the technical support.

3 Resources on the Gender Dimension in R&I

The following part of this report presents additional resources on the gender dimension in R&I that did not form an explicit part of the co-creation workshop. These include the definitions used by the European Commission as well as a series of interesting journal articles and good practice examples.

3.1 Key definitions

The European Union (2011: 8) defines terms in context to gender in research as follows:

Sex refers to the biologically determined characteristics of men and women in terms of reproductive organs and functions based on chromosomal complement and physiology. As such, sex is globally understood as the classification of living things as male or female.

Gender refers to the social construction of women and men, of femininity and masculinity, which varies in time and place, and between cultures. The notion of gender appeared in the seventies and was put forward by feminist theorists who challenged the secondary position of women in society. It departs from the notion of sex to signal that biology or anatomy is not a destiny. It is important to distinguish clearly between gender and sex. These terms are often used interchangeably while they are conceptually distinctive.

Gender equality refers to the situation where individuals of both sexes are free to develop their personal abilities and make choices without the limitations imposed by strict gender roles. The different behaviours, aspirations and needs of women and men are considered, valued and favoured equally.

Equal opportunities for women and men: Equal opportunity indicates the absence of barriers to economic, political and social participation on the grounds of sex. Such barriers are often indirect, difficult to discern and caused by structural phenomena and social representations that have proved particularly resistant to change. Equal opportunities, which is founded on the rationale that a whole range of actions are necessary to redress deep-seated sex and gender-based inequities, should be distinguished from equal treatment, which merely implies avoiding direct discrimination.

In **Gender-sensitive research**, gender is consistently taken into account throughout the research cycle.

Gender-specific research focuses on gender itself as a subject matter.

Gender-blind research does not take gender into account, being based on the often-incorrect assumption that possible differences between men and women are not relevant for the research at hand.

Gender bias in research is the often unintentional and implicit differentiation between men and women by placing one gender in a hierarchical position relative to the other in a certain context, as a result of stereotypical images of masculinity and femininity. It influences both the participation of men and women in research (hence the underrepresentation of women) and the validity of research. An example of gender bias in research is research that focuses on the experience and point of view of either men or women, while presenting the results as universally valid.

3.2 Good practice examples

3.2.1 Examples for considering the gender dimension in curricula

3.2.1.1 *Inter-university Master in Gender Studies*

The inter-university Master in Gender Studies⁷ of the Wallonia-Brussels Federation has been available since the 2017 winter semester. It is a multidisciplinary and interdisciplinary one-year master's degree (60 ECTS) of all six French-speaking universities in Belgium (Free University of Brussels, University of Liège, Catholic University of Louvain, Catholic University of Mons, University of Namur, Saint-Louis University Brussels). Ministers Jean-Claude Marcourt (Higher Education) and Isabelle Simonis (Equal Opportunities) invited academic authorities to take gender into account in their higher education policies and education. The first ideas for this inter-university programme were discussed in 2015, it was accredited in 2016, and welcomed its first students in 2017.

The programme provides an overview of the diversity of the research field. The target group is students who already hold a postgraduate degree or who can demonstrate at least five years of experience in a field related to gender/sexuality issues. The gender knowledge of the students is to be expanded, new professional skills are to be learned, and the programme is also closely linked to academic research at the six participating universities. It consists of a 30 ECTS compulsory common core of six courses (one per partner university: methodology, philosophy, sociological theory, work, body, sexuality) and at least 15 ECTS from a list of electives (e.g. childhood and family, equality and discrimination, body and sexuality, religions and cultures, art and literature, cultural diversity and globalisation, education and socialisation, work and employment) at the

⁷ <https://uclouvain.be/en-prog-2021-genr2mc>

partner universities, supplemented by a thesis or internship. Seminars with activists and decision-makers also form part of the programme to impart practical knowledge to the students. Future plans include enabling semesters abroad through international partner universities.

3.2.1.2 *Tool for integrating gender in various curricula*

The Women's and Gender Research Network NRW (North Rhine-Westphalia, a state in Germany) developed a model database consisting of 55 disciplines and a gender curriculum for each. The database includes subjects that range from agricultural studies, art history, mathematics and mechanical engineering to urban planning. The content is updated regularly. With the help of various gender experts, study programmes are evaluated from a gender perspective and assessed with regard to the gender-specific content of gender studies in its curricula.

The website is available in English and German. It features 55 disciplines and suggestions on how to integrate gender-specific content and gender studies in the respective curricula. The programmes are sub-grouped by categories: Agriculture and Forestry, Society and Social Sciences, Engineering, Mathematics and Science, Medicine and Health, Law and Economics, Languages and Cultural Studies, and Art and Design. There is also a further reading list and a list of gender experts for every subject, with the explicit note to contact experts in the respective discipline since networking and exchange are desired goals.

Scholars from the respective disciplines have written gender curricula that outline:

- 1) General course objectives related to gender issues. The initial step is to identify an overall teaching objective. Which gender-related course objectives should the students be taught? This question has to be answered in the particular context of each discipline. In the case of pharmacy, for example, the answer is as follows: "Students should be taught which sex/gender differences must be taken into account regarding health and disease and the effects of medications, and how these differences affect the prescription and use of medications."⁸
- 2) Subject-specific gender studies content. The next step in developing a gender-fair curriculum is to denominate the study content. Which specific subject matters shall be included in the curriculum in order to attain the previously stipulated teaching objectives? Three concerns are central:
 - (a) Professional aspects of the discipline, e.g. historical questions on the accessibility to women of certain university courses or specific professions, how gender characteristics are attributed to certain careers, accessibility to the job market,

