Gender Microaggressions in STEM:

A PHENOMENOLOGICAL STUDY IN THE GREEK STEM ENERGY SECTOR

TUDelft

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Executive Summary

The problem of female under-representation in STEM still persists, with sexism identified as a significant contributor. Sexism can come in many forms, with gender microaggressions being one of the most prevalent forms in the STEM workplace. Therefore, this thesis explores the phenomenon of gender microaggressions within STEM Energy firms in Greece. By employing a qualitative phenomenological analysis, this research investigates how individual, organizational, and environmental factors contribute to the experiences of gender microaggressions in STEM. Semi-structured interviews with 11 female employees and 2 gender-studies academics were employed. Research was guided by three theoretical frameworks: two distinct taxonomies of gender microaggressions (to investigate the experiences of gender microaggressions), and the Ecological Systems Theory (to investigate the contributing factors).

The study resulted in the types of gender microaggressions experienced by women in STEM, their coping mechanisms, and the impact on them. New types of gender microaggressions emerged and were compared to existing literature, leading to the proposal of a new framework, the Integration of Gender Microaggressions taxonomies. This framework provides a new classification of gender microaggressions, integrating the newly emerged types and the theoretical types. Another result of this research is the introduction of the framework of the Ecological Systems Model of Gender Microaggressions. It depicts the dynamic interplay between individual, organizational, and environmental factors that contribute to gender microaggressions. This framework categorizes the contributors into three layers (individual, organizational, and environmental), taking into account the dimension of time.

This study provides valuable insights for technological organizations, policymakers, educators and advocacy groups to advance their knowledge about gender microaggressions. It addresses the manifestations of gender microaggressions, women's coping mechanisms, impact of microaggressions and the contributing factors. The study highlights the pervasiveness of gender microaggressions in the Greek STEM context, often appearing in more severe manifestations, such as sexual harassment.

By providing a comprehensive understanding of gender microaggressions and their contributors, this thesis aims to support the well-being of all employees, enhance organizational efficiency, and improve societal welfare, ultimately contributing to global efforts towards gender equality in the STEM professional field.

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Introduction

1.1. General Context

Despite significant progress in gender equality within the workplace, women continue to be under-represented in the fields of Science, Technology, Engineering and Mathematics (STEM). This gender disparity is pronounced in both educational and professional contexts within the STEM fields. Particularly in the European Union (EU) as of 2022, women were outnumbered by men, comprising 41% of the STEM workforce (Eurostat, 2023b). Among the European countries, Greece demonstrates a significant gender divide in STEM, with women accounting for 43% of STEM tertiary education graduates (Eurostat, 2023a), 40% in STEM master's programs (OECD, 2024), and 30% in the STEM workforce in 2021. The gap is even wider in the Greek energy sector, where women constitute merely 24.5% of employees (Theofanopoulos et al., 2023). This trend of female under-representation is commonly known as the 'leaky pipeline' (Blickenstaff, 2005), as it metaphorically illustrates the gradual decline in female participation from educational stages to professional roles in STEM.

STEM is acknowledged as crucial for a nation's economic prosperity and innovation capacity by both scholars and policymakers (Speer, 2023). Given the pivotal role of STEM, a gender imbalance in this field carries broader societal implications. The absence of diverse perspectives can lead to severe omissions, resulting in products and services that are predominantly male-oriented and potentially unsuitable or even hazardous for women (e.g., male-centric car seat design) (Perez, 2019, Schmader, 2023). Furthermore, this gender disparity restricts not only the personal and professional growth of women but also 'society as a whole' (Phipps & Prieto, 2021, p. 45).

The problem of gender underrepresentation in STEM is multifactorial in nature. Notably, sexism has been recognized as a significant contributor to this problem (Wang and Degol, 2017; Hideg and Shen, 2019). Research suggests that women are more likely than men to encounter sexual harassment (e.g., verbal threats), sexual assault (e.g., physical touch), and negative opinions towards their gender (Sojo et al., 2016), in multiple settings, including the workplace. These behaviors fall into the category of overt gender discrimination and affect the intention of women to leave STEM. While progress has been made and overt sexism has become less socially acceptable in recent years, a shift towards more subtle forms of gender discrimination, termed as *gender microaggressions*, has been observed (J. Y. Kim & Meister, 2023). These are defined as 'the everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership' (Sue, 2010a, p. 3). In the context of gender microaggressions, the targeted individuals are females, and the 'marginalized group membership' is the female identity.

As with any form of sexism, gender microaggressions can contribute to mental and physical implications to the recipients. They have been linked to health implications that are equally aggravating as the more blatant forms of discrimination (e.g., sexual harassment) (Algner & Lorenz, 2022). Examples of these adverse effects include anxiety, depression, hypertension etc.(Ako-Brew, 2020). Moreover, when gender microaggressions occur within organizational settings, they can have negative effects on the organization itself. These include reduced productivity rates, talent loss, and financial setbacks (Basford et al., 2014).

Gender microaggressions involve a wide spectrum of actions, comments, behaviors and environmental slights, ranging from overt to subtle. Given the broad spectrum of manifestations, using a structured taxonomy is particularly important. There are two widely accepted taxonomies for gender microaggressions. The first is proposed by Sue (2010a), categorizing microaggressions into three types (microassaults, microinsults, and microinvalidations) based on their level of subtlety. The second is proposed by Nadal (Nadal et al., 2013), which categorizes gender microaggressions into eight categories, and is considered an analytical extension of Sue's taxonomy. Both theoretical frameworks facilitate the identification of gender microaggressions, which can be challenging due to their subtle nature.

It is worth noting that when gender microaggressions occur within familiar surroundings (e.g., by a partner), women can more easily confront the sources of microaggression, due to comfort and familiarity. However, addressing microaggressions in the workplace proves to be much more challenging, as there is the risk of professional repercussions (e.g. getting fired) (J. Y.-J. Kim et al., 2018). This aspect highlights the complexity of dealing with gender microaggressions within professional environments. This complexity is further intensified in STEM fields, where patriarchal beliefs and the female identity contribute to increased susceptibility to gender microaggressions (Sue, 2010b).

Gender microaggressions in STEM are not only a reflection of individual biases but are also deeply intertwined with the organizational and broader environmental contexts in which they occur. These subtle forms of discrimination are embedded in and perpetuated by wider systemic and organizational forces, highlighting the need for a holistic approach to understanding them. The Ecological Systems Theory (EST) (Bronfenbrenner, 1979, 1986) provides a valuable lens for examining gender microaggressions beyond the individual layer.

The EST suggests that individuals are influenced by multiple environmental factors, from direct interactions in immediate settings (e.g., family) to wider societal and cultural norms (e.g., country living) (Bronfenbrenner, 1986). The theory was originally exploring the environmental interactions that affect child development. It categorized the environmental factors into 5 different layers and places the individual at the centre of these layers. The five layers are the Microsystem, Mesosystem, Exosystem, Macrosystem and Chronosystem. Each layer, with its various factors, influences the individual both independently and through its interactions with the other layers (U. Thomas & Drake, 2016). The EST provides a dynamic, multifactorial lens to examine the complex interplay between organizational and environmental forces and individual experiences.

Since its initial application, the theory has extended beyond its original focus on child development, to encompass research areas such as racism (Brooks & Watson, 2019), sexism (U. Thomas & Drake, 2016), and other societal issues (Fischer et al., 2015). In terms of the gender microaggressions within STEM, this theory can be applied to analyze how various organizational and environmental factors — from interpersonal relationships within the workplace (microsystem) to organizational policies (exosystem), and broader societal attitudes towards gender roles in STEM (macrosystem) — intersect to contribute to experiences of gender discrimination (Swearer & Espelage, 2004; Yoder & Kahn, 1992).

In summary, the persistent underrepresentation of women in STEM is partly attributed to gender discrimination, often manifesting as gender microaggressions. These microaggressions impact negatively

not only the individual but also the organizations, leading to broader socioeconomic implications. Understanding and addressing gender microaggressions is critical for advancing gender equality in STEM. Employing the two taxonomies of gender microaggressions (Sue's and Nadal's) alongside the Ecological Systems Theory (EST) will offer a comprehensive approach for understanding both the personal experiences of gender microaggressions and the individual, organizational and environmental factors that perpetuate these issues. Implementing interventions informed by these theories is essential for creating a more inclusive and equitable STEM field.

1.2. Problem Statement

Over the years, the scientific literature addressing gender discrimination has remarkably grown (J. Y. Kim & Meister, 2023). Studies have so far focused on both overt and subtle forms of gender discrimination, and valuable frameworks have been developed, such as ambivalent sexism, implicit bias, modern sexism etc. Among these, the theoretical framework of gender microaggressions has reemerged as a focal point of recent research endeavors. However, microaggressions still remain understudied in comparison to overt gender discrimination (Gartner et al., 2020) and is isolated from the domain of management literature (J. Y. Kim & Meister, 2023).

