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UNPACKING GENDERED DISCOURSE IN MENTORSHIP PROGRAMS: A CRITICAL ANALYSIS OF THE WeAreHERe CAMPAIGN

DESENTRAÑAR EL DISCURSO DE GÉNERO EN LOS PROGRAMAS DE MENTORÍA: UN ANÁLISIS CRÍTICO DE LA CAMPAÑA WeAreHERe

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Abstract

This research paper conducts a Critical Discourse Analysis of the Instagram campaign run by WeAreHERe, a peer-to-peer mentorship program designed for women high school students and first-year university students at Politecnico di Torino. The study scrutinizes 92 posts shared on the WeAreHERe Instagram page during the academic year 2021-2022. The primary goal of the research is, first, to bridge an existing gap in the literature by connecting studies on stereotypes, biases, and mentorship as a constructive means to promote women's role models with research on gender-based structural oppression. Secondly, this study aims to enhance the WeAreHERe campaign through a comprehensive analysis, ultimately providing insights for shaping future policies about mentorship programs for female students in STEM fields. The analysis showed that most of the posts focus on the individual level rather than on structural oppression and the role models they depict are presented as relatable rather than unique humans. Even

when the motivational posts acknowledge the existence of a gender-oppressive structure they seldom mention it clearly, failing to uncover the generative link between this structure of oppression and gender biases and stereotypes. The results show that the literature on stereotypes and biases could be enriched by an approach focused on structural oppression. From these results we developed some guidelines that could help the WeAreHERe campaign – and other similar campaigns that aims at fighting stereotypes about women in the STEM field – to tackle issues of systematic oppression. The use of role models is more effective when it highlights systematic oppression and favours the creation of communities that would help bringing systematic change.

Keywords: Gender; Mentorship; STEM; Critical Discourse Analysis; Neoliberalism; Biases; Stereotypes; Structural oppression.

Resumen

Este artículo de investigación realiza un análisis crítico del discurso de la campaña de Instagram llevada a cabo por WeAreHERe, un programa de mentoría entre pares diseñado para estudiantes de secundaria y primer año de universidad en la Universidad Politecnico di Torino. El estudio examina 92 publicaciones compartidas en la página de Instagram de WeAreHERe durante el año académico 2021-2022. El objetivo principal de la investigación es, en primer lugar, cerrar una brecha existente en la literatura al conectar estudios sobre estereotipos, prejuicios y la mentoría como un medio constructivo para promover modelos femeninos con la investigación sobre opresión estructural basada en el género. En segundo lugar, este estudio tiene como objetivo mejorar la campaña WeAreHERe a través de un análisis exhaustivo, brindando conocimientos para dar forma a futuras políticas sobre programas de mentoría para estudiantes en STEM. El análisis mostró que la mayoría de las publicaciones se centran en el nivel individual en lugar de en la opresión estructural y los modelos a seguir que representan se exponen como personas alcanzables en lugar de seres excepcionales. Incluso cuando las publicaciones que intentan motivar reconocen la existencia de una estructura opresora basada en el género, rara vez la mencionan claramente, sin lograr desvelar el vínculo generativo entre esta estructura de opresión, los prejuicios y estereotipos de género. Los resultados muestran que la literatura sobre estereotipos y prejuicios podría enriquecerse mediante un enfoque centrado en la opresión estructural. A partir de estos resultados, hemos desarrollado algunas pautas que podrían ayudar a la campaña WeAreHERe y a otras campañas similares que buscan combatir estereotipos sobre las mujeres en el campo STEM, a abordar cuestiones de opresión sistemática. El uso de modelos a seguir es más efectivo cuando resalta la opresión sistemática y favorece la creación de comunidades que contribuyan a un cambio sistemático.

Palabras clave: Género; Mentoría; STEM; Análisis Crítico del Discurso; Neoliberalismo; Prejuicios; Estereotipos; Opresión estructural.

1. INTRODUCTION

Despite the significant achievements reached in higher education when it comes to female participation, and the rise of the so-called «female advantage» –the phenomenon that also describes the fact that female students' performance has grown faster than their male peers (Buchmann & DiPrete, 2006; Niemi, 2017; UNESCO-IESALC, 2021) –some essential obstacles on the path to achieve gender equality are still present. One of these obstacles derives from the lack of uniformity with which female participation and advantage seem to cross different disciplinary fields. In many regions of the world, particularly in Western countries (Thébaud & Charles, 2018), we still witness a huge underrepresentation of female students in university careers related to the STEM area –Science, Technology, Engineering and Mathematics– and specifically in the PECS subjects –Physics, Engineering and Computer Sciences (OECD, 2020).

The phenomenon known as «horizontal segregation» refers to the concentration of individuals of different genders in specific sectors and occupations, as noted by Bettio et al. (2009). The exclusion of women and other social minority groups from STEM careers has a direct impact on both equality and innovation. Scientific and technical jobs are the most stable and lucrative, and horizontal segregation leads to pay gaps among different social categories, including men and women. Additionally, the systematic exclusion of women and minority groups from STEM careers results in a loss of human capital that hinders scientific development and innovation, as stated by Lewis et al. (2016). Another phenomenon at the root of lower female participation in STEM careers is the so-called «leaky pipeline». The metaphor is based on the «pipeline model», that pictures the path in the STEM fields as a progression of fixed steps through educational and occupational careers. This pipeline leaks female participation because, even when female students enter the STEM fields, they leave those areas due to different causal factors. The leaky pipeline is necessary to understand horizontal segregation because it helps to preserve the latter (Alper, 1993; Berryman, 1983; Morgan et al., 2013).

Achieving equality has been a key point in many international and national policies. It has become point number 5 of the Sustainable Development Goals (SDGs) set by the United Nations that are intended to be achieved by 2030 – also known as Agenda 2030 (United Nations General Assembly, 2015). This point is closely connected with SDG 4, which aims to ensure inclusive and equitable quality education for all, including SDG 4.3, which strives to provide equal access to affordable and quality technical, vocational, and tertiary education, including university education. As such, tackling the gender gap in STEM has become a top priority for achieving these goals. In recent years, academic research and policy-making have focused on understanding the factors that contribute to horizontal segregation and the «leaky pipeline,» as well as identifying potential interventions to bridge the gap. One intervention that has received significant attention and debate is the importance of mentorship and role model programs. These programs aim to encourage and motivate female students to pursue STEM careers while preventing them from dropping out later in their university studies.

This paper aims to contribute to the literature examining the impact of role models and mentors in promoting gender equality in STEM fields. Our goals are two-fold: First, we aim to advance the scientific discourse on mentorship and role model programs by using a systemic approach to address gender stereotypes and biases. Through this approach, we will identify policy recommendations that utilize these programs to challenge the prevailing paradigm that excludes women from STEM careers at all levels. Second, our analysis of these programs will adopt a dual perspective: First, we will evaluate their effectiveness in shaping individual behaviours and choices, particularly among female audiences; and second, we will provide tools to critique and address the systemic biases and discrimination ingrained in STEM fields. While the current literature on the strategies to increase female presence in STEM careers has mostly focused on how to shape individual choices to increment recruitment and retainment of female students in STEM, we argue that it is necessary to focus also on the systematic change that needs to occur in order for patriarchal structures that impair gender equality in STEM to be identified and dismantled. To do so, we selected the case study of the mentorship and role model program «WeAreHERe» carried on by the Politecnico di Torino.

After this introduction, the paper is divided into four more sections: First, after delving into the conceptualisation of gender as social practice (Connell, 2009), we set the theoretical background on representation and network to improve gender equality in STEM, and on the literature on mentorship and role model programs so far; in the second section, a description of the «WeAreHERe» program will be provided; then we will present the most significant results of this program, in terms of yield on recruitment and retention of female students at Politecnico and performance of the leading social media profile of the campaign, Instagram; in the fourth section, first we will present a critical discourse analysis (Fairclough, 2013) of the WeAreHERe campaign on Instagram, to highlight how a counter hegemonic practice of gender is implemented through the use of discourse practice; lastly, we will draw our conclusions, highlight advantages and disadvantages of mentorship and role models according to our case study and set the lines for future research.