⁸ <http://www.gender-curricula.com/en/curriculum/pharmazie>

- (b) Critique of disciplinary knowledge, e.g. detecting gender bias, study biographies of female researchers or female pioneers in academia, gender-balanced language.
 - (c) Production and use of the discipline's research results. Every discipline should examine its knowledge production and use in a gender-conscious manner, e.g. appropriation processes. In the case of computer science, for example, "Software is not neutral. Its abstractions and models are based on basic assumptions that emphasise certain aspects and neglect others, as various studies have shown. Partly because it focuses on 'young, male, white users' who also dominate the development teams themselves, software has failed to appeal to (and be used by) all groups of the population equally. As such, software frequently contributes to a consolidation of gender relations in their current form."⁹
- 3) Concrete forms of integrating gender studies content into the curriculum – four approaches are outlined:
- (a) Cross-discipline approach: single-gender module for various programmes. Appropriate in HE institutions where women's and gender studies were previously scarce, involves establishing "Cross-Discipline Gender Studies" within the institution (*Studium Generale*).
 - (b) Integrative approach: theories, methods, and findings of gender studies as a cross-disciplinary task and an integral part of teaching and learning. Including gender aspects as cross-cutting topics into existing degree courses: a majority of lecturers need extensive gender competence to work.
 - (c) Individual explicit approach: gender subject modules, gender components. When the integration of gender aspects cannot be secured, the formation of independent modules can be favoured. Proposed for areas with either high or low percentages of women. Recommended during the Master's degree.
 - (d) Explicit approach: BA/MA in gender studies, PhDs, women's universities, distance-learning degrees; particularly recommended for social and cultural studies.
- 4) The degree stage at which the particular content should be taught. (Kortendiek 2011)

In some cases, exemplary lesson plans are included or, in the case of physics, an exemplary summer school curriculum on diversity in the cultures of physics¹⁰. This annual international summer school was one of the central activities of "Diversity in the Cultures of Physics", an Erasmus+ funded Strategic Partnership launching several key actions aimed at improving the

⁹ <http://www.gender-curricula.com/curriculum/informatik> (German only)

¹⁰ [https://www.physik.fu-berlin.de/einrichtungen/ag/ag-erlemann/projekte/diversity in the cultures of physics/Aktivitaeten/summer_school/Diversity-in-the-Cultures-of-Physics---A-European-Summer-School-Curriculum.pdf](https://www.physik.fu-berlin.de/einrichtungen/ag/ag-erlemann/projekte/diversity%20in%20the%20cultures%20of%20physics/Aktivitaeten/summer_school/Diversity-in-the-Cultures-of-Physics---A-European-Summer-School-Curriculum.pdf)

gender balance in physics and its subfields. The publication (Erlemann, Schiestl 2019) presents the curriculum that has been developed for these summer schools. It has been used and evaluated in each round of the summer school series.

During the 2016-2019 funding period, a total of six summer schools were held, with two taking place in parallel each year. Partner universities from two countries each jointly ran a bilateral summer school of four weeks (two weeks in each country). At each of the locations, a summer school consists of four core pillars of sessions and modules:

Pillar I: Research Stays at Physics Departments. The research stays at the physics departments of the hosting universities are a key element of the summer school, since actual research in physics differs substantially from the physics that students learn while studying at university.

Pillar II: Visits to Physics Research Institutions. The second pillar consists of visits to physics research institutions beyond the physics department which is hosting the summer school. These can be non-university research facilities, neighbouring universities in the region and R&D companies or even spin-offs. The main objective is to show the participants that non-university research institutions or facilities are also an option for a Master's thesis or PhD.

Pillar III: Empowerment and Gender Equality Policy. The third pillar deals with empowerment and networking issues. It comprises a heterogeneous spectrum of modules on personal empowerment strategies against harassment, discrimination and detrimental effects of unconscious biases, networking events with female physicists in different career stages, and meetings with persons in charge of gender equality policies (e.g. gender equality officers).

Pillar IV: Gender Studies and Physics. The aim of this pillar is to introduce the participants to insights and results from gender studies research, feminist theory and gender studies in physics in particular. This pillar's modules also include Women History Tours and Feminist City Tours in the specific city or region where the summer school is taking place.

3.2.1.3 *Collected good practices in introducing gender in curricula (EGERA Project)*

In Deliverable 4.4.¹¹ of the EGERA Project on collected good practices in introducing gender in curricula content, von der Heide and her colleagues (2017) define the integration of gender into curricula as a process to design the content of educational offers, materials and programmes in a gender-sensitive manner. The deliverable summarises 23 good practice examples of the six EGERA project partners (University of Antwerp, Science Po in Paris, Middle East Technical University (METU) in Ankara, Radboud University in Nijmegen, Autonomous University of

¹¹ https://www.superaproject.eu/wp-content/uploads/2018/12/D44_Collected_Good_Practices_in_Introducing_Gender_in_Curricula_78106.pdf

Barcelona (UAB) and University of Vechta). Some of the examples are interdisciplinary, and the majority of them are elective courses. Almost all of the examples are from the social sciences and humanities, but there is one each from medical science and the STEM disciplines.

The STEM example is “Gender and Technology” from the Middle East Technical University (METU) in Ankara. By focusing on issues like the “Social Construction of Technology”, the lecturers aim at providing Master and PhD students with a critical perspective on the relationship between gender and technology. Male norms, masculinity and manhood in science and technology are questioned. This is an elective course for technological sciences students.

Another example is “Gender, sexuality and multiculturalism” from Radboud University Nijmegen. This course is elective for students of medicine, whose core topic is the influence and relevance of gender in health, disease and health care, with a focus on the role of gender and culture in medical care. Students also learn to reflect on their own socialisation and how this could affect culture and communication problems. The course also looks at the anatomical and biological aspects in sexual functioning and diseases like incontinence and addiction as well as on sexual abuse and its physical and psychological symptoms. Specific problems relating to migrant women and health and medical care for refugees are likewise introduced. Through this course, future doctors should learn about the concept of diversity in medicine, making it highly relevant for everyday clinical practice. The course concept itself is also very diverse and includes internships, papers, simulation patients, discussions with police officers about rape and presentations.

The authors of the deliverable point out a number of success factors:

- Integration of courses in main curricula. This makes the courses more visible and fit better into the study programme than courses that are not part of the curriculum.
- Involvement of gender experts. It is important that the course coordinator has expertise in the fields of gender and diversity, a network in these fields and personal experience. It is even better if other experts are also involved in order to provide interdisciplinary expertise. Additional guest lecturers who specialise in a particular discipline or methodology also contribute to the success of the course.
- Usage of suitable teaching methods. As already described in the second example, it is desirable for the teaching methods to also be diverse. This allows students to reflect on different forms of discrimination and should also have a positive impact on their future attitudes and behaviours.
- Relevance for daily life. It is important to convey to the students that what they have learned is relevant for their everyday life as scientists or professionals. This can be achieved through various practical examples and also makes the topics of gender and diversity more relevant.

3.2.1.4 *Gender-sensitive teaching methods in higher education*

The Baltic Consortium on Promoting Gender Equality in Marine Research Organisations published a project report (Kisakürek, Baltic Gender 2018), which is a collection of online materials that aim at encouraging teaching staff to integrate the gender dimension into their teaching. The project was funded by the Horizon 2020 research and innovation programme and features ten examples of gender-sensitive teaching.