Furthermore, gender microaggressions are embedded in the systemic and organizational context in which women operate, going beyond individual behaviors to mirror wider social and environmental influences. The understanding of the socio-ecological factors contributing to gender microaggressions is crucial (Haynes-Baratz et al., 2022). However, research on how individual, organizational and environmental dynamics contribute to this phenomenon remains limited. In order to propose effective interventions - that not only address the immediate symptoms but also tackle the systemic and organizational roots of gender microaggressions in STEM fields - an understanding of gender microaggressions from an individual, organizational and social perspective is needed. Only then will the proposed interventions support the well-being of all employees, enhance organizational efficiency, and improve societal welfare.
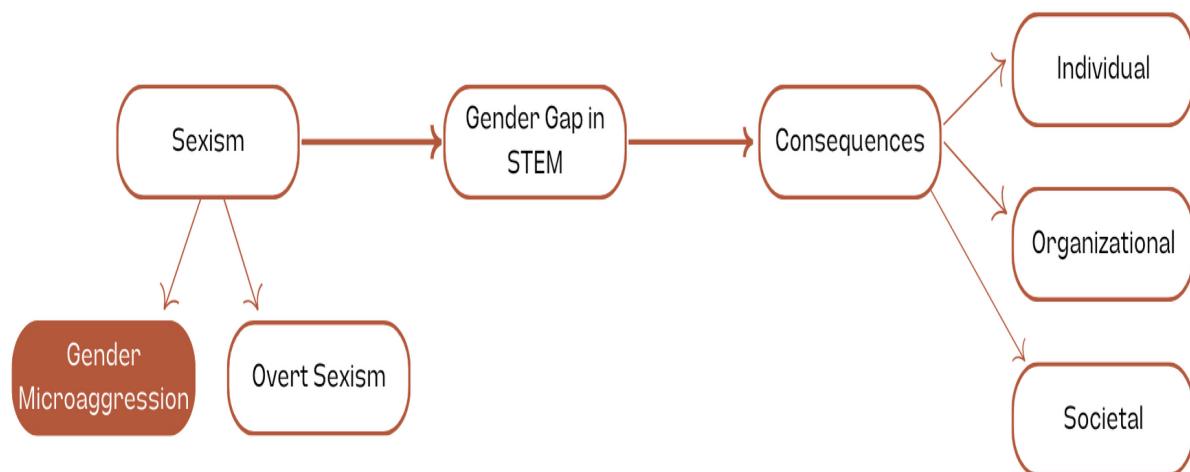
Figure 1.1: Problem mapping of the gender gap in STEM (own work, 2023).

1.3. Research Objective

The primary objective of this study is to explore the manifestations of gender microaggressions within the context of STEM-oriented energy firms in Greece. Furthermore, it aims to uncover the individual, organizational and environmental factors that influence the experiences of gender microaggressions among women in STEM. By employing the two taxonomies of gender microaggressions alongside the Ecological Systems framework, the study seeks to:

1. Identify and categorize the specific types of gender microaggressions encountered by women in STEM.

2. Examine the coping mechanisms against gender microaggressions.

3. Examine the impact of gender microaggressions on women.

4. Analyze individual, organizational and systemic factors that contribute to gender microaggressions in the STEM workplace.

This study intends to fill the gap in literature on gender microaggressions within the STEM fields, particularly in the context of the Greek energy sector, and provide insights that support organizations and society in cultivating an optimal environmental setting that fosters gender equality.

1.4. Research Questions

With this aim, the main research question guiding this investigation is:

How do individual, organizational and environmental factors contribute to the experiences of gender microaggressions in STEM?

To answer the main research question a set of 6 sub-questions is formulated that seeks to unravel the female perception of the gender microaggressions in STEM, and the interplay between the individual, organizational and environmental factors contributing to gender microaggressions.

1. *What types of gender microaggressions do women experience in STEM ?*

2. *How do women in STEM cope to gender microaggressions ?*

3. *What is the impact of gender microaggressions on women in STEM ?*

4. *Which individual factors are reflected in the experiences of gender microaggressions in STEM?*

5. *Which organizational factors are reflected in the experiences of gender microaggressions in STEM?*

6. *Which environmental factors are reflected in the experiences of gender microaggressions in STEM?*

$$2$$

Literature Review

2.1. Female under-representation in STEM

2.1.1. The Leaky Pipeline

It is a well-documented fact that women are under-represented in the domain of Science, Technology, Engineering and Mathematics (STEM). This gender disparity is pronounced in both educational and professional contexts within STEM. In 2021, women constituted only 32.8% of tertiary-level STEM graduates within the European Union (Eurostat, 2024). In Greece, this trend of under-representation is also apparent. However, a paradox emerges: while Greece recorded one of the highest proportions of female tertiary STEM graduates among EU countries (40.9% in 2021), women were substantially under-represented in the STEM workforce (30%) (Eurostat, 2023a). This discrepancy indicates that approximately 10.9% of Greek female STEM graduates 'exit the road' from education to work. The gap is even wider in the Greek energy sector, where women constitute merely 24.5% of employees (Theofanopoulos et al., 2023).
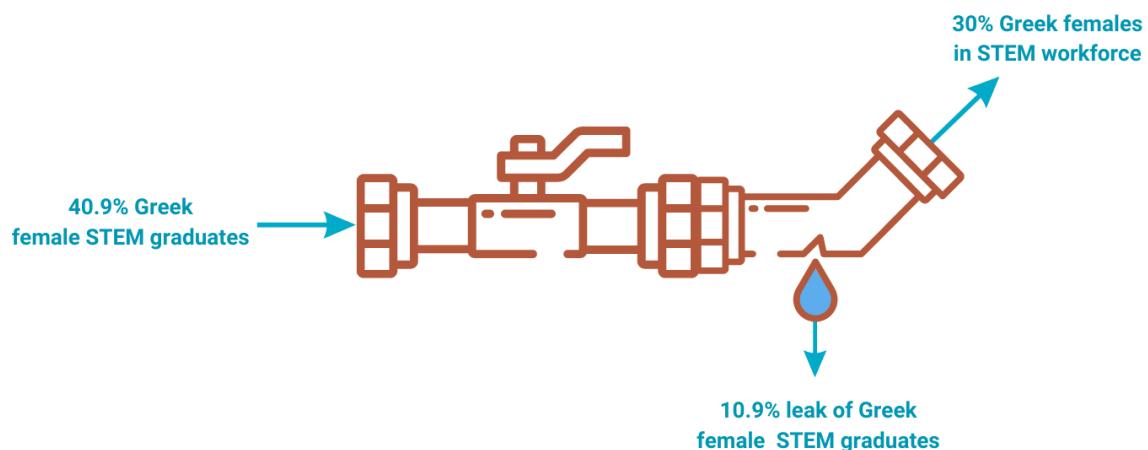

Figure 2.1: The leaky pipeline in the Greek STEM sector.

This gradual decline in female representation is illustrated through the metaphor of the 'leaky pipeline' (Figure 2.1). The metaphor describes a pipeline that starts when students express an interest in STEM (Blickenstaff, 2005) and ends with their integration in the STEM workforce. Moving along this pipeline,

from left to right, female students 'leak out' at various stages, leading to progressively fewer women in STEM. This leakage is characterized as both 'progressive' (indicating that the proportion of women decreases further along the pipeline) and 'persistent' (indicating that the proposed interventions have not yet solved the problem).

2.1.2. Potential causes of female under-representation in STEM

The problem of female under-representation in STEM has long sparked the interest of scientific endeavours (Blickenstaff, 2005). The factors determined to contribute to this phenomenon are multiple, have long been debated in the scientific community, and some have even been refuted. In early attempts to justify the under-representation of women in science, 'biological differences' between men and women were cited as a contributing factor. Head size was linked to the brain size, which, in turn, was related to brain intelligence. Therefore, scientists believed that because men genetically have larger heads, they are more intelligent. However, over the years, this theory was heavily and ultimately rejected. It was found that when brain sizes are adjusted for overall body mass, they are equivalent (Blickenstaff, 2005). Therefore, no actual difference between the brain intelligence of the 2 sexes could be concluded. Additionally, further research indicated that there is no significant variance in mathematical performance between male and female students, with data even suggesting that female students are more likely to enroll in advanced math courses (Almukhambetova et al., 2023). Another factor blamed for the gender disparity in STEM is the lack of adequate academic preparation for STEM careers. Similarly, this factor is debated within the scientific community. Some scholars argue that female students may lack the necessary educational exposure or academic readiness for STEM courses. They claim that this can lead to low performance in mathematical and science tests and, in turn, to retention from entering a STEM field. However, other academics challenge this perspective, arguing that insufficient academic preparedness alone cannot fully explain the gender disparity in STEM (Cheryan et al., 2017). Evidence suggests that even when women are sufficiently prepared, they still exit STEM programs at higher rates than their male peers (Blickenstaff, 2005).

Research has suggested that a range of individual factors - including personal goals, self-identity, parental support - might play a role in the under-representation of women in STEM fields (Almukhambetova et al., 2023). Evidence suggests that men and women rate themselves differently in terms of 'self-efficacy'. When individuals of equal abilities were compared, men rated themselves higher for their math abilities than their female counterparts (Cheryan et al., 2017). This gender disparity in self-efficacy indicates lower self-confidence among women, potentially influencing their higher dropout rates from STEM disciplines. Moreover, educational institutions, such as schools and universities, are found to influence women's perceptions of STEM disciplines. Factors such as the availability of resources at the secondary school level, equity-focused teaching in STEM subjects, attitudes and behaviors of teachers and professors, instructional methods, and interactions with peers, all seem to play crucial roles in shaping women's views towards STEM fields (Blickenstaff, 2005).

Finally, sexism is cited as a significant contributor to the gender imbalance in STEM. It manifests in various ways and is evident across different environments within STEM (from educational institutions to workplaces). A manifestation of sexism in STEM is the typical masculine culture, characterised by stereotypical beliefs regarding women's abilities (Cheryan et al., 2017). This culture operates on the assumption that there are substantial differences between the 2 sexes, with 'typical' male traits being valued more highly than female traits (Baird, 2018). In some cases, this culture is described as a 'chilly climate', suggesting a hostile environment for women. Extreme cases of such cultures, may even include instances of sexual harassment (Blickenstaff, 2005). Therefore, if such culture is established, it is unsurprising that some women are discouraged from pursuing careers in STEM. Furthermore, the mismatch between the female identity and the cultural norms is also to be blamed (Cheryan et al., 2017), especially in societies with traditional gender beliefs (Blickenstaff, 2005).