1.1. Theoretical background

Gender differences in attitudes and interest in STEM disciplines rather than others are rooted in gender role stereotypes that individuals begin to interiorize from early childhood (Eccels et al., 1990). Gender-based stereotypes are generalizations about attributes of men and women in the binary conception of gender, which may be consciously or unconsciously perceived by each individual and can affect any person regardless of their gender (Bem, 1981; Devine, 1989). These stereotypes can be descriptive when they designate what men and women are like, or prescriptive when designating what men and women should be like, can limit female participation and opportunities by shaping their motivation in pursuing a particular career, especially when a mismatch between stereotypically female characteristics and skills are required for traditionally male-dominated occupations (Heilman, 2012). STEM careers are not only male-dominated from a numerical point of view. However, they are also characterized as professions for which it is necessary to hold stereotypical masculine traits and behaviours to succeed. Even the stereotypical image of a STEM worker is the one of a male scientist or engineer, and the belief appears to be ingrained in both female and male students

from elementary school up to the late stage of high school when the choice of college major is made (Buck, 2002).

Gender-based stereotypes have their roots in the historical construction of a difference between men and women, built on the purely social meanings given to the biological differences between them; the creation of the male worker – or more specifically, in this case, the male engineer – goes through the implementation of practices that would exclude women from the labour market and particularly from the STEM field (Cockburn, 1981). Even after an emancipatory process that brought women outside of their houses and inside the workplace, the gender revolution seems to still be unfinished (Gerson, 2010) as the mere possibility to access the workplace – differently from what Engels (1884) believed – did not lead them to the complete liberation from the patriarchy. Their male counterparts do not seem to be as involved in the care labour as them, and on the other hand, women seem to be chained to their care duty even when they do not have children or a family, even when they are working outside their houses (Cockburn, 1981).

This practice of caring is inscribed in a social practice of gender (Connell, 2009), embedded in time. The pre-existing biological differences between men and women are enhanced by a social construction that shapes the upbringing of women and men; the latter are pushed, since their childhood, to explore, move, and engage in physical activities that advantage the development of confidence and spatial ability; women instead are guided, even using games, to be more passive and submissive. Such different gender practice has concrete effects on women's spatial abilities and, hence on the auto-evaluation of their mathematical abilities (Anacta & Schiwering, 2010; Cockburn, 1981; Reid, 1937). The individual level and the upbringing are not the only elements to consider in the relationship between practice of gender and technical competence: There is a macro construction –at the core of the construction and development of capitalism– that excludes and criminalises women's knowledge (Federici, 2014) and allocates resources to a certain group of hegemonic (Gramsci, 1945) men (wealthy, white & heterosexual) (Cockburn, 1981; Connell, 2018).

Considering gender as a practice and distancing ourselves from normative gender theorisations we can appreciate the possibility of change in said

practice: Connell (2009) explains that rather than thinking that boys and girls assume a gender role, they become competent in matters of gender, understanding what is required of them as women and men and also how to push the boundaries marked by gender to achieve change at the practical level. Therefore, what constitutes and favours a change in the practice of gender? While representations of gender play a role in constructing an imaginary of what men and women are and can do, considering the symbolical level alone would not be enough to understand the material level of gender practice. To consider representation while following a materialistic approach, the presence – or absence – of role models that would aim at dismantling stereotypes about women in STEM could be considered a discourse practice (Fairclough, 1992), meaning that studying it requires considering the ideology behind this discourse and the way it orients social action. The general lack of exposure of female students to social agents who can act as role models or mentors in dispelling these beliefs can thus be observed as an ideological construction that hinders the possibility of change in power relations between men and women in STEM. Our focus here is critical (Fairclough, 2013) in nature as it is not on the mere symbolic contribution given by women role models or mentors in STEM but on their possibility to inspire a material change in the gender orders (Connell, 2009) of their institutions, on the ideology behind their involvement. Critical approaches can help us to understand both the hegemonic construction of gender inside institutions and the counter-hegemonic ones that contrast them.

The existing literature on mentorship and role model programs mainly adopts an approach that focuses on understanding individual choices and behavioural patterns more than applying a critical and systemic perspective. Among the most adopted theoretical background, we can find the Social Cognitive Career Theory developed by Lent et al. (1994) based on the Social Cognitive Theory postulated by Bandura (1977); among the factors that influence individuals' career choices, we find interest development for a particular academic or professional occupation. Social agents such as family members, educators, and peers, but also figures that come through institutions and media sources, are found to be central to shaping this interest, i.e., imagined consequences of performing a specific behaviour or pursuing a

particular career. It is true, especially when the agents can be a professional model that confirms positive outcome expectations of the selected career. Literature on mentorship and role models has examined the effectiveness of Social Cognitive Career Theory concerning to social agents with a certain level of proximity with young-age recipients, such as parents or schoolteachers (Luo et al., 2022; Turner et al., 2019) and with more professional figures, such as academic mentors (Pfund et al., 2016).

When examining the influence of social agents on academic or professional people's choices that belong to socially marginalized groups, it is observed that in-group members –experts and peers in high-achievement settings– can also improve recipients' self-efficacy in domains perceived as distant from the marginalized group's stereotypical characteristics set. Dasgupta's (2011) Stereotype Inoculation Model affirms that exposure to group peers and experts in a hostile sector can act as a «social vaccine», inoculating counter-stereotypical perceptions of self in a specific career, fostering a sense of belonging to the field and improving self-confidence and self-efficacy. The model has been tested with social minority women in STEM, a male-dominated environment, with positive results (Dennehy et al., 2018; Lewis et al., 2016; Stout et al., 2011).

The literature needs to provide a univocal definition neither for role models and mentors, and the two categories are often overlapped. However, a distinction is needed between the two typologies of social agents to underline the eventual similarities and common points of the existing and possible programs. On the one hand, we define role models as different types of senior figures, such as female STEM professionals, who exemplify that a junior person can aspire to be like them. The students create a network, but they usually do not have a prior relationship and do not build a continuous one. Role models can even be unaware of the junior person's existence.

On the other hand, mentors can be senior figures concerning to the mentees. However, they have a prior relationship and build a continuous one with the program's recipients or relationship. The defining mentorship factor is that the mentor provides psychosocial support and mentee guidance. The two categories can also be distinguished from the sponsorship: The sponsor presents the same relationship characteristics as the mentor, but their goal

is to provide practical help to the sponsored person. It is acknowledged that one person can fill more than one role simultaneously, also within the same program (Crosby, 1999; Downing et al., 2005; Gibson, 2004; Gladstone & Cimpian, 2021).

The current literature sometimes talks about role models and mentors in describing the attributes and qualities that make those figures effective in recruiting and retaining students. Gladstone and Cimpian (2021) carry on a systematic review of the literature on the subject, recommending exposure to role models of groups traditionally underrepresented in STEM –including women– because they are likely to have the broadest positive effects on all students of any gender or background. Other studies affirmed specifically that exposure to same-gender model figures has positive effects on women students' performance and identification with STEM (Lockwood, 2006; Marx & Roman, 2002; Stout et al., 2011), although Drury et al. (2011) make a distinction between the recruitment and the retention phase, stating that men and women role models are equally effective in the first phase when it comes to women students, as long as they share certain characteristics.

The role model or mentor is perceived as competent in their field and having certain credibility or success in their academic or professional role. However, when these figures are portrayed as excellent and exceptional, the model can backfire and demotivate women recipients. The model success or mentor must be perceived as obtainable by the students and the model figure must seem relatable. Specifically, when dealing with students from underrepresented STEM groups, the models or mentors must present counter-stereotypical characteristics concerning the traditional STEM ideal worker. In that sense, not only on a demographical level (so age, gender, ethnicity, and background more like the ones of the social minority group the students belong to) but also on a psychological level (Drury et al., 2011; Eby et al., 2013; Ensher et al., 2002; Gladstone & Cimpian, 2021; Hernández et al., 2017).