Gender-sensitive teaching is defined as teaching that supports the learning of female and male students to an equal extent. The impact of gender aspects in interactions between teaching staff and students as well as among students and in teaching content and materials should also be considered and recognised.

The report is divided into five different categories: Toolboxes, Gender in Curricula, Best Practices, Gender in STEM and Gender-Sensitive Communication. Each example is presented in a chart that provides the URL to the homepage, a short summary of the content as well as the target group, language, publisher, year and author(s).

One example of gender in STEM is the STING¹² project, which was co-funded by the EU's Erasmus+ Programme. The project was formed by Elhuyar Foundation (NPO, Spain), European University Cyprus, Experimentarium (Science Centre, Denmark), Hisa (Science Centre, Slovenia), Hacettepe University (Turkey), Nemo Science Museum (Science Centre, Netherlands), Norwegian University of Science and Technology, and St. Mary's University College Belfast (United Kingdom). STING (2014-2017) aimed at promoting the integration of gender awareness into STEM education. The toolkit¹³ provides information for teachers on how to raise gender awareness in STEM teaching and learning. For this purpose, there are two groups of activities that can be undertaken as part of teacher training. The first is about raising gender awareness by stimulating teachers to reflect on their own gender bias both in general and in classroom practice. The second is about providing concrete suggestions on how teachers can adapt and change their practice by considering the gender dimension in STEM education.

The goals of the activities of the first group include clarifying what is actually meant by gender and becoming aware that assumptions and observations often have a gender bias. For this purpose, four videos are made available that address thought-provoking questions and encourage deeper reflection. A second activity is to ensure that teachers reflect on specific classroom materials such as articles that their students are required to read. To what extent does gender play a role here? Since the gender bias is often hidden, this reflection is of central importance. The

¹² <https://stingeuproject.wordpress.com/>

¹³ https://stingeuproject.files.wordpress.com/2016/12/toolkit_en_2017_05_09.pdf

implicit association test (IAT) is intended to reveal unconscious gender biases in teachers. The instructions can be found in the toolkit, with an online version also available on the Harvard University homepage¹⁴. In addition, awareness should be created for the fact that STEM teachers also have a social responsibility to design innovations in such a way that they can be used by as many people as possible.

STEM knowledge is required for the tasks in the second group. One such task involves programming robots in a team to make them dance. Another exercise is "Concept - Context", where teachers should critically question their own textbooks or exercises. Most of these examples are written from a male perspective, which is often also hidden. An attempt is made to find other examples or rewrite the existing examples in order to make them more interesting for all students. There are also a lot of hints and tips relating to language, educational practice in the classroom, didactics and non-verbal communication. Texts should always contain both genders and not use gender stereotypes. In class, male and female students should have the opportunity to contribute to an equal extent, and everyone should receive prescriptive and informational feedback on their performance in order to strengthen their beliefs in their abilities. Different teaching methods should be used in the classroom, and male and female students should take on management and administrative tasks in working groups.

3.2.1.5 Reflection on questions for gender in teaching - GARCIA Project

The GARCIA project (FP7) published a toolkit¹⁵ in 2015 which addresses scientists and project officers. The aim of the toolkit is for research and teaching staff to consider the extent to which the gender dimension could also be relevant in their own work. Women and men, but also transgender and transsexual people, should be considered and addressed equally. Students should also think about the gender dimension of their work in their homework. Teaching should be gender-inclusive and stimulate critical thinking.

The toolkit provides practical guidance in two different ways. It contains a number of reflection questions for academics to raise their awareness of gender in content and also gives concrete examples of how gender could successfully be implemented in research and curricula in the six test institutions in of the GARCIA project.

Lecturers should ask themselves the following reflection questions in the classroom:

¹⁴ <https://implicit.harvard.edu/implicit/takeatest.html>

¹⁵ https://eige.europa.eu/sites/default/files/garcia_toolkit_gender_research_teaching.pdf

- Have you reflected on how many female/male academics you invite for a visiting lecture during your course?
- Have you considered inviting a visiting lecturer renowned for her/his gender-sensitive approach? Such a person could bring a gender perspective you might lack in your course.
- Do you attract students of different genders to take your course?
- Do you stimulate students to work in gender-mixed groups when possible?
- Think how your teaching could inspire future scholars to conduct more gender-sensitive research in your discipline.
- Include reader publications that take gender-sensitive approach in your course.
- How do you make your students more aware about gender stereotypes connected to the field you teach?
- Are they aware of gender inequalities they will face one day as professionals? If you are teaching for a male-dominated profession, have you considered how your female students feel about professional scene they are entering? And vice versa.
- Do you teach students gender-sensitive methodology?
- Do you use gender-sensitive language while teaching and writing course materials?
- Do you use visual materials in a gender-sensitive way?
- If you issue evaluation forms to your students at the end of the course, consider posing a question on the extent to which the course is gender-sensitive and/or the lecturer/professor is gender-sensitive in their teaching.

3.2.2 Examples for considering the gender dimension in R&I content

3.2.2.1 *Gender in engineering and technology*

On a University of Stanford website¹⁶, there are 13 engineering and technology case studies that demonstrate gendered methods in design. The studies are collected through the peer-reviewed Gendered Innovations project¹⁷, which develops practical methods of sex, gender and intersectional analysis for scientists and engineers and provides case studies as concrete illustrations of how sex, gender and intersectional analysis leads to innovation. Gendered Innovations was initiated at Stanford University in July 2009. From 2011-2013, the European Commission funded an Expert Group (“Innovation through Gender/Gendered Innovations”), aimed at developing the gender dimension in EU research and innovation. The U.S. National Science Foundation joined the project in January 2012. From 2018-2020, the Horizon 2020 Expert Group on Gendered Innovations updated and expanded the Gendered Innovations methods and

¹⁶ <https://genderedinnovations.stanford.edu/case-studies-engineering.html>

¹⁷ <http://genderedinnovations.stanford.edu/what-is-gendered-innovations.html>

case studies. The case studies and methods of sex and gender analysis were developed through international collaborations with more than 200 experts from across Europe, the United States, Canada and Asia. The goal of the project is to provide scientists and engineers with practical methods for sex and gender analysis.

The case study examples are divided into the following categories: Science, Health & Medicine, Engineering and Environment.