2.1.3. Advantages of achieving gender balance in STEM

The resolution of female under-representation in STEM would bring multiple advantages to society. Firstly, an attempt towards equal gender representation could be considered a quest towards social equity (Blickenstaff, 2005; Almukhambetova et al., 2023). Every person, regardless of gender, should have an equal opportunity to study and work in STEM and not miss on potentially lucrative and successful professional career (Cheryan et al., 2017). Secondly, the STEM sector loses valuable talent, as capable and intelligent women may seek alternative career paths (Blickenstaff, 2005). This translates into a loss for the scientific community and society at large, in terms of potential technical innovations, enhanced creativity, and improved research quality (Cheryan et al., 2017; Almukhambetova et al., 2023). Moreover, an equal representation in the STEM field could prove economically beneficial for each country and cover the current unmet demand for scientists and engineers (Cheryan et al., 2017). Finally, the lack of gender diversity in STEM results in a lack of a multifaceted perspective in research and problem-solving, leading to products and services that are not only male-oriented but also hazardous to women (Perez, 2019).

2.2. Gender Microaggressions

2.2.1. Definition of Gender Microaggressions

The term microaggressions was originally introduced to describe racist behaviors against black people. It was introduced by psychiatrist Chester Pierce (1977) and was defined as the 'subtle, stunning, often automatic, and non-verbal' racial insults directed towards African-Americans. Pierce was the first to acknowledge the negative impact of microaggressions, noting that while individual instances of microaggressions might seem harmless, their cumulative effect on the recipient is significant. Pierce examined the microaggressions solely on a racial dimension. Sue et al.(2010a) expanded the definition to include additional dimensions beyond race, namely gender, sexual orientation, and religion. The reformulated definition of microaggressions is *"the everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership"* (Sue, 2010a, p. 3). In the context of gender, the term *gender microaggression* adheres to the above definition, but with women as the 'target person' and female gender as the 'marginalized group membership'.

Gender microaggressions are characterized by their subtle and pervasive nature, blurred intent, and widespread occurrence. They appear either intentionally or unintentionally. A fact that distinguishes gender microaggressions from other forms of sexism is that they can be enacted by men who self-identify as advocates of equality and have good intentions, yet remain unaware of their discriminatory behavior at the time. When gender microaggressions are confronted, it is typical for the perpetrators to offer alternative explanations to their actions or invalidate the severity of the incident, capitalizing on the subtle nature of these actions (Gartner et al., 2020). As a response, it is common for female recipients to doubt, dismiss or internalize their experiences (e.g.,'it is my fault'). Moreover, recipients usually spend additional cognitive energy to decipher the meaning and intentions behind those acts. Evidence indicates that gender microaggressions have an equally harmful impact on the target as the most overt forms of gender discrimination, even resulting in physical and mental implications (Algner & Lorenz, 2022). Gender microaggressions have been linked to depression, anxiety, low self-esteem etc. (Gartner & Sterzing, 2016). Nadal and Haynes (2012) describe microaggressions as obstacles that prevent women from reaching their full social, personal, and vocational path. Gender microaggressions communicate a hidden, demeaning message and can be evident not only in personal interactions but also in the systemic frameworks of society, such as in educational content, mass media, and institutional norms (Sue, 2010a, Chapter 8).

2.2.2. Taxonomy of Gender Microaggressions

Gender microaggressions encompass a wide spectrum of actions, comments, behaviors and environmental slights, ranging from overt to subtle. Given the wide range of manifestations and the continuous emergence of new forms, the use of a structured taxonomy is imperative. Taxonomizing gender microaggressions provides several advantages. Firstly, it facilitates the identifications of gender microaggressions, as it helps to decipher between gender microaggressions and other forms of sexism. The subtle nature of gender microaggressions poses challenges at even the most fundamental step of recognizing them. Moreover, classification enables the understanding of the level of subtlety of each incident. Furthermore, it facilitates targeted interventions, enabling the identification of each gender discriminatory act and therefore its mitigation.

Sue's Taxonomy (2010)

A widely accepted taxonomy for gender microaggressions is proposed by Sue (2010a). It categorizes microaggressions into three types (*microassaults*, *microinsults*, and *microinvalidations*), based on their level of subtlety (Figure 2.2).
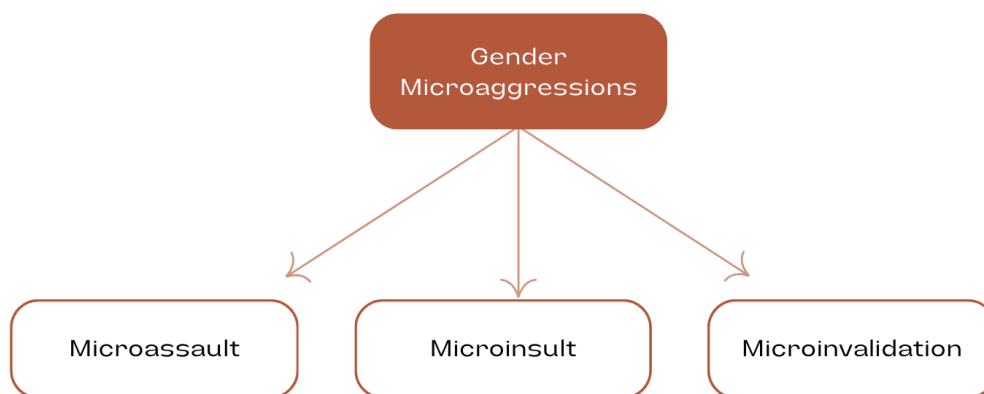
Figure 2.2: Taxonomy of gender microaggressions proposed by Sue (2010a).

Microassaults is the most overt type, involving overt discriminatory, verbal or non-verbal actions towards women. Examples of gender microassaults are calling women 'bitches', 'bimbos', 'stupid' etc (Capodilupo et al., 2010). These acts closely resemble manifestations of 'old-fashioned' sexism (Sue, 2010a), such as the belief that 'women belong in the kitchen' and not at work. In these cases, the perpetrator demonstrates conscious and deliberate intent to harm and demean the target (Basford et al., 2014). As microassaults are the most blatant form of gender microaggressions, they are generally more easily identified, and in certain situations, may even be subject to legal action. Targets usually confront easier the microassaults, due to the clear and provocative intent of the perpetrators (Sue, 2010a). There has been some debate in the scientific community regarding the definition of microassaults, particularly due to potential overlap with acts of sexual harassment. Critics argue that if acts classified as sexual harassment are included in the microassault category, this overrides the definition of microaggressions that relies on subtlety. For the purposes of this research, microassault is defined as overt discriminatory actions that do not fall in the categories of sexual assault and sexual harassment.

Microinsults are unintentional actions often marked by stereotypical beliefs, rudeness and insensitivity, and transmit a negative message towards women (Capodilupo et al., 2010). Examples of microinsults are mistaking female doctors for nurses (Algner & Lorenz, 2022), inviting only men to business meetings, assuming that a woman is not an engineer, asking women to be softer etc. (J. Y. Kim & Meister,

2023). Often, the individuals committing these microinsults may not be consciously aware of the sexist nature of their actions.

Microinvalidations is the subtlest type of microaggressions, encompassing verbal communications, actions or environmental cues that nullify the reality of the victim (J. Y. Kim & Meister, 2023). Examples of microinvalidations include statements that deny the existence of sexism, such as saying 'Sexism is a thing of the past,' or denying committing sexist acts by saying 'I am not sexist, I have a daughter'. Another example of a microinvalidation would be a group of male coworkers consistently excluding female colleagues from post-work sports activities under the assumption that women are not interested in sports (Algner & Lorenz, 2022). Similar to microinsults, microinvalidations are frequently committed without the perpetrator realizing the engagement in a sexist act. Although microinvalidations is the subtlest category of microaggressions, theory states that they can be the most detrimental, denying the lived experiences of discrimination of the target (Sue, 2010a)

Nadal's Taxonomy

Sue's (2010a) taxonomy can be applied not only to gender microaggressions but also to microaggressions concerning other dimensions, such as race, sexual orientation, and so forth. Nadal (2013) focused exclusively on the gender dimension and was the first to develop a taxonomy solely for gender microaggressions. It classifies gender microaggressions into 8 distinct categories.

1. **Sexual Objectification**
   This category involves actions, comments and environmental cues that reduce women to mere physical attributes or their sexuality (Sue, 2010a), regarding them only as objects of sexual gratification (Capodilupo et al., 2010). Examples include catcalling women, staring at a woman's body, exhibiting pictures of nude women in the office etc. The level of awareness and subtlety of these acts can vary.

2. **Second-Class Citizenship**
   This category refers to actions that signify a 'preferential treatment' to men over women. The acts that fall in this category communicate the subtle message that women are not entitled to the same advantages as men (Sue, 2010a; Capodilupo et al., 2010). Examples are assigning women less important tasks at work, failing to consider women for promotion etc.

3. **Assumption of Inferiority**
   Actions and comments that indicate that women are physically or intellectually inferior to men fall in this category. These microaggressions typically arise from gender stereotypes. An example could be a man assuming a woman is physically incapable and carrying the woman's 'heavy' belongings without consent (Sue, 2010a; Capodilupo et al., 2010).

4. **Restrictive Gender Roles**
   This type includes comments and environmental cues that confine women to traditional gender roles. They emerge from stereotypical beliefs such as expecting women to be the nurturer of the family, to be well-mannered, to be soft etc. Particularly in male-dominated workplaces, where women challenge gender norms just by their presence, they often face repercussions. Examples of these repercussions are asking a career woman why she is not married, not consulting a woman manager for an important decision, expecting women to undertake easy projects etc (Sue, 2010a; Capodilupo et al., 2010).

5. **Denial of Reality of Sexism**
   This category involves gender microaggressions that deny the existence of sexism in the modern age. These microaggressions tend to nullify the experiences of targets and trivialize the severity of the incidents. Examples include comments such as 'Women are advantaged in the modern

age', 'You exaggerate on how many times you get catcalled' etc (Sue, 2010a; Capodilupo et al., 2010).