A hard-work model and dedication should be preferred when working on women and girl's recruitment to one of brilliance and outstanding natural talent to create identification with STEM and increase self-efficacy (Bagès & Martinot, 2011; Bagès et al., 2016; McIntyre et al., 2011). Again, a model that

combats the stereotypical image of the scientist or technician as a «loner», who prefers solitude to interaction with others should be replaced by a portrait more focused on the social and communal implications of STEM work (Cheryan et al., 2013; Diekman et al., 2011; Olsson & Martiny, 2018).

We argue that the approach of the Social Cognitive Career Theory and the Stereotype Inoculation Model could still benefit our analysis by a critical reading of discursive gender practice. Biases and stereotypes will be studied as the consequence of structures of oppression. As such point, the mere contrast of these hurtful stereotypes would not favour that systematic change that is needed to allow not only a quantitative change –i.e., more women in STEM– but a qualitative one that would favour the creation of an environment free of gender oppression. From a theoretical point of view, we argue that it is necessary to take a materialist perspective to comprehend inequalities within STEM academia that would situate women's subjugation during capitalist accumulation (Federici, 2014) and subsequently in the universities' neo-liberalization process (Connell, 2019; Jessop, 2018; O'Hagan et. Al., 2016). From a policy point of view, a focus on gender stereotypes and biases as the only source for inequality, together with the application of neoliberal indicators to measure gender equality in academia, could result in pink-washing movements, where feminist practices are co-opted within the same patriarchal system that favours inequality in the first place (Ferree & Zippell, 2015). Rather than understanding how to attract more women in a male-dominated field like STEM academia, our objective is to understand how to re-draw relationships of power within this system that historically disadvantaged women to favour a qualitative change that would invest all the relationship and power chances for women – and possibly other marginalized groups – within STEM academia.

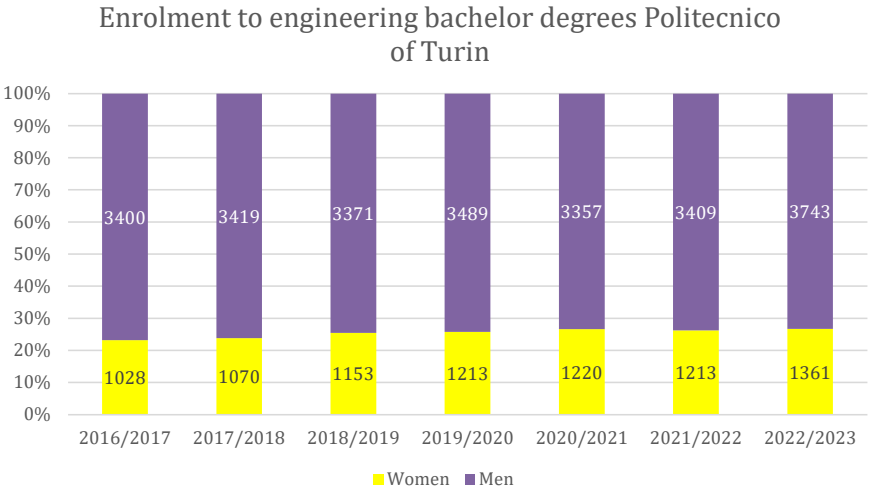
2. WeAreHERe: GENESIS AND DEVELOPMENT OF A MULTIFACED CAMPAIGN

The «WeAreHERe» campaign was born from the necessity to tackle horizontal segregation from a new, more organic perspective, as it was envisioned by the Politecnico's Strategic Plan, Equality@Polito, and with the contribution of the principal stakeholders of the campaign, the students themselves. To

celebrate 2019 International Women's Day, on March 9th, 2019, the hackathon SheHacks@Polito was organized to identify this new strategy among the collaborative participants, and WeAreHERe was selected as the winning project. The title comes from the merging of «We are her» and «We are here» to indicate the intention of creating a peer-to-peer role modelling and mentorship campaign, in which the testimonials for high school female students interested in STEM are the same already enrolled at Politecnico (Ballatore et al., 2022).

The campaign adopts a peer-to-peer approach to mentorship first to target 14-18 high school female students who might be interested in the university STEM career. The mentors and role models for the target audience are the STEM female students themselves, starting from second-year students. Every year, around 30 female students are selected through a public procedure based on the candidate's university performance. All the newly selected role models and mentors receive training from previous editions' participants. All selected student collaborators receive compensation for the activities during the campaign, which can be divided into two action categories. First, the selected STEM students become role models for a broad audience through the social media campaign, mainly carried out through Instagram, and in-presence meetings in high schools: the aim is to share their everyday experiences and stories as Politecnico and engineering students in a way that wants to be perceived as approachable and relatable by the target audience. Then, through informal events (in presence and online, especially during the Covid-19 pandemic peak) and one-to-one meeting interviews (on Skype and Zoom as well, always during the Covid-19 pandemic peak), the role models establish a durable relationship with the target audience and become mentors for high school female students and first-year Politecnico STEM female students. The goal is to build a community within Politecnico that provides support and tools to break the patriarchal and discriminatory stereotypes and biases that are embedded in the STEM environment (EIGE, 2023; Politecnico di Torino, 2020; WeAreHERe, 2023).

Figure 1. Data on enrolment to engineering bachelor's degrees in Politecnico of Turin



Since the beginning of the WeAreHERe campaign, student enrolment in engineering courses at Politecnico di Torino was monitored to verify its effects on increasing female participation in STEM higher education. Fig.1 shows the data, disaggregated by gender, on enrolment in bachelor's engineering degree courses from the academic year 2017/2018 –before the start of the campaign– up to the academic year 2022/2023. The graph witnesses a constant increase in female enrolment since the start of the campaign, both in percentages –with a little set-back in the academic year 2021/2022– and in absolute numbers.

Figure 2. Data on enrolment for bachelor's and master's degree engineering courses in Politecnico of Turin

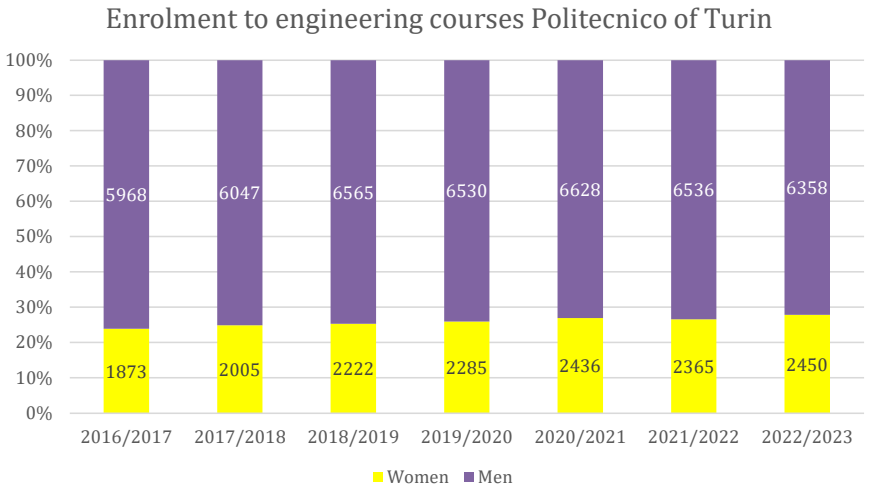


Figure 2 shows the same analysis but considers enrolment for bachelor's and master's degree engineering courses at Politecnico di Torino, over the same period. Again, we can see increased female participation since the start of the WeAreHERe campaign. Although it may be just formulated as a hypothesis, also considering the data on the master's degree courses can give us a hint that the campaign might be effective not only for the enrolment of new female students but also to increase retention in older ones through their educational career.