The following examples are intended to provide an insight into these case studies:

- Assistive Technologies for the Elderly, a study in which new opportunities for assistive technologies and robotics are revealed through analysing data related to elder care using a sex and gender analysis.¹⁸
- Inclusive Crash Test Dummies: Rethinking Standards & Reference Models, where established norms are expanded to represent a greater variety of bodies, since crash test dummies are modelled to the 50th percentile man, with the female section of the population left out of the research discovery phase, thus resulting in them suffering more severe injuries than men in comparable crashes.¹⁹
- Video Games: Engineering Innovation Processes, a study in which methods for designing games with dynamic – not prescriptive or stereotypical – gender norms are developed by designing virtual spaces where players can explore gender identities and behaviours, since video games are typically designed for and by men.²⁰

Another example is the “Facial Recognition: Analysing Gender and Intersectionality in Machine Learning”²¹ case study. Facial recognition systems (FRSs) are used in security and surveillance to unlock phones, authorise payments, identify people in crowds, analyse emotion and detect gender, age, race, sexual orientation, facial characteristics, etc. Recent studies demonstrate that these systems can discriminate based on characteristics such as race and gender and their intersections (Buolamwini, Gebru 2018). In response, the ethics and legality of facial recognition are being debated. Ways to overcome the bias include:

- Understanding discrimination in facial recognition. Each step in FRS should be checked for bias. To work, models must be trained on datasets that represent the target population. The different steps in FRS build on each other: face detection (the differentiation of human faces from other objects in an image or video; has been repeatedly shown to fail for darker-

¹⁸ <https://genderedinnovations.stanford.edu/case-studies/robots.html>

¹⁹ <https://genderedinnovations.stanford.edu/case-studies/crash.html>

²⁰ <https://genderedinnovations.stanford.edu/case-studies/games.html>

²¹ <https://genderedinnovations.stanford.edu/case-studies/facial.html>

skinned individuals), facial attribute classification (labels attributes such as gender, age, ethnicity, presence of a beard or a hat or emotions), facial recognition (identifies a unique individual by comparing an image of that person to their known facial contours; often used to unlock phones, known to fail for dark-skinned women or transgender faces), facial identification (matches the face of a person of interest to a database of faces; often used for missing persons/criminal cases).

- Creating intersectional training datasets. To work properly in tasks such as validating the identity of people crossing international borders, training datasets must be sufficiently broad and diverse and may need to include intersectional characteristics such as gender and race. The Gender Shades Project, based at the Massachusetts Institute of Technology, developed and validated a dataset for four categories: darker-skinned women, darker-skinned men, lighter-skinned women and lighter-skinned men.
- Establishing parameters for a diverse set of faces. Wearing facial cosmetics can reduce the accuracy of facial recognition systems by 76 %. One reason for this is that makeup has not been established as a parameter in publicly available face databases. One proposal would be to map and correlate multiple images of the same person with and without makeup. Transgender people, especially during transition, may be identified incorrectly. Collecting data from a community that has reason to feel uncomfortable with data collection is not the best practice (Keyes 2018). In this case, algorithmic parameters could be revised: The eye (or periocular) region can be used more reliably than the full face, since it is less affected by change than other facial regions can be during transition.

3.2.2.2 *Gender in research as a mark of excellence*

In the “Gender in research as a mark of excellence²²” project, which was funded by the European Commission under the FP7 Capacities programme, a two-module toolkit²³ was published in 2011. The first module contains an introduction to and information on how to make research gender-sensitive. In the second module, the authors take a closer look at how gender is relevant in the following fields:

- Gender and Health
- Gender and Food, Agriculture and Fisheries, and Biotechnology
- Gender and Nanoscience, Nanotechnologies, Materials and New Production Technologies (NPM)
- Gender and Energy

²² <https://www.yellowwindow.com/genderinresearch>

²³ https://www.ki.si/fileadmin/user_upload/KINA24840ENC_002.pdf

- Gender and Environment
- Gender and Transport
- Gender and Socio-economic Sciences and the Humanities
- Gender and Science in Society
- Gender and International Cooperation

For each of these fields, information is given on the broad relevance of gender within the field as well as real-life examples and useful references and recommendations for further reading. For the purposes of this report, the nanoscience, nanotechnologies and materials and new production technologies (NPM) example is presented.

NPM research aims to satisfy a wide range of needs. These can include safety, comfort, care, mobility and housing. It is therefore crucial to keep an open mind as the individual users can be very diverse and are not necessarily average white males but also women, children, people with disabilities and people from various ethnic, cultural and social backgrounds. The definition of gender is not limited to biological differences and discrimination but also considers social, cultural and biological diversity. If these aspects are considered, the quality of technologies and products can be improved. To avoid gender biases, it is also necessary to have gender-sensitive communication and dissemination. The nanomaterials field is often closely linked to the health and environment fields. There are also various situations in which it is relevant to consider the gender dimension because male and female bodies might react differently to substances, leading to possible differences in the biocompatibility of materials and their effectiveness due to sex or gender differences. Examples mentioned in the toolkit are personalised skin care, medical imaging technology and the customised production of clothing.

3.2.2.3 *Reflection on questions for gender in research - GARCIA Project*

The GARCIA project and its toolkit²⁴ was already presented in the section on good practice examples. In addition to the reflective questions on gender in teaching, the GARCIA project also developed the following reflective questions on gender in **research projects**:

- Is your team diverse enough?
- Have you noticed a pattern of hierarchical gendered relations in your team?
- Do you have a male academic who is researching/teaching a gender-related topic?
- Are the working conditions within the project shaped in a way that accommodates men and women equally?