6. **Denial of Individual Sexism**
   This involves instances where a man denies his involvement in a sexist act or denies his own personal biases. Such denial can span from deliberate to sincere. It is common for the perpetrators to remain oblivious to their sexist act and camouflage it. Examples of this type of microaggression could be comments such as 'I treat men and women the same way', 'I don't see sex when I promote people' etc (Sue, 2010a;Capodilupo et al., 2010).

7. **Use of sexist language**
   This category involves cases where demeaning language is directed towards women. This type conveys the message that women are less competent and primarily valued for their appearance. Such instances commonly appear in forms of sexist jokes. Examples include referring to women as 'honey' or 'slut', telling 'dumb blond jokes' etc (Sue, 2010a).

8. **Environmental Microaggressions**
   This category encompasses macro-level microaggressions that are embedded in systemic or environmental structures. Instances include disparities in pay for equal work among women and men, or the exclusive presence of male board members within corporations (Capodilupo et al., 2010).

In this research, both the taxonomies by Sue (2010) and Nadal et al. (2013) will be employed. These two frameworks are not contradictory but rather complementary. Nadal's taxonomy offers a detailed classification of gender microaggressions, while Sue's taxonomy categorizes them based on their degree of subtlety, ranging from overt (microassault) to subtle (microinvalidation). By employing both taxonomies, this research aims to leverage the strengths of both frameworks. This dual approach will provide a more comprehensive understanding of the various manifestations and subtleties of gender microaggressions, avoiding the omission of any relevant instances.

2.2.3. Individual Consequences

The effects of gender microaggressions at an individual level have been debated in the scientific community. Some scholars argue that single instances of microaggressions, framed as compliments (e.g., expressing surprise that a woman is proficient in math), cannot not lead to emotional distress, even if they carry certain stereotypes (K. R. Thomas, 2008). Others argue that microaggressions not only have significant effects but also carry more adverse implications than overt sexism (Sue, 2010a; Algner and Lorenz, 2022; Haynes-Baratz et al., 2022). They argue that while a single incident may not have severe consequences, microaggressions, rarely appear in isolation. Their subtle nature and difficulty in recognition exposes the targets repeatedly to them, which accumulates negative individual consequences (Sue, 2010a). The term 'death by a thousand cuts' (Nadal et al., 2011, p. 234) has been used to describe the severe consequences of gender microaggressions, emphasizing the repetitive exposure of the targets to such behaviors.

The cumulative effect of microaggressions can cultivate feelings of powerlessness, impotence, loss of control, invisibility, forced compliance to the working environment rules, and stereotype threat. These experiences can be energy-depleting and destructive to the cognitive, emotional and behavioral domains of women (Sue, 2010a), potentially affecting their mental and physical health.

In terms of mental health implications, gender microaggressions were linked to higher levels of depression and anxiety. For example, a study conducted within the U.S. military identified a significant association between the prevalence of gender microaggressions and higher rates of depression (Y. Kim et al., 2024). Additionally, research focusing on interactions between mothers and daughters confirmed these
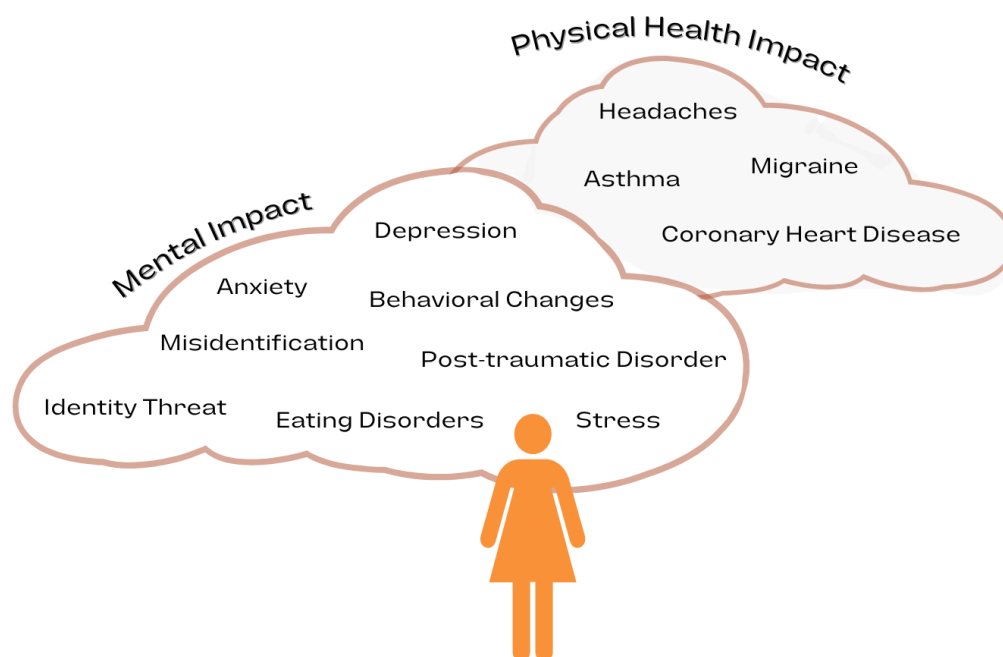
Figure 2.3: Effects of gender microaggressions on the mental and physical health of the individual.

findings, indicating a clear link between gender microaggressions and elevated levels of depression and anxiety (Feigt et al., 2022). Apart from symptoms of depression and anxiety, gender microaggressions were related to post-traumatic disorder (Y. Kim et al., 2024) as well as body image dissatisfaction and eating disorders. These latter conditions have been linked to sexual objectification types of gender microaggressions, which encourage women to internalize an observer's perspective of their bodies (Sue, 2010a). Furthermore, gender microaggressions can interfere with the way women regard themselves. Research exploring the effects of gender microaggressions on women in STEM academia revealed that exposure to gender microaggressions can lead to negative self-view, identity threat, internal identity asymmetry, behavior changes and feelings of misidentification (J. Y. Kim & Meister, 2023). Moreover, the subtle nature of microaggressions can lead to the expenditure of additional cognitive energy to decipher the intention of the perpetrator, which can intensify the negative mental implications.

Gender microaggressions have also been blamed for physical health implications. As mentioned before, it is evidenced that gender microaggressions introduce stress to women. Stress can, in turn, lead to increased mobilisation of physiological resources, and potentially result in medical issues such as coronary heart disease, hypertension, asthma, migraine and tension headaches (Sue, 2010a). Although establishing a direct link between gender microaggressions and physical medical conditions remains challenging, it is fair to conclude that gender microaggressions introduce stress to the targets that could in turn lead to negative physical health implications.

Apart from the mental and physical consequences, it is stated that gender microaggression can influence the career trajectories of women. Specifically, the repetitive exposure to such experiences may prompt women to step back from specific career paths, contributing to the under-representation of women in these fields (Capodilupo et al., 2010). Additionally, gender microaggressions can undermine women's confidence in leadership roles (J. Y. Kim & Meister, 2023) and lead to behavioral changes that divert women from their intended professional paths.

It is apparent that the way women experience microaggressions varies (Haynes-Baratz et al., 2022), with with some women reporting none of the aforementioned effects or a mix of them. Interestingly,

studies suggest that women with intersecting identities (e.g., Black women, LGBTQ+ women) may experience gender microaggressions in a greater magnitude or in novel ways compared to women without intersecting identities (e.g., white cisgender woman) (Nadal et al., 2015).

2.2.4. Organizational Consequences

Apart from the individual consequences, gender microaggressions can have severe implications to the organization as well. These subtle forms of sexism manifest in different phases of the job's lifecycle, ranging from recruitment to employment.

During the recruitment phase, female candidates face lower chances of securing job interviews and reduced chances of being hired, due to their female identity (J. Y.-J. Kim et al., 2018). This can have negative consequences for the organizations by losing valuable talent. Moreover, not hiring women can be interpreted to a homogeneous male workforce, that is found to affect negatively organizational competitiveness. Research indicates that companies with heterogeneous workforce (particularly those in the top quartile for diversity), are 35% more likely to surpass the performance of those in the lowest quartile of workforce diversity (Hunt et al., 2015).

Gender microaggressions can also emerge during the working phase. Specifically, the organizational culture has been blamed for the manifestation of subtle sexism (Timmerman & Bajema, 2000), and therefore for gender microaggressions. Research suggests that if the organizational culture is perceived as male-centric, women may view every aspect of the organization - from organizational policies to organizational procedures - to favor men, increasing their intention to leave (turnover intent). Quantitative studies verified a positive correlation between masculinized organizational culture and female turnover intention (A. B. Diehl et al., 2020). Employee turnover is detrimental for an organization, as it averagely costs one-fifth of the employee's annual salary to replace them. Additionally, the increased female turnover intent widens even more the STEM 'leaky pipeline', leaving organizations with a shortage of qualified individuals for senior positions (J. Y.-J. Kim et al., 2018). Synthesizing these findings, incidents of gender microaggression can support a male-centric organizational culture that is likely to increase the female turnover intent, leading to financial losses and talent drain for the organization.

Furthermore, microaggressions directly affect the individual, which in turn affects the organization. As explained in Section 2.2.3, microaggressions can have a severe mental and physical toll on female employees. This can affect the job performance and productivity of women in the workplace. Specifically, research conducted in Portugal investigating the long-term consequences of microaggressions on employees revealed a negative effect on their job performance (Lopez, 2011). Additionally, microaggressions can lead to reduced productivity rates, absenteeism, and organizational inefficiency (Basford et al., 2014).

In contrast, a workplace characterized by a positive climate tends to foster a more inclusive environment, which can positively impact the career trajectories of women (Timmerman & Bajema, 2000). Feeling accepted, enhances workplace integration and leads to increased motivation and productivity. Moreover, perceived gender equality within an organization has been found to significantly influence employees' preferences, leading to a greater acceptance and preference for female managers, as evidenced by research in Turkish companies (Yesilirmak et al., 2023).