Given our theoretical background and case study, we want to answer to the following research questions:

- How can mentorship and role models' literature to break STEM gender stereotypes be explored through a critical systemic approach?
- Considering our case study, what kind of communication is issued by the WeAreHERe communication campaign?
- Based on the previous questions' answers, what policy lines can be suggested to improve the WeAreHERe campaign and similar ones from an individual and structural perspective?

3. METHODOLOGY

A Critical Discourse Analysis has been performed to answer the research questions (Fairclough, 2013) of the WeAreHERe campaign Instagram profile. Critical Discourse Analysis (CDA) was deemed the most appropriate tool for this study's objectives due to its focus on structural change and its usefulness in reading political stances behind discourses. As such we argue that CDA could be helpful to catch a glimpse of the tension between feminist practice and universities' neo-liberalization that Ferree and Zippel (2015) talk about.

It has been taken into consideration that the post appeared on the WeAreHERe Instagram page in the time that goes from summer 2021 to summer 2022 to compare it with the quantitative data about women's participation in the A.Y. 2021/2022. For this reason, we analysed all the 92 posts shared by the WeAreHERe Instagram page during the period mentioned above. Firstly, we categorised them according to the type of information they wanted to pass down, dividing them into three macro-categories: informative posts about events or university life; inspirational quotes or posts about women in STEM; humorous content about women and gender in STEM, often conveyed through the use of memes. These categories' borders are blurred as, for example, some informative posts were about events that aimed at being inspirational, while humorous also aimed at to give information or inspiring. Many of the posts taken into account fall under the first category, most of them being about talks or conferences with women who work in the STEM field. For this category, we also focused on the type of woman invited to these events called «AperiSTEM».

This first categorization was worthwhile to follow a scheme like that used by Cannito and Mercuri (2021) in their CDA of TV commercials about fathers, as –even if the object of study is different– we share a similar attention on gender practice and mediated content. Therefore, after the format analysis, the study focused on dimensions more strictly related to the message these posts were trying to convey to perform a CDA that would make us understand what kind of model these messages relate to.

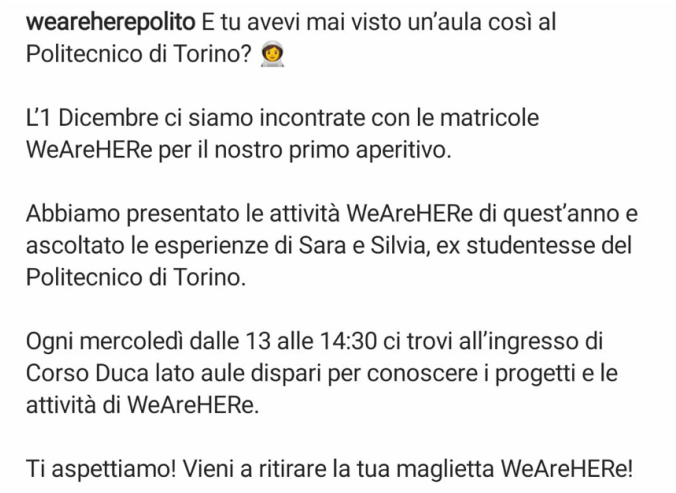
The esearchh attention has been focused on the following dimensions: relatable vs superhero models and individual attention vs structural discourses, meaning that some posts could be in the middle of this continuum, being relatable and talking about superhumans simultaneously. For the first dimension, we focused on one of the campaign objectives which is to favour women's participation in the STEM field and prevent them from dropping out at the university level: in conveying such a message to the students, do the posts focused on a relatable message, stressing out that anyone could make it and that even the big women in STEM had their up and downs or do they focused on the concept of innate talent? For the second dimension, we measured the alignment with the neoliberal system that pushes towards individualism, as in the capacity of the single individual to overcome their struggle versus the possibility of finding within the posts an element of critique to neoliberalism or gender structural oppression. Other format aspects we focused on were the setting in which the videos or photos were taken –which was almost always the Polytechnic's spaces– and the actors in it –which were always female students' part of the WeAreHERe project.

4. RESULTS

4.1. Conveying information

The following paragraphs will show some of the 92 analysed posts as an example, to present the results of the study. Most posts analysed in this study were informative, providing information about admission test procedures or future events organized by WeAreHERe. However, some of these informative posts also conveyed an inspirational message for young women in STEM.

Figure 3. Post from the Instagram page of WeAreHERe, posted on 15/12/202



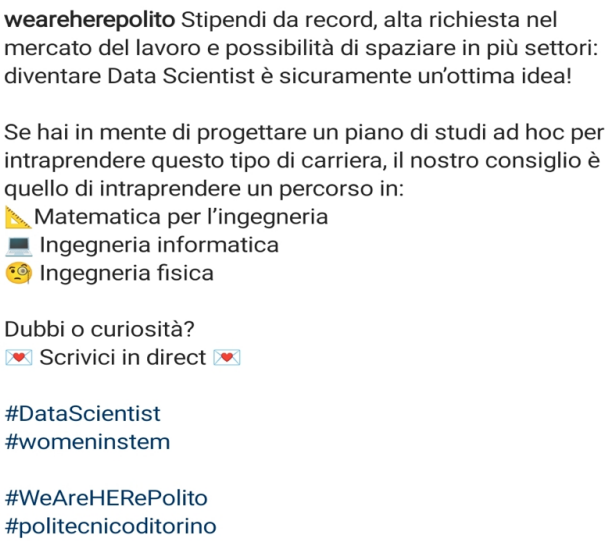
Note: Translation in the footprint[1]

For instance, a post on WeAreHERe's Instagram page (the textual post is shown in Figure 3) showcased a classroom full of female students, presented as something groundbreaking at Politecnico. While the contraposition between the structural level and individual one, and, on the other side, relatability and being a superhero is more evident in purely inspirational posts, it can still be traced in the informative ones as well. For example, many informative posts advertise the «AperiSTEM» meetings, which aim to encourage interaction between women who work in STEM fields and female students at Politecnico. The role models for these meetings are presented in a relatable manner. However, they are also depicted as successful women who

1. Have you ever seen a classroom like this one in Politecnico? On the 1st of December, we met with freshwomen with WeAreHERe for our first aperitif. We presented this year's activities of WeAreHERe and listened to the experiences of Sara and Silvia, former students in Politecnico of Turin. Every Wednesday from 13 to 14:30 you can find us at the entrance in Corso Duca, near odd-numbered classes if you want to know the projects and activities carried out by WeAreHERe. We will be waiting for you! Come collect your WeAreHERe t-shirt!

have overcome the difficulties that women face in participating in the STEM field within the neoliberal system. However, there are few, if any, references to the systematic injustices that disadvantage women in STEM fields.

Figure 4. Post from the Instagram page of WeAreHERe posted on 07/01/2022



Note: Translation in the footprint[2]

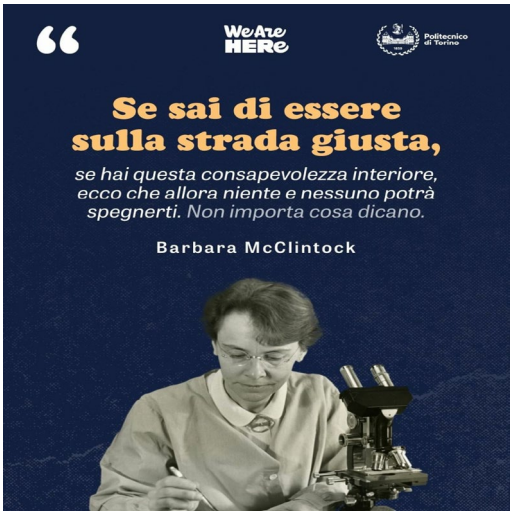
Similarly, even the informative posts about degree courses emphasize the graduates' ability to participate actively in the neoliberal job market, the potential for a good salary, and the high demand for such positions within the market (Fig. 4). Although the contrast between the two poles of the continuum is traceable in the informative posts, it is more apparent in motivational posts.