²⁴ https://eige.europa.eu/sites/default/files/garcia_toolkit_gender_research_teaching.pdf

- If there is a great gender imbalance in your research/teaching group, how do you encourage the minority gender to apply for a new position?
- Did you have both men and women in mind when you formulated the research question?
- When identifying a research problem, did you consider how men and women related differently to that problem?
- If your project deals with structural issues in a society, think about how the positions of men and women differ in that society.
- If your project tackles the private life of individuals, think about how women experience life situations differently from men.
- When identifying a research problem, think about the ways in which the male and female bodies differ.
- When compiling a list of references (literature review) for your research, look for gender-sensitive literature and research projects conducted in your field, or think about the spheres in which they are lacking.
- If you are considering gender differences in your research, have you asked yourself if you are maybe projecting stereotypical roles onto how women and men would behave or what they need and desire?
- Do you have male and female specimens in your research sample?
- If you are conducting surveys in your research or disseminating questionnaires, design your questions so they are relevant to both women and men and use gender-sensitive language.
- If part of your project is conducting visual analysis, think how images could reproduce certain stereotypes about gender roles.
- When collecting data, disaggregate it by sex. Intersect your data with gender.
- Especially when conducting population polls, ensure you obtain a proportional gender ratio. If you organise focus groups, provide an equal number of men and women in the sample. Interview an equal number of men and women.
- When conducting laboratory or medical experiments, always report the sex of the cells, tissues, animals or subjects you are using. If you are using one sex only, justify why you are doing so and note any limitations in your discussion.
- Do you report data in gender-sensitive way?
- If the result of your project is a policy recommendation, do you think about your outcomes in terms of equal opportunities for men and women?
- Have you considered how people of different genders could use the project results in different ways?

- If you are conducting medical research, think about how it improves the lives of both men and women. Have you considered transsexual subjects?

Concrete examples are given after many of these individual questions. There is also a paragraph on resistance and checklists for both research and teaching. Finally, reference is made to other toolkits and resources on the theme.

3.2.2.4 *Gender and chemicals*

The website **www.gender-chemicals.org** contains the projects “Gender and Chemicals – Together for a Gender-Just Healthy Planet”, which runs from January 2021 to December 2022, and “GenChemRoadMap – Implementation of a Gender Road Map in National Chemicals Management”, which runs from April 2021 to March 2022. Both are projects of the MSP Institute, an international charitable association based in Berlin, Germany, working to support and promote high-quality multi-stakeholder processes.

On the website, the principle of the projects is described as follows: “There is a number of gender aspects relevant to chemicals and chemicals and waste management. However, many of them are not receiving the attention they should in order to ensure the best possible decisions in policy-making and effective implementation. That is why the MSP Institute is doing advocacy work for the integration of gender into (inter)national chemicals management since 2017” (MSP Institute eV 2021).

Since the white male body is still used as a prototype, huge gaps in research on gender and its interlinkages in toxicology and risk assessments exist. Because of their body composition, such as percentage of body fat or reproductive body parts, women and men can react differently to exposure to chemicals. Women are at a particularly high risk during childbearing years and pregnancy. Women’s occupational diseases are often under-diagnosed, under-reported and under-compensated, and there are virtually no studies on gender diverse people in existence.

The website features eight statements and reports that have been published since 2017, including an issue paper, policy suggestions and the road map. There is also a blog about project news and two different series: “How to create a gender-just healthy planet” and “GenChemRoadMap”. On the last Tuesday in every month, a 45-minute Webinar is held via Zoom. Topics in 2021 included “Gender & Chemicals in Cosmetics”, where mercury exposure due to skin-whitening products was discussed. Pregnant women are especially vulnerable to mercury poisoning, since it can be transferred to the foetus and result in neurodevelopmental deficits, damage to the brain or the central nervous system. The recordings of previous Webinars can also be viewed on YouTube.

The goal of the “Gender and Chemicals – Together for a Gender-Just Healthy Planet” project is to increase the integration of gender into international chemicals and waste management policies

and implementation. The aim is to raise awareness of gender aspects and increase the participation of women's organisations and gender experts in the UN chemicals management process.

The “GenChemRoadMap – Implementation of a Gender Road Map in National Chemicals Management” project is aimed at private and public actors involved in chemicals management. The road map is a guideline for action developed by the MSP Institute with the aim of establishing cross-cutting implementation of gender mainstreaming on the structural and content levels. Initial stimuli for the systematic integration of gender are set using workshops and longer-term support during implementation.

3.2.3 Examples of how to deal with resistance

3.2.3.1 AKKA leadership programme

AKKA (AKademiska Kollegors Ansvar – the accountability of academic colleagues) is a gender-integrated leadership programme that was established by Lund University (Sweden)²⁵ and run five times in the period from 2004 to 2014. The first two programmes were targeted at female senior scholars and teaching staff only, while in the following years men were also invited to participate. Each programme ran for one year and featured monthly meetings. It aimed at strengthening knowledge and awareness about gender equality issues and thus at ultimately achieving a more equal gender distribution in higher education positions and leadership throughout the university (Lövkrona 2016a).

The programme was launched in preparation for Lund University's dean elections in 2005 in order to create conditions for women to be nominated and develop leadership skills. The basic principle of the programme is that leaders are not born with that skill set but that leadership can be learned and developed through training (Lövkrona 2016a; Widén 2011).

In structural terms, the programme comprised of seminars, workshops and a project work. This was also published in a final report after each programme, detailing the process and structure.²⁶

Although the gender-sensitive approach in the programme was generally positively received, the mixed-gender programmes were met with some resistance, mainly from men. Resistance was mostly shown through “verbal and non-verbal language”, e.g. defensiveness, interrupting the female lecturers, not paying attention, sighing or shaking one's head. Participants – mainly men – also expressed negativism about gender issues or feminist theory in general, thus devaluing the

²⁵ <https://eige.europa.eu/gender-mainstreaming/good-practices/sweden/akka-leadership-programme>

²⁶ <https://eige.europa.eu/gender-mainstreaming/toolkits/gear/examples/akka>, available in Swedish only

gender perspective. There were also instances of a competitive atmosphere among the male participants. Some female participants, especially those with no previous knowledge of gender-related issues, were observed to show loyalty towards men even in the female-only programmes. In contrast, (mostly female) participants who were already gender-aware served as “boundary workers”, took the upper hand and intervened in oppositions. Their legitimisation helped bring the gender perspective to others (Lövkrona 2016a: 2018ff.).

While the general plan and rules were largely accepted, the main opposition was to the invited gender researchers and the gender expert who managed the programmes. In contrast, the programme directors, who were from the university’s administration team, were received quite positively. The resistance activities were addressed and analysed after each programme in order to find strategies to deal with resistance and overcome similar situations in the following years (Lövkrona 2016a: 218f.; Widén 2011: 3f.).

Resistance to the programme was determined to be mostly a lack of knowledge. To counteract this lack of awareness, the programme’s gender perspective was strengthened by making gender issues even more visible and focused in the programme structure, content and methods. An introductory lecture on gender studies and a course book (the use of which was encouraged throughout the programme) were introduced with the intention of bridging knowledge gaps between the participants. Evaluations show that the course book in particular was viewed as a helpful tool in understanding gender equality issues. Some participants even started to use it in their own teaching afterwards. Participants also had to write a short description of their motivation for participating in the programme, including details of their previous leadership experience. This helped to include people who agreed with the programme’s gender profile from the start (Lövkrona 2016a: 221; Widén 2011: 4f.).