Gender microaggressions seem to affect not only female targets but also employees in general. Specifically, if a culture within a company is female diminishing, this is perceived by the majority of the employees and recognized as organizational injustice. The perceived injustice, coupled with lack of organizational responds, can increase the job stress for all employees, not just females (Basford et al., 2014). This heightened stress can then negatively impact the overall job satisfaction, commitment to

the organization, and motivation among employees (Fattoracci & King, 2023), thereby influencing neg-atively the organizational culture.

Consequently, gender microaggressions entail severe organizational consequences, which are often overlooked by academia and industry. Addressing the intertwined dynamic of organizational culture and gender microaggressions, as well as understanding their organizational consequences, is crucial for mitigating the phenomenon and proposing helpful interventions.

Figure 2.4: Organizational Consequences of Gender Microaggressions.

2.3. Ecological Systems Theory (EST)

The Ecological Systems Theory (EST) was developed by Bronfenbrenner in 1979, and provided a valuable framework for understanding and conceptualizing the interplay between multiple environmental systems and the individual (U. Thomas & Drake, 2016). Bronfenbrenner's work focused on human development, and, specifically, how the interactions within and across different environmental systems impact child development (Bronfenbrenner, 1979). This theory presents a holistic integration of the individual, the environment and the interactions between them. The conceptual framework is a set of nested circles (like Russian Matryoshka dolls), with each layer representing a distinct environmental structure that exerts influence upon the individual. At the core of the framework stands the individual, an active person that affects and is affected by the environmental layers (Darling, 2007). The EST is characterized by its dynamic nature, changing whenever the individual in study changes a role, a setting or both (e.g., individual changing job, retiring etc.). This change of the EST is termed as an *ecological transition* (Bronfenbrenner, 1979). The ecological system comprises five integral subsystems (Figure 2.5) : *micro-*, *meso-*, *exo-*, *macro-*, and *chronosystem*.

- **Microsystem**
  The *microsystem* is the smallest unit of analysis that contains the individual and its interrelations with the most familiar surroundings (such as work, family, friends etc.) (Bronfenbrenner, 1979). The interactions between the individual and the encompassed elements are bidirectional and reciprocal (U. Thomas & Drake, 2016). The individual directly participates, experiences, and interacts socially with others within the *microsystem* (Neal & Neal, 2013).

- **Mesosystem**
  The *mesosystem* involves the interrelations between 2 or more elements of the microsystem (Bronfenbrenner, 1979), without the individual's direct participation (e.g., the relationship between the friends and partner of an individual) (Duerden & Witt, 2010). Although the individual may serve as a connecting point between these components, the mesosystem focuses on these relationships in the individual's absence. The *mesosystem* is considered a system of *microsystems*.

- **Exosystem**
  The 3rd level of the ecosystem is the *exosystem*, which refers to one or more settings that do not directly involve the individual but the events in them affect her/him (Bronfenbrenner, 1979; U. Thomas and Drake, 2016). For example, the exosystem may include departments within an organization that the individual is not directly involved in, but which exert influence over her/him. While individuals have little or no influence on the *exosystem*, this system 'has a stronger and more direct influence on individuals' (Whiston & Cinamon, 2015, p. 46).

- **Macrosystem**
  The *macrosystem* is the broader cultural system, consisting of the socioeconomic status, ethnic composition, religious beliefs, values, legal framework, and other societal attributes of a society (Bronfenbrenner, 1979). This is the outermost layer of the ecosystem and imposes certain norms to all underlying subsystems and the individual (Duerden & Witt, 2010).

- **Chronosystem**
  The *Chronosystem* refers to the changes and events that occur over the course of time (U. Thomas & Drake, 2016), and affect the individual or the subsystems. It includes life transitions, significant life events, and historical contexts that influence the individual and the other subsystems. The difference between the *chronosystem* and the other layers is that it introduces the additional dimension of time (Gonzales, 2020) .
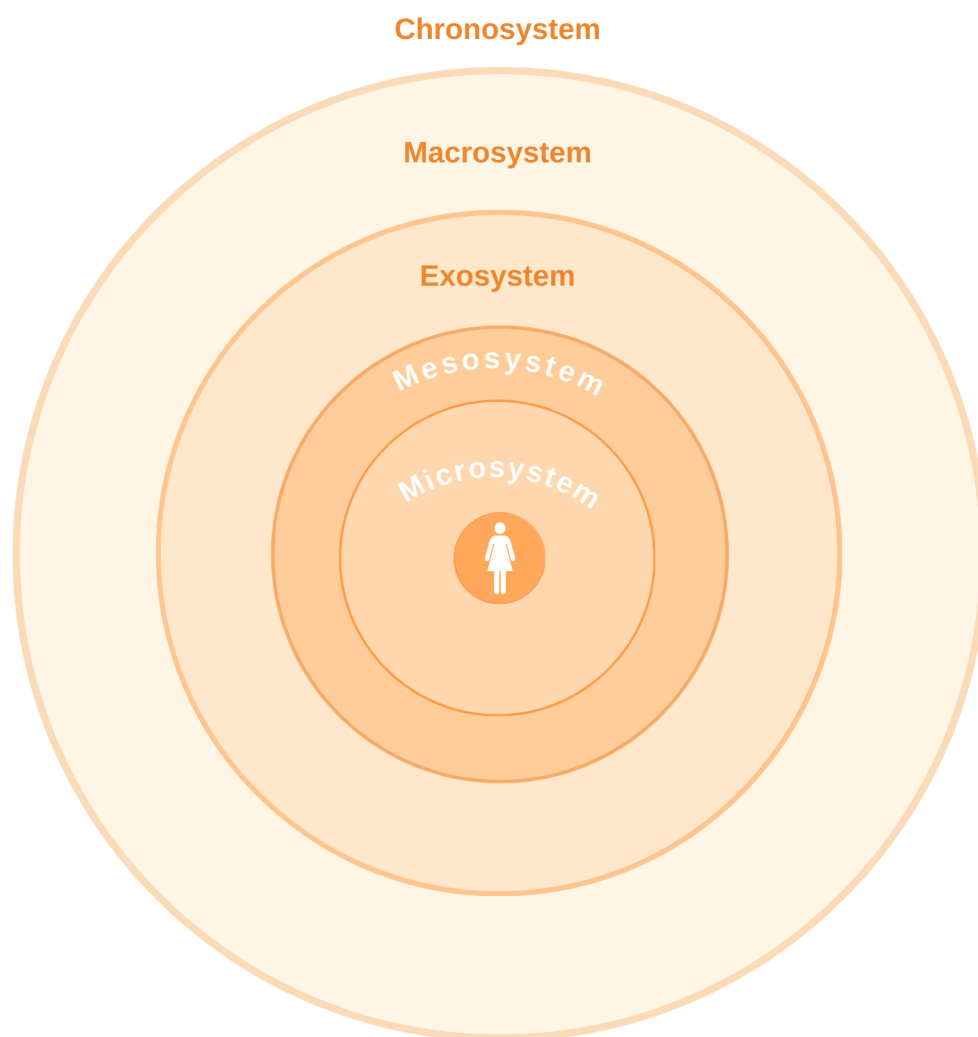
Figure 2.5: The Ecological Systems Theory by Bronfenbrenner (1979).

2.4. Gender Microaggressions through the Ecological Systems Theory (EST)

The Ecological Systems Theory (EST) was firstly utilized to explore human development from infancy to adulthood (Darling, 2007). However, since then, its application has expanded beyond sciences of human development to include educational (Weiss et al., 2013), psychological (Maltby et al., 2019), organizational (Spencer et al., 1997), criminological studies (Vila, 1994) and beyond. This extension can be attributed to the framework's robust approach of analyzing the dynamic relationships between the individual and the environment.

The EST is considered a fitting framework for investigating female experiences of gender microaggressions in STEM, as it allows exploration beyond individual female experiences, to include organizational and societal influences. Its prior application in multiple forms of discrimination, such as racism and sexism, suggests its suitability for addressing gender microaggressions. This study aims to analyze how women perceive gender microaggressions and how individual, organizational and environmental factors contribute to these experiences. The EST has served as an inspiration and guide for my proposed framework, depicted in Figure 2.6. However, the definitions of the EST were not entirely applicable to this study, therefore the EST framework was not strictly applied. The *microsystem* definition was kept and renamed to the *individual* layer, the *mesosystem* definition was omitted, and the *exo-* and *macro*-system were reformed to the *organizational* and *environmental* layers. The proposed framework (Figure 2.6) categorizes factors that contribute to gender microaggressions into three layers: *individual*, *organizational*, and *environmental*.

The *individual* layer adheres to the *microsystem* definition of Bronfenbrenner's EST (orange circle). It encompasses the interactions between the individual and perpetrators of gender microaggressions within the workplace (e.g., a colleague who commits a microaggression). The *organizational* layer involves organizational factors that contribute to gender microaggressions (e.g., a discriminatory organizational policy). This layer resembles the *exosystem* layer of the EST, but due to partial applicability to the definition, it has been renamed and reformed to the organizational dimension. The *environmental* layer involves systemic and environmental factors contributing to gender microaggressions in the context of Greek STEM (e.g., Greek culture). This layer resembles the *macrosystem* layer of the EST, but, again, has been redefined to align more closely with the study's objectives.

The subtle nature of gender microaggressions makes the phenomenon more complex, as there is often ambiguity of what constitutes a gender microaggression and which factors contribute to its occurence. This often leads to an overemphasis on the individual layer, neglecting the broader organizational and environmental aspects. To avoid this, I synthesized a framework based on literature that addresses gender microaggressions beyond the individual layer, providing a holistic overview of the phenomenon and distinguishing the factors of gender microaggression within the Greek STEM context. It is important to acknowledge that no single element of the framework is solely responsible for gender microaggressions; rather, the contributors interact collectively, culminating in the manifestation at the individual level. In other words, gender microaggressions are multifactorial manifestations of gender stereotypes.