2. Record-setting salaries, high demand in the job market and the possibility to work in different fields: becoming a Data Scientist is surely a great idea! If you would like to project a curriculum tailored to take on this kind of career, our advice is to choose the right degree. For example, mathematics for engineering, informatics engineering or physics engineering. Doubts or questions? Text us in direct.

4.2. Human beings or superheroes?

One of the objectives of the WeAreHERe's campaign is to encourage female students' involvement, and potentially future, in the Polytechnic's activities and life by promoting women role models. While these can inspire students, there is a risk of setting an excessively high standard that may discourage the average student from engaging in STEM. WeAreHERe's communication strategy aims to create relatable role models by presenting these women as ordinary ones with the courage and determination to pursue their aspirations and accomplish them, rather than emphasizing their innate talents in the campaign's testimonials. Figure 5, for example, emphasises the importance of being aware on one's objectives, instead of focusing on talent alone.

Figure 5. Picture of Barbara McClintock with one of her quotes, posted by the Instagram page of WeAreHERe on 02/08/2022



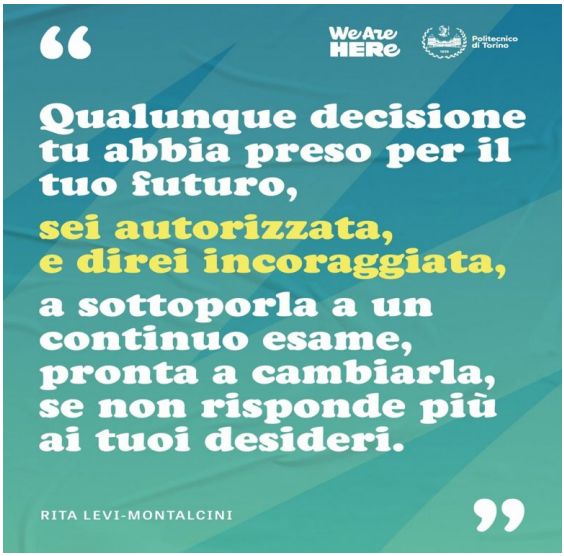
Note: Translation in the footprint[3]

3. Text on the image: If you know you are on the right path, if you know this deep inside yourself, then no one and nothing else can shut you down. It does not matter what they say.

Text on the post: Barbara McClintock was the scientist that discovered the existence of transposons, by studying corn genetic. In the Fifties, her research was antagonized by the scientific community: women were really underestimated in the field, and it

Furthermore, the inspirational quotes intend to reassure to the intended audience that it is expected to experience uncertainty when considering academic or work-related prospects and that setbacks and changes in direction are acceptable, as shown in Figure 6.

Figure 6. Quote by Rita Levi Montalcini, posted by the Instagram page of WeAreHERe on 04/01/2022



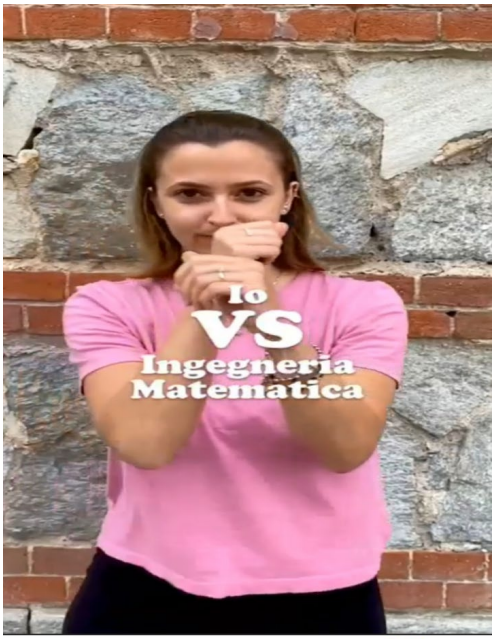
Note: Translation in the footprint[4]

was commonly believed that genes were fixed entities on chromosomes, incapable of moving. To see her merits recognized, Barbara waited for over twenty years, when her studies were finally revalued, appreciated, and allowed to discover the existence of transportable elements in many living beings, beside corn. If there is a thing that we can learn from Barbara is the following: never let what people say and think stop us if we know we are on the right path.

4. Whatever you have decided for your future, you are authorized – I would say encouraged – to put it under continuous scrutiny, to be ready to change it if it does not align with your wishes anymore.

In the memetic content on the topic, Politecnico's students are predominantly featured as protagonists. The objective of this approach is to demonstrate to the target audience that their peers are experiencing similar challenges and confronting them with optimism while providing support to one another.

Figure 7. Thumbnail for a meme video posted by the WeAreHERe's Instagram page on 05/07/2022



weareherepolito Superare la sessione, con stile 💪😉

#weareherepolito
#politecnicoditorino

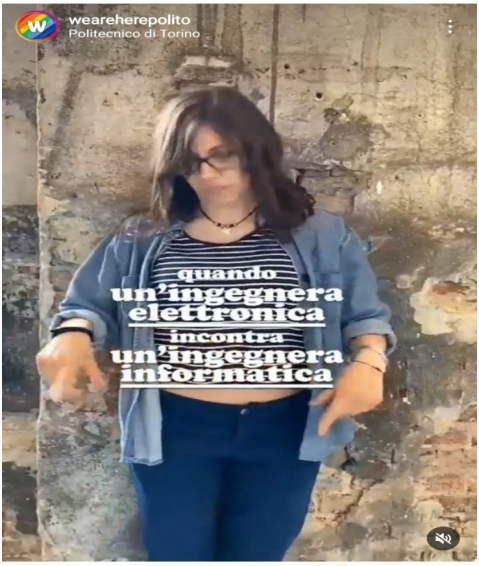
#sessione #università #esami

Note: Translation in the footprint[5]

5. Text on the post: Going through final seasons with style! Text on the image: Me vs Mathematic Engineering.

The post is accompanied by a reel of a young woman «fighting» –by punching the air and by cutting an invisible enemy with an invisible sword– her degree course's fundamental exams (figure 7).

Figure 8. Thumbnail for a meme video posted by the WeAreHERe's Instagram page on 14/07/2022



Note: Translation in the footprint[6]

The post is accompanied by a reel of a young woman mouthing the voice-over recorded audio, which says, «Girl, I got your back, girl, I got your back from here». A sentence that recites «When an electronic female engineer meets an informatics female engineer» is present in the video (figure 8).

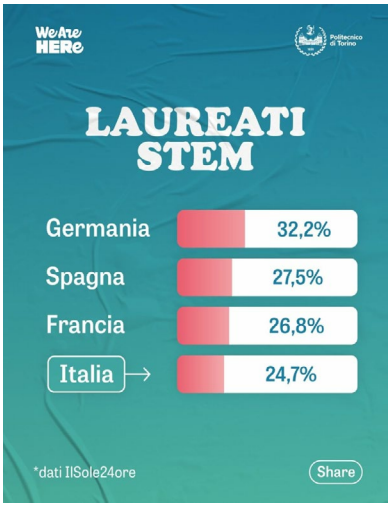
6. Text on the post: I'll watch your back, sis. Text on the image: When an electronic engineer meets an informatic engineer.

The primary objective of the motivational posts is to emphasize that the success or failure of a female engineer is not determined solely by the flawlessness of their career trajectory, but rather by personal qualities such as dedication, conviction, and a positive outlook. In the subsequent paragraph, we will delve deeper into this apparent emphasis on individual abilities.

4.3. Structural problems, individual solutions

The posts contain several noteworthy observations regarding an unfair system that undermines women's experiences and expertise in the STEM field. These observations are accompanied by data-based posts that indicate a gradual change in the gender gap regarding participation in STEM. For example, in Figure 9, it is shown an example of one of these posts containing percentages of STEM graduates in Germany, Spain, France and Italy.