Another way to counteract upcoming resistance was to make clear that the AKKA was not the right place to question the need for a gender perspective or discuss its general existence; it was a place to gain a critical perspective on gendered issues in academia and leadership. This strategy ensured that resistance towards gender did not take up too much space or time during the seminars. Because gender mainstreaming and a gendered perspective in general were used throughout the whole programme and within its methods, the legitimacy was strengthened, and there was less place to question it. By the time of the last programme in 2013-2014, resistance had turned into interest in learning more, acceptance and a more active engagement in the activities (Lövkrona 2016a: 2019ff.; Lövkrona 2016b; Widén 2011: 11).

After the five AKKA programmes, the impact on Lund University was clearly noticeable: the university now has a female deputy vice-chancellor, and five of its eight deans are women (compared to one out of eight in 2004). Evaluations also show that those who participated in the

programme are prepared to apply the learned gender tools and understand the relevance of the gender perspective. More than half of them also now hold leading positions within the university (Lövkrona 2016a: 223; Widén 2011: 12).

3.2.3.2 Managing resistance to gender equality for policy and practice

In 2018, the Victorian Health Promotion Foundation (VicHealth, Australia) published a practical guide on how individuals and organisations that work on gender equality initiatives can prepare for resistance: *(En)countering resistance: Strategies to respond to resistance to gender equality initiatives* (VicHealth 2018).²⁷

The guide provides tools and strategies on how to manage possible resistance or even backlash – which is considered to be a “more extreme” form of resistance – to gender equality initiatives. It describes different forms of resistance and provides steps to manage those (VicHealth 2018).

It is pointed out that even though resistance is most likely to come from people who profit from the existing structures, resistance has no gender, therefore everyone – and not only men – can be resistant to the promotion of gender equality issues, especially when these initiatives intersect with others regarding cultural diversity. To counteract upcoming resistance, VicHealth suggests being prepared and having strategies to help you in advance, because a lot of the time facts do not change resistant people’s minds. VicHealth (2018) describes forms of resistance as moving through different stages, going from passive resistance like denial or disavowal to more active and more aggressive forms like repression or backlash.

Figure 1: Forms of Resistance



Source: VicHealth 2018: 4

²⁷ The publication is based on a Queensland University of Technology evidence review on backlash to gender equality by Michael Flood, Molly Dragiewicz and Bob Pease, commissioned by VicHealth in 2017.

In the publication, four kinds of strategies to manage resistance are suggested (El-Murr 2018; VicHealth 2018):

1. Framing strategies that pay attention to the ways in which gender equality initiatives are articulated and explained;

The way the argument is presented matters on how the response will look like. Therefore, framing of the gender perspective should anticipate and counter resistant reactions and be repeated and strengthened often. Here it is important to illustrate the benefits gender equality has not only for women, but for men, too. Another suggestion is sharing personal and real-life stories.

2. Organisational strategies that offer guidance on how to involve leaders to address policies, practices and structures;

Securing support from senior leaders is essential to emphasise the importance of gender equality initiatives. When there are groups within an organisation known to have more sexist cultures, it may be important to address them specifically and working more closely with them. Having support from someone who is likely to be listened to is also beneficial. Regular evaluations of the process are important, as well as forming partnerships with groups or organisations that face similar oppositions in their work.

3. Teaching and learning strategies that cultivate a supportive climate for change and lessen the likelihood of resistance;

Providing a safe and respectful space to support learning is important, as well as having teachers who not only have content expertise, but are also authentic and empathetic towards the audience and share personal accounts and real-life experiences. It is also shown that direct supervisors or managers are more likely to have an impact. It is also important to acknowledge fears or doubts, but highlighting facts, not myths and presenting evidence and clear arguments.

4. Individual strategies that encourage individuals working towards gender equality to practice self-care and address the abuse and domination techniques they may experience in their work.

VicHealth identifies five domination techniques: Making invisible, ridiculing, withholding information, double-edged punishment, and shame and guilt. Recognising these domination techniques makes it possible to find ways to manage them and find defensive strategies. Having a network of support of like-minded people or organisations that experience the same resistance in their work can be helpful.

VicHealth summarises the management of resistance into 13 steps (VicHealth 2018: 14f.):

1. Don't be surprised. Resistance is to be expected. Prepare for it. Resistance means your work advocating for equality is getting traction.
2. Understand the form. Resistance takes different forms. Thinking through the form will help in crafting your responses. Assess who it's from. Monitoring and regular opportunities for feedback to your gender equality initiatives help you understand not just what resistance is being expressed, but who it is coming from. You can then tailor your messaging – and messengers – to address their concerns or correct misinformation.
3. Be willing to listen. Create spaces for diverse views and experiences to be expressed. When people can have their say and talk about their own beliefs (and biases and fears) without being shut down, they are more likely to be open to other messages.
4. Focus efforts on those you can influence. Entrenched opposition won't be convinced. Understand when to respond and when to leave it alone. Find allies and focus on the "moveable middle".
5. Get leaders involved. Getting the senior leadership involved is pivotal to getting traction for gender equality initiatives.
6. Harness the power of your peers. You are not alone in this work. Find people in your organisation and others who are also committed to gender equality and share ideas, approaches and support.
7. Frame, don't shame. Framing shapes the story of gender equality. Tell real-life stories and allow personal accounts to be shared to help people connect emotionally, not just rationally, to the concepts. Note the benefits of equality to both men and women, and address myths and misinformation.
8. Make sure to monitor. Regular feedback helps you see how your work is progressing, and understand where resistance lives and what is being said.
9. Defend against domination techniques. Domination techniques are used to gain power over others. Recognising them helps you respond effectively. For example, if you're asked, 'Can't you take a joke?', that's the domination technique of ridiculing. The defensive strategy for this is to ask more questions – immediately inviting them to explain what they meant by that. The confirmation technique is to give respect and space for others, confirming that you take contributions seriously.
10. Put guidelines in place. Manage more extreme resistance with clear and unambiguous guidelines about what's allowed and not allowed. In the teaching

space, this is about creating a safe and respectful learning environment. For online forums, this requires moderation guidelines.