Nonetheless, this proposed framework could serve as a valuable 'blueprint' for identifying the contributors to gender microaggressions and understanding how they manifest at different levels. It is important to recognize that these sources do not act in isolation. By applying this framework, individuals, organizations, and society can more effectively pinpoint the origins of gender microaggressions, understand their specific manifestations, and implement targeted interventions at the appropriate level.

Figure 2.6: Factors contributing to gender microaggressions in STEM through the Ecological Systems Theory.

2.4.1. Individual Layer

This layer focuses on the individual and includes the direct sources of gender microaggressions experienced by women in STEM workplaces. It identifies the human interactions from which microaggressions arise. The individual layer is nested within the broader organizational and environmental layers, highlighting that individual experiences are influenced by larger organizational and societal forces. The individual level adheres to *microsystem* definition of the EST. In the context of the STEM workplace, the closest human interactions of female employees are the *leaders*, *colleagues*, and *subordinates*.

1. Leaders

   The term *leaders* can refer either to individuals overseeing activities of employees or members of the management team. Within this framework, *leaders* are defined as people who are high in the organizational hierarchy and exert influence. According to the literature, they possess the power to direct employees and the organizational system toward desired objectives (Uhl-Bien et al., 2007). They affect the operations and the behavior within the organization. Leaders can contribute to gender microaggressions both directly or indirectly (Figure 2.7). The direct ways involve *leaders* actively engaging in microaggressive behavior towards a female employee. The indirect ways are *leaders* serving as a negative prototype or failing to understand the existence and impact of gender microaggressions.

   Direct Ways

   Due to their high influence, leaders can be a primary form of microaggression in the workplace. Incidents where a leader fails to acknowledge the achievements of female employees to the same extent as those of male employees, can be considered a form of gender microaggression (microinvalidation) (J. Y.-J. Kim et al., 2018). All employees, regardless of gender, expect acknowledgment from their supervisors, and the absence of this, can lead to negative feelings and undesirable organizational implications (Offermann et al., 2013). Other gender microaggressions perpetrated by leaders are instances where women are expected to adhere to stereotypically 'soft' and 'feminine' behaviors, with any deviation labeled as abnormal (e.g., questioning why a woman is frequently angry) (microinsult) (Offermann et al., 2013). Another example reported in literature is a supervisor dismissing reports of sexist behavior (microinvalidation) when a woman brought such incidents to her boss's attention, only to be advised to 'ignore it' and 'let it go' (Capodilupo et al., 2010). Leader equity within an organization was found to have a significant impact on the occurrences of gender microaggressions, with lower leader equity related to more microaggressions (Offermann et al., 2013). Therefore, leaders can directly contribute to experiences of microaggressions.

   Indirect Ways

   Leaders can serve as prototypes to which employees refer to when evaluating other employees. Employees constantly evaluate their colleagues in a conscious or subconscious manner. For example, imagine the scenario that a male employee compares a female colleague to the company's leader prototype. If this leader is characterized by agentic characteristics (e.g., aggressiveness, assertiveness, dominance, independence etc.), then there is high chance that the female colleague will not perfectly match these traits. In such a case, a mismatch between the female colleague and the leader prototype will occur and the woman will be evaluated unfavorably (Rosette et al., 2018). Even worse, if the evaluator bases his/her evaluation on female stereotypes (e.g., sensitivity, affection, incompetence), there occurs a definite mismatch, and the female employee is instantly disregarded by the evaluator. In STEM contexts, where the leadership prototype aligns with agentic masculine traits, women are under-evaluated more frequently (Yang & Carroll, 2018). This evaluation mismatch perpetuates gender microaggressions within the STEM workplace.
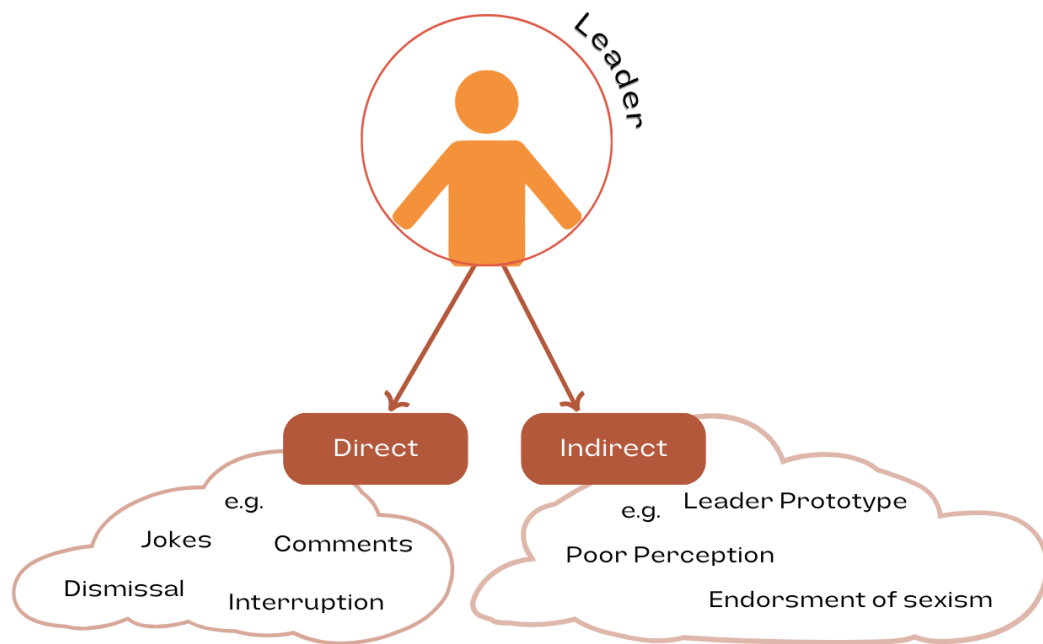
Figure 2.7: Direct and indirect gender microaggressions by leaders.

Apart from serving as a evaluation prototype within the company, leaders directly set the tone for the organization. When top-level management either endorses or fails to address sexist behaviors, it sends a signal to employees that such conduct is permissible. An illustrative case involves a major corporation where the management team objectified women. This conduct prompted more male employees to behave in a sexist way, under the impression of implicit endorsement by the leadership (Dipboye & Halverson, 2004).

Additionally, the way that leaders perceive the impact of gender microaggressions on women, plays a critical role in how these issues are addressed. A study interviewing male leaders within a company revealed a nuanced understanding of gender microaggressions. While these leaders acknowledged the detrimental effects of microassaults (the most explicit form of gender microaggression), they displayed a lack of awareness regarding the harmful nature of microinsults and microinvalidations. Surprisingly, they perceived the other two forms of gender microaggressions (*microinsult*, *microinvalidation*) as positively impacting women, by enhancing their confidence and well-being (Iswari et al., 2023). The inability of leaders to recognize and understand the implications of gender microaggressions in this case, contributed to the occurrence of these behaviors.

2. Colleagues

In this study, *colleagues* are defined as individuals at the same organizational rank with the studied individual. According to literature, they are sources of gender microaggression (J. Y.-J. Kim et al., 2018). By belonging to the same and not a lower hierarchical level, these individuals may feel they possess the power to deliver such behaviors. Reports indicate that women are frequently exempt from being tasked with physical duties by colleagues, probably due to the stereotypical assumptions of feminine 'fragility' and 'softness' (microinsult) (Capodilupo et al., 2010). Another example is colleagues devaluing the presence of women at work. As documented by a female mechanical engineer, she was ignored by her male colleagues during the first half hour of a meeting (microinsult) (J. Y. Kim & Meister, 2023), and treated as if she was invisible.

3. Subordinates

Female employees may experience gender microaggressions from *subordinates*, employees who are in lower rank compared to them (J. Y.-J. Kim et al., 2018). Despite the hierarchical superiority of some female employees, individuals at lower ranks may still engage in gender microaggressions based on unconscious stereotypical assumptions. An illustrative case involves a female employee who received a remark from a subordinate, stating that 'She was more intelligent than I thought she'd be' (microinsult) (J. Y.-J. Kim et al., 2018). This remark reflects a prejudiced assumption that women are usually unable to fulfill professional obligations competently.

2.4.2. Organizational Layer

The organizational layer involves the aspects of the organization that contribute to gender microaggressions. Although these factors require individual action to trigger a microaggression, they are defined in ways that entail gender biases, creating a fertile ground for such behavior to occur. This layer includes *organizational culture*, *policies*, and *social networks*.

1. Organizational Culture

Organizational culture lacks a standardized definition within the academic community, with various interpretations existing. One prominent definition, offered by Schein (1990), characterizes organizational culture as a deeply embedded mix of 'beliefs, values, assumptions, symbols, behaviors, and artifacts' that the members of an organization collectively adopt, thereby shaping the organization's identity. For the purposes of this research, we will adhere to this definition.

The culture sets the rules about who is fitted in or not, shaping the sense of belonging for employees (Faulkner, 2009). The role of organizational culture is pivotal in either supporting or discouraging gender microaggressions. For example, if an organizational culture implicitly endorses sexist jokes (microassault) - by not addressing them when they occur- it increases the peer pressure within the company to engage in such behaviors (Dipboye & Halverson, 2004). This can lead individuals to engage in sexist jokes as a means to align with the group (even if such behavior was not their original intention). Such instance demonstrates how an organizational culture can support gender microaggressions. Conversely, research indicates that an organizational culture with positive social climate (e.g., climate of respect), exhibits fewer incidents of unwanted sexist behaviors (Timmerman & Bajema, 2000) and prompts intervening actions in cases of gender microaggressions (Haynes-Baratz et al., 2022). This shows accordingly how an organizational culture can discourage gender microaggressions.