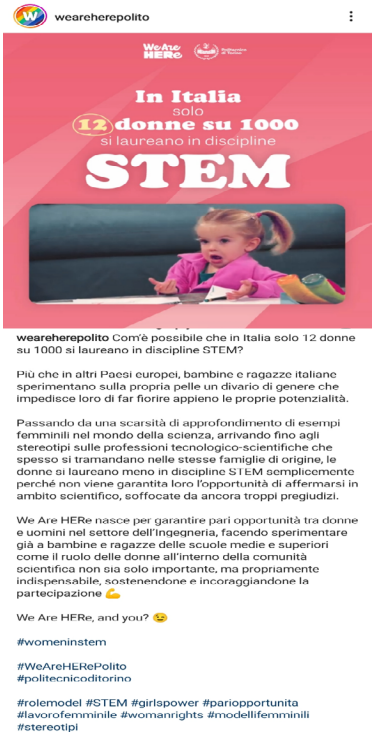
Figure 9. Picture posted by the Instagram page WeAreHERe.posted on 11/01/2022



Note: Translation to the textual post accompanying the picture in the footprint[7]

7. If in the two-year period 2016/2017 the number of freshmen in STEM courses was 85 thousand, last year there were over 90 thousand, an increase caused mainly by women

Figure 10. Meme with informational content published on the WeAreHERe's Instagram page on 08/02/2022.



Note: Translation in the footprint[8]

that are increasingly choosing STEM university careers. Then why in Europe every 3 girls, only 1 chooses a STEM university career, while in Italy only 1 every 5 enrols in STEM university faculties? New policies that put together the knowledge of teachers, experts, and researcher to rethink the relationship between STEM, labour market and High and Middle School. Politecnico of Turin has been focusing for years on Equal Opportunities and in 2020, after 161 years since its foundation, it published the first Gender Report: in the last few years an increasing in the numbers of female students has been registered, with the Engineering sector being particularly impressive, since it went from the 15% of female students in the 2000s to the 26% in the academic year 2019/2020. We Are HERe, and you?

8. How is it possible that in Italy only 12 out of 1000 women graduate in STEM disciplines? More than in other European countries, Italian girls and women experience

The textual post in figure 10 is accompanied by a GIF of a young girl being flabbergasted under the sentence «In Italy only 12 women out of 100 graduates in STEM university degrees».

There are instances where the posts acknowledge the connection between the systemic oppression faced by women and their underrepresentation in STEM fields, albeit mildly and subtly, as seen in the post presented in Figures 9 and 10. Another example is the posts that narrate the stories of women scientists from the past, such as the one depicted in Fig. 6, which encourages students to trust their intuition and pursue their goals. However, in general, the campaign's response to structural inequality and injustice is to promote individual characteristics that are presented as a solution to the challenges caused by patriarchal discrimination, as shown by examples in Figures 11 and 12.

a gender gap that prevents them from fully realizing their potential. From a lack of in-depth exploration of female examples in the world of science to stereotypes about technological and scientific professions that are often passed down within the same families, women graduate less in STEM disciplines simply because they are not guaranteed the opportunity to assert themselves in the scientific field, stifled by too many prejudices.
WeAreHERe is born to ensure equal opportunities between women and men in the field of Engineering, allowing girls from middle and high schools to experience how the role of women within the scientific community is not only important but truly indispensable, supporting and encouraging their participation. We are here and you?

Figure 11. Drawing of an astronaut with a quote from Christina Koch posted by WeAreHERe 's Instagram page on 18/03/2022



Note: Translation in the footprint[9]

9. Translation of the post's text: Did you know that Christina Koch, the astronaut that in 2019 surpassed the record on the longest space flight performed by a woman, has graduated in electrical and physical engineering? Her motto is that of working hard to reach what you always wished for. Are you ready to realise your dreams?
Translation of the quote in the picture: Follow your passions, live the life you've always dreamed of, and do what scares you.

Figure 12. Picture with a quote from Marie Curie posted by WeAreHERe 's Instagram page on 15/02/2022



Note: Translation in the footprint[10]

10. Don't be scared by anyone: believe firmly in your beliefs, go after what you love and run without ever stopping in front of anything. Only you know how important is to reach the objective you chose, and if you will believe in yourself, the day in which you will cross the finish line will be closer by the day.

In addition, there are other examples of attention to the structural level that are posted on occasions, such as the International Day for the Elimination of Violence Against Women or to follow trends launched by other associations. An example of this is the post shared on International Women's Day, shown in Figure 13.

Figure 13. Picture posted by WeAreHERe's Instagram page on 08/03/2022



Note: Translation in the footprint[11]

11. Text on the post: During this International Women's Day, we support the campaign BreakTheBias to break the gender prejudices that everyday affects women in every

The content presented here focuses on the biases and prejudices experienced by women in the STEM field, which are portrayed as particularly significant compared to other sectors. Although only a small selection of the 92 posts considered are displayed, they provide valuable insight into the ensuing discussion in the next paragraph.

5. DISCUSSION

The objective of this CDA was to evaluate whether the posts shared by the WeAreHERe Instagram account could be categorized into the two continua constructed for analysis. Although the concept of continuum was used to comprehend conflicting elements in these posts, we observed that all 92 posts analysed leaned towards one end of the continuum. Specifically, when considering the first continuum, which categorizes posts as either featuring relatable or superhero role models, all 92 posts were found to lean towards being relatable. However, it is worth noting that the role models presented in the posts, whether they were women invited for the «AperiSTEM» events or famous scientists, were introduced as ordinary individuals who were able to overcome obstacles through perseverance alone.

It is also important to note that all the role models presented in the WeAreHERe Instagram account are also highly accomplished scientists in their respective fields. The exception to this pattern is the memetic content, in which students are featured as the protagonists in short videos, portraying relatable experiences common to all of them. Although the posts showing students as protagonists make up a minority of the overall sample (10 out of 92), they constitute a majority when considering only the memes. As such, these posts overwhelmingly feature relatable role models. This approach aligns with the literature, which suggests that the relatability of role models is crucial for minority students, particularly girls, to be effectively recruited and retained in STEM fields. The Stereotype Inoculation Model suggests that the most relatable and effective role models for students are their peers within the same group. In the case of the WeAreHERe Instagram account,

field, especially in STEM. Take a close look to WeAreHERe, the Politecnico of Turin project, born to contrast gender stereotypes in Engineering.

this would include the students featured in the memetic content, representing only a minority of the sample analyzed.

While senior figures can also be perceived as relatable, their success must be seen as attainable by the target audience to serve as effective role models. When the posts emphasize the exceptionally high achievements of senior role models, such as Nobel Prize winners or CEOs, they may be perceived as leaning towards the superhero end of the continuum. Additionally, portraying role models as a collective rather than as individuals can increase their relatability and break the stereotype of the «loner» STEM student or worker. However, the WeAreHERe campaign falls short in this aspect, as it does not effectively portray role models as a collective, which can further push it towards the superhero end of the continuum.

Regarding to the second continuum – between individual attention and structural focus – we noticed a similar situation that is, however, different in some key aspects. There is always a co-presence of structural elements and individual attention in most of the posts, but the exciting factor is the link between these two aspects. Structures of oppression are seldom mentioned and only partially recognised. What is fully shown in the posts is instead the effects of the structural inequality, such as biases and stereotypes, that are presented as a problem that affects women in STEM and could be solved by individual virtues. This approach seems to be in line with a neoliberal stance that is spreading in academia (Connell, 2019), where the structural gender inequality caused by the neoliberal system itself (Federici, 2014, 2020) is presented in its mildest version, as the biases and stereotypes that generates rather than as a large-scale structure of oppression. In the posts, the gender structure is present, but not always mentioned, as an invisible object. Its direct effects –gender biases, discrimination, and stereotypes– are mentioned as if they were generated in a void.