11. Practice self-care. Look after your own wellbeing, seek support and allow yourself space when you need it.
12. Celebrate success. Truly modernising our organisations will take time. We are tackling some entrenched and structural inequalities. It's a marathon, not a sprint. So take time out to recognise and celebrate the wins along the way. After these 13 steps to manage resistances, the guide ends with a list of useful resources and links for further reading.

3.2 Annotated Bibliography

This annotated bibliography contains a selection of texts that are particularly worth reading in the context of the gender dimension in R&I.

In terms of content, the articles deal with gender diversity in general, the quality assurance aspect, gender in the STEM disciplines, the gender difference in publications citations, and resistance to the gender dimension in research, especially in connection with so-called anti-gender movements.

3.3.1 Gender Diversity in Research and Quality Assurance

Benito, Eva; Verge, Tània (2020). Gendering higher education quality assurance: a matter of (e)quality. In: *Quality in Higher Education*, 26(3), 355-370.

This article examines two policy innovations introduced disconnectedly in 2019 by the Swedish and the Catalan quality assurance agencies. The focus thereby is on what a gender-sensitive quality assurance framework looks like and how to contextualise quality assessments within the gendered dynamics that pervade the work and study environments of higher education institutions. The empirical analysis traces the adoption and initial stages of the implementation process of these policies by examining the main policy documents that led to the revision of the two agencies' quality work. The authors have been active participants in the design of the new practice in AQU Catalunya.

With the two examples, the authors find that mainstreaming gender in quality assurance agencies should no longer be postponed and can align with national efforts and international initiatives aimed at promoting gender equality. Since quality assurance can play a relevant role in fostering social responsibility in higher education, gendering

quality assurance has stirred an institutional self-redefinition, contributing to embedding the gender perspective in its culture.

Nielsen, Mathias W.; Bloch, Carter W.; Schiebinger, Londa (2018). Making gender diversity work for scientific discovery and innovation. In: Nature Human Behaviour, 2, 726–734.

The authors distinguish three approaches to gender diversity (diversity in research teams, diversity in research methods and diversity in research questions) and provide a framework for understanding the best ways to support these three approaches across four interdependent domains – research teams, the disciplines in which they are embedded, research organisations and societies at large. In each of the four domains, potential drivers and barriers to gender diversity are evaluated. The authors also highlight what can be done to achieve the benefits associated with gender diversity in research teams, methods and questions; cultivate positive beliefs about diversity in research teams, strengthen team performance by encouraging gender integration in disciplines, develop resources for introducing gender and sex analysis in research organisations or develop gender norms promoting equality. Understanding how policies and practices in the different domains interact and reciprocally shape developments is crucial for maximising the benefits of diversity for science.

3.3.2 Gender in content in STEM fields

Bejerano, Arleen R.; Bartosh, Travis M. (2015). Learning masculinity: Unmasking the hidden curriculum in science, technology, engineering, and mathematics courses. In: Journal of Women and Minorities in Science and Engineering, 21, 107-124.

This qualitative study examines the gendering of the STEM disciplines through an analysis of 33 introductory, lower course syllabi from the University of Nebraska-Lincoln and the University of Nebraska-Omaha. At first glance, despite women still being significantly underrepresented in STEM, many of the syllabi appear gender-neutral and even include instances of gender-inclusive language. The formal curriculum states that the acquisition of knowledge, understanding of the material and learning new skills are the primary goals of the course. However, through certain messages, a hidden gender curriculum with four themes emerges from the syllabi: women as incompetent, autonomy and separation, women as supporters, and masculine thinking. The assumption persists that femininity and science do not belong together. While many scientific institutions do not approve of this genderisation, it is often consciously or unconsciously passed

down through messages embedded in policies, teaching or other institutional means. The hidden curriculum therefore normalises masculinity, consequently disenfranchising femininity and other gender identities and therefore perpetuating gendered division in academia, since students who learn under this model may internalise it. The goal of this study is to shed light on gender socialisation and how gender is constructed and perpetuated in the STEM disciplines.

Ovseiko, Pavel V.; Greenhalgh, Trisha; Adam, Paula; Grant, Jonathan; Hinrichs-Krapels, Saba; Graham, Kathryn E.; et al. (2016). A global call for action to include gender in research impact assessment. In: Health Research Policy and Systems, 14(50).

This commentary by a group of scholars and practitioners from Africa, America, Asia and Europe examines gender distribution in biomedical and health research, where women are significantly underrepresented both as researchers and research participants. Female investigators also tend to receive less research funding than their male counterparts. The authors argue that historical gender biases may have created a path dependency that means that the research system and the impacts of research are biased towards male researchers and beneficiaries. They suggest that gender-sensitive research impact assessment could become a force for good in moving science policy and practice towards gender equity and offer a set of recommendations to research funders, research institutions and research evaluators on how to include and strengthen analysis of gender equity in research impact assessment, e.g. adopting policies to ensure that researchers address sex and gender issues in their research, establishing systems for collecting and analysing gender-based information on the research process, raising awareness about the importance of gender analysis or using gender-balanced teams.

Powell, Stina; Ah-King, Malin (2013). Integrating gender perspectives on teaching and subject content at a natural science university in Sweden. In: International Journal of Gender, Science and Technology, 5(1), 52-61.

The article presents an intervention project using an action research methodology, whose aim was to introduce gender- and norm-critical perspectives in teaching at a natural science university with an uneven gender balance of students in its education programmes, a situation which is perceived as problematic by students and teachers. Rather than focusing on strategies for making the gender balance even in the classroom, the project centred on promoting norm-critical and gender-aware approaches in teaching, since a gender-equal classroom can still be an unequal

study environment. The purpose of the project was to establish new ways of working towards more gender-equal education by offering a course for university teachers, who were the main target for the intervention.

The project results show that students and university teachers did have prior experience of and reflected on gender aspects in teaching situations but were still willing to explore the norm-critical ways to develop their teaching and learning offered by the project and initiate further projects that focused on gender perspectives. The course evaluation and follow-up interviews show that the project was appreciated by the participants.

Stephens, Jennie C. (2020). *Diversifying Power. Why we need antiracist, feminist leadership on climate and energy*. Washington, DC: Island Press.