Another way in which an organizational culture contributes to gender microaggressions is through female under-representation in leadership positions and across the organization. The STEM female representation is a reflection of the organization's culture. An organization with no or substantially lower women conveys the message that women are not equally valued as men. This gender microaggression (also known as *environmental microaggression*) is evident in the context of Greek STEM industries, where women constituted only 30% of the workforce in 2021 (Theofanopoulos et al., 2023). The persistent under-representation in certain fields (such as STEM, banking etc.) is a systemic issue that could propagate the notion that women are inferior in these professional roles (microinvalidation) (Capodilupo et al., 2010). This serves not only as a type of microaggression - with all the adverse consequences entailed - but also as a mechanism that sustains a pre-existing male-dominated organizational culture.

2. Policies

Within organizations, biased policies that trigger gender microaggressions can be present at every stage of an individual's professional journey, from hiring to job responsibilities, training, compensation, performance reviews, promotions, and even termination (Stamarski & Son Hing, 2015). An example of a discriminating policy is requiring female employees (but not their male counterparts) to keep their office doors open. This policy subtly conveys the perception of women as less capable and valuable (microinsult), and subjects women to unwanted visibility and surveillance(J. Y. Kim & Meister, 2023). Discriminatory policies can also concern the promotion or performance evaluation of female employees. For example, a policy that evaluates work performance based on the greatest presence at the office, may result in career penalties for women who take maternity leave (microinvalidation). This is exemplified by an instance where a female employee was denied a promotion due to her pregnancy, with her supervisor commenting, 'I was going to make you head of the office, but look at you now' (microassault) (Stamarski & Son Hing, 2015).

Gender microaggressions can emerge not only from the presence of biased organizational policies but also from the absence of policies. Specifically, the absence of policies dictating the steps taken in cases of sexism, may act as a catalyst to gender microaggressions within an organization. Research exploring the role of institutional policies in facilitating gender discrimination revealed that 13% of women in male-dominated fields cited 'a lack of policy' as a contributing factor to gender discrimination in their workplaces (Bobbitt-Zeher, 2011). Conversely, research focusing on gender microaggressions in academic settings has shown that the presence of clear policies concerning acceptable workplace conduct, leads to intervening actions and removes the ability from the perpetrator to retaliate (Haynes-Baratz et al., 2022).

Many discriminatory policies may appear at first glance to be gender-neutral, but can be biased at the core, institutionalizing male privilege in the workplace. Biased organizational policies do not inherently cause gender microaggressions; rather, they act as contributing mechanisms when executed by individuals (Bobbitt-Zeher, 2011). Once enacted, female employees are at a disadvantage when it comes to pursuing justice, as perpetrators can justify their actions by claiming compliance with organizational policy, rather than exhibiting sexism. This is also considered a type of gender microaggression (microinvalidation).

3. Social Networks

Social networks are informal structures formed from the interrelationships between employees (e.g., employees having lunch breaks together) (Karoui et al., 2015). Multiple social networks can exist within a company. They are considered critical components for career advancement, as they provide both instrumental and socio-emotional support (Rosette et al., 2018). These networks are dynamic, with membership composition frequently changing. Notably, employees tend to form social networks that involve others with similar gender identity or organizational ties (homophily) (Rosette et al., 2018). This tendency can result in gender-segregated organizational networks (Stamarski & Son Hing, 2015). In STEM occupations, where men outnumber women, this can lead to male-dominated networks, that marginalize women, affecting their status, opportunity access, and career mobility (Rosette et al., 2018; Stamarski and Son Hing, 2015).

Apart from affecting the career trajectories of women, these networks can create ideal grounds for subtle discrimination (Rosette et al., 2018) and gender microaggressions. Homophilous male social networks can establish a range of masculinities and evolve into 'boy's clubs'. This structure emphasizes the solidarity with men and the differences from women (Faulkner, 2009). For instance, groups might exclude women from activities like football, stereotypically assuming they lack interest (microinsult) (Capodilupo et al., 2010). Moreover, the deliberate exclusion of women from these

networks, sends the message that women's needs for professional networking are less important or valid compared to their male colleagues (microinvalidation).

2.4.3. Environmental Layer

The environmental layer involves the broader societal factors that contribute to gender microaggressions. Inevitably, individuals belong to certain social, racial, political, cultural groups that shape and influence their life experiences (U. Thomas & Drake, 2016). In the case of examining women's experiences in the STEM field of Greek energy firms, the environmental contributors are *STEM culture*, *Greek legislation* and *Greek culture*.

1. **STEM culture**

    The STEM industry has been predominantly male-dominated, and, even until now, women continue to be underrepresented, constituting only 41% of the European STEM workforce in 2022 (Eurostat, 2023b). STEM has been associated to a masculinized culture defined as the 'explicit and implicit beliefs, behaviors, policies, practices, and procedures' that suggest women are inherently less capable in STEM roles compared to men. The STEM masculinized culture is based on the assumption that there are substantial differences between the 2 sexes, with male characteristics typically being valued more highly than female ones (Baird, 2018). Within such culture, the STEM prototype is established, which is envisioned as a white, cisgender, highly-educated, male scientist with traits such as intelligence, objectivity, rationality, and a focus on work (Cian & Dou, 2024).

    In parallel to the 'leadership prototype' (Subsection 1), female individuals in STEM are evaluated against both a leadership and a STEM prototype. Deviation from the prototypes results in diminished valuation and exclusion. Research indicates that women in STEM are automatically viewed as outliers to the STEM prototype and ill suited for the STEM work (Reilly et al., 2017), solely because of their gender. For example, intelligence in STEM, a trait highly esteemed within the STEM community, is described in a way that aligns more with male characteristics than with female ones or, even less, with maternal ones. An illustrative study, which required STEM professionals to classify their peers based on perceived intelligence, revealed that 70% of the peers classified as 'unintelligent' were female. An even higher scrutiny for STEM intelligence was held for mothers that were the primary caregivers (Cian & Dou, 2024).

    This devaluation in STEM is not just an abstract notion but is experienced by women through environmental cues (Walters, 2023). These environmental cues can manifest as gender microaggressions, and can range from direct comments questioning a woman's competence in STEM to more subtle acts of invalidation. For example, a woman in STEM described an experience where her engineering identity was initially overlooked, only to be acknowledged later with the phrase 'Oh you're the new engineer? Good for you!' (microinsult) (J. Y. Kim & Meister, 2023). Therefore, the STEM masculine culture can significantly contribute to gender microaggressions and negatively impact women's confidence, sense of belonging, and STEM career trajectories.

2. **Greek Law & Authorities**

    The legal structure in Greece plays a crucial role in either protecting or exposing individuals to gender discriminatory practices. Greece has enacted various laws and established authorities aimed at combating gender discrimination and fostering gender equality. According to the Greek legal framework, women are recognized as a group that is subject to discrimination and is entitled to specific protection.

    The Greek Laws protecting women against discrimination are summarized in Table 2.2. Law 1483/1984 offers protection to pregnant employees by prohibiting their dismissal during pregnancy and up to

eighteen months after giving birth. Law 3996/2011 strengthens the enforcement of labor laws, particularly safeguarding the rights of pregnant women. Law 4097/2012 articulates the principle of equitable treatment for both genders in professional contexts, while Law 4604/2019 is a contemporary legislation aimed at fostering gender equality and addressing gender-based violence.

Furthermore, the Greek legal framework encompasses multiple authorities tasked with ensuring gender equity in employment settings and providing support for women who have experienced discrimination (Table 2.1) . Among these entities, the *Greek Ombudsman* stands out as a pivotal institution, where women can report instances of gender discrimination in the workplace (Perifanou & Economides, 2020).

Table 2.1: Greek authorities promoting gender equility, adapted from Perifanou and Economides, 2020.

Authority/Organization	Primary Role	Type of Authority
Greek Ombudsman	Addresses legal violations and protects rights.	Independent/Public
General Secretariat for Transparency and Human Rights	Promotes human rights and transparency.	Governmental
Directorate of Social Protection and Social Cohesion	Focuses on social protection and equality.	Governmental
Labor Inspection Body (SEPE)	Enforces labor legislation compliance.	Governmental
Economic and Social Council of Greece (OKE)	Advises on equal treatment and non-discrimination.	Governmental
Greek National Commission for Human Rights (GNCHR)	Advises on human rights protection and non-discrimination.	Independent/National
General Secretariat for Family Policy and Gender Equality	Oversees gender equality policies and monitoring.	Governmental
Research Centre for Gender Equality (KETHI)	Implements gender equality policies and interventions.	Governmental
Labor Institute (INE) of GSEE	Focuses on labor rights and gender equality research.	Research Institute

Table 2.2: Greek Legislation promoting gender equality, adapted from Perifanou and Economides, 2020.

Law Number	Description	Focus Area
Law 1483/1984	Protects pregnancy and maternity rights.	Pregnancy and Maternity Protection
Law 3996/2011	Reforms the Labour Inspectorate and adjusts social security, impacting workplace equality.	Labor Rights and Social Security
Law 4097/2012	Ensures equal treatment for men and women in professional activities.	Professional Equality
Law 4604/2019	Promotes gender equality and prevents gender-based violence.	Gender Equality and Violence Prevention

Upon examination of the Greek legal and institutional mechanisms designed to protect women from gender discrimination, it is discernible that, under optimal conditions - where laws are meticulously enforced and all discriminatory incidents are reported and rectified- the Greek legislative environment is properly equipped to tackle overt gender discrimination. However, this ideal is not always the reality, and Greek women in STEM continue to face challenges. It is important to note that while there exists a robust legal framework addressing overt gender discrimination, gender microaggressions, often elude legislation due to their subtle nature (Lukes & Bangs, 2014). Although certain microinsults are legally actionable in Greece (e.g., calling a woman a 'bitch'), the vast majority of microaggressions are not prohibited by law, allowing organizations to ignore them without legal repercussions. Therefore, despite the intentions behind the Greek legal and institutional frameworks to promote gender equality at work, there is a lack of legal provisions targeting microaggressions. Consequently, Greek institutions can contribute to the experiences of gender microaggressions in STEM.