If we consider what Ferree and Zippel (2015) discussed concerning to the possibility of academic capitalism being a co-opting force for feminist instances, after a quick and superficial reading of data, we could conclude that WeAreHERe's communication on Instagram shows that the process of co-optation is fully worked, as they are reinforcing the individualistic approach typical of neoliberalism, while disregarding the structural changes needed to achieve gender equality. However, as Ferree and Zippel (2015)

themselves notice, co-optation is not necessarily a linear process. Practices of resistance that try to use neoliberal language and approach to generate a structural change could be successful in some regards. At the same time, co-optation of feminist practice by neoliberalism could reduce the disruptive force of the movement, impeding the possibility for more significant changes.

In the case of the WeAreHERe's

Instagram profile, the campaign it is surely successful in bringing a quantitative change and in creating a small community of female students within Politecnico; the focus on individualism, on one hand, is useful to increase the perception of self-efficacy of the students but on the other it could reinforce a vision – typical of capitalist societies – oblivious to structural oppression; the antidote to this individualism, interestingly enough is already in the WeAreHERe activities: it lies in the creation of a community of students that are potentially an opposing force to the disaggregation of communal links caused by neoliberalism (Connell, 2019; Federici, 2014; Jessop, 2018).

6. CONCLUSIONS

After conducting this analysis, we aim to address our research questions. The first question investigated how the critical analysis of role models and mentorship aligns with existing literature. Our findings indicate that studies on gender stereotypes and biases within STEM academia often fail to consider the impact of systemic oppression. Our work seeks to bridge this gap by demonstrating that these two approaches are interconnected, with stereotypes and biases being the result of systematic gender oppression. That fact highlights the need for mentorship and role model programs to acknowledge this connection to be effective.

Our second research question examined the WeAreHERe communication campaign, considering the findings from the first question. While the campaign acknowledges the structural aspect of gender oppression, its primary focus remains on gender biases and stereotypes, with proposed solutions being individual. The campaign emphasizes the creation of a collective force, a space for women within STEM academia, in response to the fragmentation of communal ties in neoliberal academia.

Based on our analysis, we suggest several policy guidelines to increase the effectiveness of mentorship and role model programs, particularly those that address the gender gap in STEM higher education like WeAreHERe. Firstly, it is essential to highlight the generative link between structural oppression and gender stereotypes and biases. Secondly, role models presented through the campaign's Instagram account should emphasize the systemic impact of their success and promote a community-building approach to address gender inequality.

We utilized quantitative data as a preliminary step towards our qualitative analysis, which revealed that the WeAreHERe campaign has contributed to an increase in the number of female students. However, further quantitative analysis can help us better understand the real impact of the campaign and the potential outcomes of implementing the proposed policy guidelines. Our study focused on the messaging and political implications conveyed by the campaign's Instagram page. However, future research could incorporate both quantitative analysis of student admissions and qualitative investigations of the Instagram post creation process.

7. REFERENCES

Alper, J. (1993). The pipeline is leaking women all the way along. *Science*, *260*(5106), 409-411. https://doi.org/10.1126/science.260.5106.409

Anacta, V. J., & Schwering, A. (2010). *Men to the east and women to the right: Wayfinding with verbal route instructions.* In J. A. Bateman, M. O. Belardinelli, C. Hölscher, N. S. Newcomb, & T. F. Shipley (Eds.), *Spatial cognition VII* (pp. 70-84). Springer. https://doi.org/10.1007/978-3-642-14749-4_9

Bagès, C., & Martinot, D. (2011). What is the best model for girls and boys faced with a standardized mathematics evaluation situation: A hardworking role model or a gifted role model? *British Journal of Social Psychology, 50*(3), 536-543. https://doi.org/10.1111/j.2044-8309.2010.02017.x

Bagès, C., Verniers, C., & Martinot, D. (2016). Virtues of a hardworking role model to improve girls' mathematics performance. *Psychology of Women Quarterly, 40*(1), 55-64. https://doi.org/10.1177/0361684315608842

Ballatore, M. G., De Giorgi, C., Montorsi, A., & Tabacco, A. (2022). Balance4Better: «We Are HERe» more than a gender campaign. In F. J. García-Peñalvo, A. García-Holgado, A. Dominguez, & J. Pascual (Eds.), *Women in STEM in higher*

education: Good practices of attraction, access and retainment in higher education (pp. 85-97). Springer Nature. https://doi.org/10.1007/978-981-19-1552-9_5

Bandura, A. (1977). *Social learning theory*. Prentice Hall.

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88*(4), 354-364. https://doi.org/10.1037/0033-295X.88.4.354

Berryman, S. E. (1983). *Who will do science? Trends, and their causes in minority and female representation among holders of advanced degrees in science and mathematics. A special report*. Rockefeller Foundation. https://eric.ed.gov/?id=ED245052

Bettio, F., Verashchagina, A., & Camilleri-Cassar, F. (2009). *Gender segregation in the labour market: Root causes, implications and policy responses in the EU*. Publications Office of the European Union. https://www.um.edu.mt/library/oar/handle/123456789/96149

Buchmann, C., & DiPrete, T. A. (2006). The growing female advantage in college completion: The role of family background and academic achievement. *American Sociological Review, 71*(4), 515-541. https://doi.org/10.1177/000312240607100401

Buck, G. A., Leslie-Pelecky, D., & Kirby, S. K. (2002). Bringing female scientists into the elementary classroom: Confronting the strength of elementary students' stereotypical images of scientists. *Journal of Elementary Science Education, 14*(2), 1-9. https://doi.org/10.1007/BF03173844

Cannito, M., & Mercuri, E. (2021). Fathers in (Italian) TV commercials: Between new in– timacy and hegemonic masculinity. *AIS Journal of Sociology*, *17*, 45-65. https://dx.doi.org/10.1485/2281-2652-202117-2

Cheryan, S., Drury, B. J., & Vichayapai, M. (2013). Enduring influence of stereotypical computer science role models on women's academic aspirations. *Psychology of Women Quarterly, 37*(1), 72-79. https://doi.org/10.1177/0361684312459328

Cockburn, C. (1981). The material of male power. *Feminist Review*, *9*(1), 41-58. https://doi.org/10.1057/fr.1981.19

Colombelli, A., Cerquitelli, T., De Giorgi, C., & Montorsi, A. (2020), *Diversità è eccellenza. Bilancio di genere 2020*. Politecnico di Torino. https://iris.polito.it/handle/11583/2859366

Connell, R. W. (2009). *Questioni di genere*. Il Mulino.

Connell, R. W. (2019). *The good university. What universities actually do and why it's time for radical change*. Zed Books. https://doi.org/10.1111/ajph.12605

Crosby, F. J. (1999). The developing literature on developmental relationships. In A. Murrell, F. Crosby, & R. Ely (Eds.), *Mentoring dilemmas: Developmental relationships within multicultural organizations* (pp. 3-20). Lawrence Erlbaum Associates.