In her non-academic book, Jennie C. Stephens assumes that “the climate crisis is a crisis in leadership” (2020: xix). She bases this assumption on the fact that the need to stop burning fossil fuels has long been clear, the necessary technologies are known, but inadequate leadership continues to increase social inequalities and prioritise profits for companies over public goods. In a new generation of feminist and antiracist leaders who support a people-first approach, Stephens sees the opportunity for a better, more socially fair future by dividing power in a diverse and inclusive way as people who are privileged themselves often do not see the injustices caused by racism and sexism. This is precisely why the new generation of leaders has to be anti-racist and feminist: they can perceive and change these social injustices. In the book, Stephens looks at how the male-dominated status quo can be changed and how the “polluter elite” (Kenner 2019) can be dealt with. The topic of climate and energy is linked to health, nutrition, transport, housing and other topics to illustrate how far-reaching it is and why anti-racist and feminist leadership could achieve so much. Finally, she gives concrete examples of how individuals can contribute to a transformative structural change, for example by joining local activist groups. However, the problem is less about individual change and more about systemic change.

3.3.3 Gender in publications and citations

Andersen, Jens P.; Nielsen, Mathias W. (2018). *Google Scholar and Web of Science: Examining gender differences in citation coverage across five scientific disciplines*. In: *Journal of Informetrics*, 12, 950-959.

Using a sample of 1,250 U.S. researchers in sociology, political science, economics, cardiology and chemistry, the authors examine gender differences in the average citation coverage of Google Scholar (GS) and Web of Science (WoS). The conjecture is that WoS carries an indirect gender bias in its selection criteria for citation sources that GS avoids due to criteria that are more inclusive. They also calculate database-specific *h*-indices for all authors in the sample and use these indices

in experiments to simulate hiring scenarios to examine whether women's appointment rates increase if hiring or funding decisions rely on data from GS rather than WoS. In general, the analysis indicates mostly marginal and inconsistent gender effects. In the simulated hiring scenarios, no gender effects, regardless of discipline and age group, are observed. The choice of database also appears to be of little influence on women's and men's relative performance and appointment success.

Murphy, Flynn (2017). Engineering a gender bias. In: Nature, 543, 31.

The short Nature Index article describes the work of a Canadian research team that focuses on gender analysis of academic publications and citations. Gita Ghiasi, a PhD candidate in mechanical and industrial engineering, presented the findings at a science indicators conference in Spain, where she explained how their work contributes data that women's scientific contributions are played down or attributed to their male peers. Her conference paper examined citation data of more than 12 million articles across disciplines between 2008 and 2014, gathered from the Web of Science. An earlier study by her team analysed almost a million co-authorships on more than 600,000 papers published from 2008 to 2013 in engineering. Overall, they found that women's publications receive less recognition despite generally being published in journals with higher impact factors.

3.3.4 Resistance to the gender dimension in research and anti-gender movements

Dahl, Ulrika (2020). (Anti) Gender Studies and Populist Movements in Europe. In: European Journal of Women's Studies, 27(3), 282-284.

The introduction to this article addresses current gender politics in Europe and around the world, first and foremost the so-called anti-gender movements of right-wing populists, nationalists or conservative Christians that attack gender theory and "vilify" research and education committed to scrutinising power relations, inequalities and the ongoing coercion of bodies into binary and neutralised gender categories. It also mentions new waves of large-scale feminist, queer and anti-racist activism.

The main part of the article describes an International Symposium at Uppsala University in Sweden in February 2019 that was held to discuss these new waves of growing illiberal and anti-democratic tendencies. Much of the discussion was based on the premise that gender and feminist activism must respond with strengthened activist resistance to the calls for restrictive patriarchal conservatism.

Pető, Andrea (2016). Challenges for Gender Studies amidst the Surge in Anti-Gender Movements. In: Association for Women in Slavic Studies, 5(1), 1.

This short article illustrates several challenges to gender studies and to the scholars in Europe who work on gender. Gabrielle Kuby, a German sociologist who labels gender studies, gender mainstreaming and LGBTQI rights a “culture of death” is referred to, as she is the most well-known and widely translated German gender sociologist in Central Eastern Europe, is cited by Hungarian Prime Minister Viktor Orbán and is mainstreamed into religious educational institutions.

Because of the rise of anti-gender movements, especially in Eastern Europe, the author talks about a “new academic climate” and a paradigm change in science, where the institutional and academic vulnerability of gender studies is increasing. She calls the current climate a “fight gender studies scholars cannot afford to lose” and equates attacks on gender studies as a discipline to attacks on liberal democracy.

Pető, Andrea (2020). Academic Freedom and Gender Studies: An Alliance Forged in Fire. In: Gender and Sexuality Journal, 15, 9-24.

Based on two events in Hungary’s recent past - the prohibition of a two-year master’s degree in gender studies in 2018 and the relocation of the Central European University (CEU) to Austria due to harassment and legal uncertainties in 2019 - Andrea Pető discusses a new understanding of the politics of illiberal states towards scientific research. In addition to the two events mentioned, she also addresses the death threats against her own person, making it even more important to deal with the consequences of such attacks. Together with the Polish sociologist Weronika Grzebalska (2018), Pető suggests using the term “polypore state” to describe that this new type of illiberal state, like a parasite, produces nothing but more of itself. She describes three functional characteristics of this polypore state: parallel institutions (e.g., parallel, state-funded NGOs), familialism (gender politics is replaced by family politics in the sense of heterosexual, married parents) and security discourses. Anyone who does not agree with government policies is seen as an enemy of the state, researchers included. Pető concludes that networks, international contacts and press relations are important. Traditional forms of resistance like petitions and signatures, however, have no impact because the only means that the polypore state is interested in is the economy and money.

Verge, Tània; Ferrer-Fons, Mariona; González, M. José (2017). Resistance to mainstreaming gender into the higher education curriculum. In: European Journal of Women’s Studies, 25(1), 86-101.

The article explores the forms and types of resistance to mainstreaming gender into the higher education curriculum, using empirical evidence collected by an action-research project

undertaken at a faculty of political and social sciences in a Catalan public university. Mainstreaming gender in higher education has been prescribed by various Spanish national and regional laws, which are poorly implemented. Through their examination of laws and regulations, discussions with the university's staff, analysis of the syllabi, student focus groups, online survey of university professors and participant observation, the authors provide empirical evidence on resistance to the implementation of gender mainstreaming in academia, with attention paid to both the individual and the institutional levels. The most common forms of resistance encountered were denial of the need for gender change, trivialisation of gender equality and refusal to accept responsibility.

4 References

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