Dasgupta, N. (2011). With a little help from my colleagues: Strengthening the stereotype inoculation model with insights from fellow psychologists. *Psychological Inquiry, 22*(4), 299-303. https://doi.org/10.1080/1047840X.2011.631872

Dennehy, T. C., Smith, J. S., Moore, C., & Dasgupta, N. (2018). Stereotype threat and stereotype inoculation for underrepresented students in the first year of college. In R. S. Feldman (Ed.), *The first year of college: Research, theory, and practice on improving the student experience and increasing retention* (pp. 309-344). Cambridge University Press. https://doi.org/10.1017/9781316811764.012

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*(1), 5-18. https://doi.org/10.1037/0022-3514.56.1.5

Diekman, A. B., Clark, E. K., Johnston, A. M., Brown, E. R., & Steinberg, M. (2011). Malleability in communal goals and beliefs influences attraction to stem careers: Evidence for a goal congruity perspective. *Journal of Personality and Social Psychology, 101*(5), 902-918. https://doi.org/10.1037/a0025199

Downing, R. A., Crosby, F. J., & Blake-Beard, S. (2005). The perceived importance of developmental relationships on women undergraduates' pursuit of science. *Psychology of Women Quarterly, 29*(4), 419-426. https://doi.org/10.1111/j.1471-6402.2005.00242.x

Drury, B. J., Siy, J. O., & Cheryan, S. (2011). When do female role models benefit women? The importance of differentiating recruitment from retention in STEM. *Psychological Inquiry, 22*(4), 265-269. https://doi.org/10.1080/1047840X.2011.620935

Eby, L. T., Allen, T. D., Hoffman, B. J., Baranik, L. E., Sauer, J. B., Baldwin, S., Morrison, M. A., Kinkade, K. M., Maher, C. P., Curtis, S., & Evans, S. C. (2013). An interdisciplinary meta-analysis of the potential antecedents, correlates, and consequences of protégé perceptions of mentoring. *Psychological Bulletin, 139*(2), 441-476. https://doi.org/10.1037/a0029279

Eccles, J. S., Jacobs, J. E., & Harold, R. D. (1990). Gender role stereotypes, expectancy effects, and parents' socialization of gender differences. *Journal of Social Issues, 46*, 183-201. https://doi.org/10.1111/j.1540-4560.1990.tb01929.x

EIGE Toolkit. (2023). *WeAreHERe (peer-to-peer approach to enrolment of female students in STEM disciplines Politenico di Torino (IT)*. EIGE. https://acortar.link/4CDJDn

Engels, F. (1884). *Der ursprung der familie, des privateigenthums und des staats. The origin of the family, private property, and the state*. Pathfinder Press.

Ensher, E. A., Grant-Vallone, E. J., & Marelich, W. D. (2002). Effects of perceived attitudinal and demographic similarity on protégés' support and satisfaction gained from their mentoring relationships. *Journal of Applied Social Psychology, 32*(7), 1407-1430. https://doi.org/10.1111/j.1559-1816.2002.tb01444.x

Fairclough, N. (1992). Discourse and text: Linguistic and intertextual analysis within discourse analysis. *Discourse & Society*, *3*(2), 193-217. https://doi.org/10.1177/0957926592003002004

Fairclough, N. (2013). *Critical discourse analysis. The critical study of language* (2nd edition). Routledge. https://doi.org/10.4324/9781315834368

Federici, S. (2014). *Caliban and the witch. Women, the body and primitive accumulation*. Autonomedia.

Federici, S. (2020). *Genere e Capitale. Per una lettura femminista di Marx*. Derive Approdi.

Ferree, M. M., & Zippel, K. (2015). Gender equality in the age of academic capitalism: Cassandra and Pollyanna interpret university restructuring. *Social Politics, 22*(4), 561-584. https://doi.org/10.1093/sp/jxv039

Gerson, K. (2010). Understanding work and family through a gender lens. *Community, Work & Family*, *7*(2), 163-178. https://doi.org/10.1080/1366880042000245452

Gibson, D. E. (2004). Role models in career development: New directions for theory and research. *Journal of Vocational Behavior, 65*(1), 134-156. https://doi.org/10.1016/S0001-8791(03)00051-4

Gladstone, J. R., & Cimpian, A. (2021). Which role models are effective for which students? A systematic review and four recommendations for maximizing the effectiveness of role models in STEM. *International Journal of STEM Education, 8*(1), 1-20. https://doi.org/10.1186/s40594-021-00315-x

Gramsci, A. (2021). *Quaderni del carcere. Edizione critica a cura dell'Istituto Gramsci*. Giulio Einaudi editore.

Heilman, M. E. (2012). Gender stereotypes and workplace bias. *Research in Organizational Behavior, 32*, 113-135. https://doi.org/10.1016/j.riob.2012.11.003

Hernández, P. R., Estrada, M., Woodcock, A., & Schultz, P. W. (2017). Mentor qualities that matter: The importance of perceived (not demographic) similarity. *Journal of Experimental Education, 85*(3), 450-468 https://doi.org/10.1080/00220973.2016.1246405

Jessop, B. (2018). On academic capitalism. *Critical Policy Studies, 12*(1), 104-109. https://doi.org/10.1080/19460171.2017.1403342

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*(1), 79-122. https://doi.org/10.1006/jvbe.1994.1027

Lewis, K. L., Stout, J. G., Pollock, S. J., Finkelstein, N. D., & Ito, T. A. (2016). Fitting in or opting out: A review of key social-psychological factors influencing a sense of belonging for women in physics. *Physical Review Physics Education Research, 12*(2), 020110. https://doi.org/10.1103/PhysRevPhysEducRes.12.020110

Lockwood, P. (2006). Someone like me can be successful: Do college students need same-gender role models? *Psychology of Women Quarterly, 30*(1), 36-46. https://doi.org/10.1111/j.1471-6402.2006.00260.x

Luo, L., Stoeger, H., & Subotnik, R. F. (2022). The influences of social agents in completing a STEM degree: An examination of female graduates of selective science high schools. *International Journal of STEM Education, 9*(1), 1-17. https://doi.org/10.1186/s40594-021-00324-w

Marx, D. M., & Roman, J. S. (2002). Female role models: Protecting women's math test performance. *Personality and Social Psychology Bulletin, 28*(9), 1183-1193. https://doi.org/10.1177/01461672022812004

McIntyre, R. B., Paulson, R. M., Taylor, C. A., Morin, A. L., & Lord, C. G. (2011). Effects of role model deservingness on overcoming performance deficits induced by stereotype threat. *European Journal of Social Psychology, 41*(3), 301-311. https://doi.org/10.1002/ejsp.774

Morgan, S. L., Gelbgiser, D., & Weeden, K. A. (2013). Feeding the pipeline: Gender, occupational plans, and college major selection. *Social Science Research, 42*(4), 989-1005. https://doi.org/10.1016/j.ssresearch.2013.03.008

Niemi, N. S. (2017). *Degrees of difference: Women, men, and the value of higher education*. Routledge. https://doi.org/10.4324/9781315521817

OECD. (2020). *Education at a Glance 2020: OECD indicators*. OECD Publishing. https://doi.org/10.1787/69096873-en

Olsson, M., & Martiny, S. E. (2018). Does exposure to counterstereotypical role models influence girls' and women's gender stereotypes and career choices? A review of social psychological research. *Frontiers in Psychology, 9*, 2264. https://doi.org/10.3389/fpsyg.2018.02264

Pfund, C., Byars-Winston, A., Branchaw, J., Hurtado, S., & Eagan, K. (2016). Defining attributes and metrics of effective research mentoring relationships. *AIDS and Behavior, 20*(2), 238-248. https://doi.org/10.1007/s10461-016-1384-z

Politecnico di Torino. (2023). *We Are HERe*. https://weareherepolito.it/

Reid, M. (1934). *Economics of household production*. John Wiley & Sons Inc.

Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. A. (2011). STEMing the tide: Using ingroup experts to inoculate women's self-concept in science, technology, engineering, and mathematics (STEM). *Journal of Personality and Social Psychology, 100*(2), 255-270. https://doi.org/10.1037/a0021385

Thébaud, S., & Charles, M. (2018). Segregation, stereotypes, and STEM. *Social Sciences, 7*(7), 111. https://doi.org/10.3390/socsci7070111

Turner, S. L., Joeng, J. R., Sims, M. D., Dade, S. N., & Reid, M. F. (2019). SES, gender, and STEM career interests, goals, and actions: A test of SCCT. *Journal of Career Assessment, 27*(1), 134-150. https://doi.org/10.1177/1069072717748665

UNESCO-IESALC. (2021). *Women in higher education: has the female advantage put an end to gender inequalities?* United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000377182

United Nations General Assembly (2015). *Transforming our world: The 2030 agenda for sustainable development* (A/RES/70/1). United Nations.