3. Greek culture

A country's culture is considered a detrimental environmental force that influences people's perceptions, dispositions and behaviors within the country (Steenkamp, 2001). Greek culture shapes the perceptions of the Greek society concerning gender equality and treatment, which can, therefore, affect the manifestations of gender microaggressions. As cultural characteristics change and evolve over time, this research examines the modern Greek culture during the current historic period.

Greek culture emphasizes the importance of family, which is perceived as the backbone of the societal structure. This is also reflected in the Greek welfare system, which lacks the resources and inherently relies on the traditional family unit to meet people's needs. As a consequence, family is
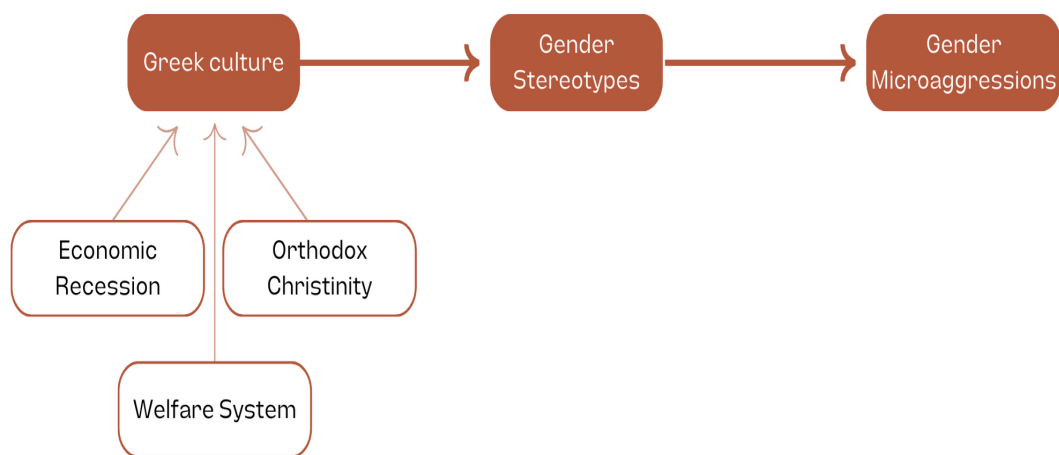
Figure 2.8: Interplay of Greek cultural elements on Gender Microaggressions.

considered the primary buffer against economic and social challenges. Saraceno and Keck (2010) state that a heightened level of 'familialism by default' within a nation, correlates to pronounced 'gender specificity'. In this context, men are perceived as patriarchal providers, struggling to financially provide for their families, whereas women are seen as caretakers, focusing on the well-being of the family and elderly relatives (Dagkouli–Kyriakoglou, 2022). The phenomenon of 'familialism' is particularly pronounced in Greece, reinforcing conventional gender roles within the society. Moreover, the country's religion, Orthodox Christianity, characterized by sanctified patriarchy and androcentric priorities (Purpura et al., 2023), exacerbates the dynamics of a 'suffocating' family unit and diminished perception of the Greek woman in society (SAFER, 2019).

If such beliefs are established in Greek society, then this is transmitted to work, where women unavoidably break the gender norm of the 'nurturer' and challenge the patriarchal norm of the man as the 'provider'. This difference is further exacerbated in STEM, where women not only defy Greek gender stereotypes but also the male STEM prototype (Section 1). This is captured in the European Gender Equality index of 2023, where Greece ranks 24th (4th from the last) among E.U. countries, with the lowest score in the domain of work. Alarmingly, 43% of Greek women report experiencing sexual harassment in the workplace. This high percentage highlights overt manifestations of sexism which are often accompanied by gender microaggressions.

Additionally, the economic recession that Greece faced from 2009 to 2013, further influenced the country's cultural dynamics. During that period, the General Domestic Product (GDP) declined by 36% and the proportion of Greek population below the 2009 poverty line was over 45%. Typically, during economic austerity, the gender equality gap widens and new forms of sexism emerge. This was the case in Greece, where progress of gender equality stalled, female employment declined and the role of men as 'legitimate' job holders was reinforced (Anastasiou et al., 2015).

Consequently, *Greek culture*, *Greek welfare system*, *Orthodox Christianity*, and the *Greek economic crisis* have acted as reinforcing mechanisms of gender stereotypes in the Greek community. In the context of STEM, an environment traditionally dominated by men, these gender biases can manifest as gender microaggressions. When Greek male employees consider women to be inferior at work, this can be manifested through the devaluation of technical competence, physical presence, denial of reality and pathologizing women's gender and character (J. Y. Kim & Meister, 2023).

3

Methodology

3.1. Research Framework

Gender microaggressions continue to manifest in STEM, creating a series of adverse individual, organizational and societal implications and contributing to the female under-representation in this field. To mitigate this issue, it is crucial to understand the individual, organizational and environmental factors influencing the female experiences of gender microaggressions in STEM. Therefore, a research framework, adapted to this purpose, is needed.

3.1.1. Research Design

The selected research design for this study is an inductive qualitative approach, suitable for delving into diverse human experiences in a thorough manner (Vishnevsky & Beanlands, 2004). This research design is chosen to examine gender microaggressions within the STEM workspace and unravel the underlying individual, organizational and environmental factors contributing to such a phenomenon. Given that gender microaggressions often manifest subtly in working environments, the study requires an in-depth exploration of individual experiences, perceptions, and broader organizational and systemic factors, making a qualitative approach suitable for this purpose.

Among the qualitative methods, the phenomenological approach was selected. Phenomenology, firstly introduced by the German philosopher Edmond Husserl, aimed to differentiate between the objective nature of a phenomenon and how individuals subjectively perceive and experience it. Husserl posited that individuals cannot but perceive phenomena subjectively, and that the objective perception of a phenomenon is not feasible (Yee, 2019). Therefore, phenomenology aims to describe the purely subjective perceptions of a phenomenon (Lester, 1999). It is about exploring and reflecting on these experiences, which serve as the data for this research design (Yee, 2019).

This research design is considered ideal for this study, which aims to investigate the phenomenon of gender microaggressions. Its application in other studies of gender discrimination, such as benevolent sexism (Schwerdel, 2021) and internalized sexism (Rahmani, 2020), support this choice. Given that the implications of gender microaggressions are rooted in how each woman perceives them, this study focuses on the subjective perceptions of the microaggressions. It is the personal perceptions and feelings of the women that are important, rather than the objective facts of gender microaggressions.

In practical terms, this methodology prescribes that the researcher should strictly describe the experiences of a phenomenon as perceived by the individuals and then interpret how environmental factors

may shape these experiences. It is crucial to maintain a clear distinction between describing subjective experiences and interpreting the influence of external factors. To adhere to these methodological guidelines, the experiences of gender microaggressions among women in STEM will be explored separately from the factors contributing to these microaggressions. Subsequently, an interpretation of both dimensions will be provided.

3.1.2. Selection of Energy Sector

The Greek energy sector was chosen over other STEM fields due to its notably pronounced gender imbalance. Particularly, women make up only 24.5 % of the workforce in this sector (Theofanopoulos et al., 2023). Thus, this sector represents an 'extreme' case, serving as paradigm of the gender microaggressions phenomenon (Gerring, 2009). By focusing on a sector with such a pronounced gender disparity, the research may uncover more evident instances of gender microaggressions, potentially leading to more comprehensive research outcomes.

3.1.3. Selection of Participants

Initially, a multinational European company with a department in Greece, was selected for this study. Given this company's significant influence in the Greek STEM field and substantial size, it was considered a suitable selection that would enable the recruitment of multiple female participants. However, after several weeks of communication, the company decided to withdraw from the collaboration, due to the sensitive nature of the topic. Following this setback, a collaboration with 3 companies was decided. All three companies operate in the renewable energy sector, primarily focusing on the construction and maintenance of photovoltaic parks. Unlike a case study design that focuses on the exploration of an entity, phenomenology focuses on the individual experiences of participants. Therefore, comparing findings between the three companies was not relevant to this study and would have no practical meaning. These companies served as a means to recruit diverse and multiple participants. Ultimately, 11 female participants, including 4 engineers, working in the Greek STEM energy sector were recruited (Figure 3.2. The selection of participants from different companies enhanced the representation and provided varied insights into their experiences of gender microaggressions. Additionally, to gain insights into the environmental contributors of gender microaggressions, 2 gender studies scholars were recruited (3.1). The small number of scholars is due to a high rejection rate, with 14 scholars declining to participate. These 2 scholars provided valuable perspectives on the broader context of gender microaggressions. In summary, the study recruited 13 female participants. The participants' experiences and the scholars' insights collectively contributed to a comprehensive understanding of gender microaggressions in this field.

Figure 3.1: Relevance of gender-studies scholars to the gender microaggressions topic.

Gender Studies Scholar	Academic Status	Relevance to the study
1	PhD Candidate of the Department of Social Policy	Publications about Domestic Violence, Feminism
2	Assistant Professor of Comparative and International Politics	Publications about Gender Microaggressions, Gender Discrimincation, Gender & Religion

Figure 3.2: Demographics of female participants working in the STEM Energy Sector.

Company	Female Employee	Education	Experience	Job
1st	1	Electrical Engineering	14 years	Head of Technical Department
	2	Electrical Engineering	8 months	Technical Operations
2nd	3	Architecture Engineering	14 years	Head of Design Department
	4	Economics	30 years	Financial Controller
	5	Civil Engineering	8 years	Licence Operations
3rd	6	Secretarial Support	20 years	Secretary
	7	Economics	2 years	Payment Operations
	8	Finance	2 years	Financial Operations
	9	Political Sciences & History	3 years	Legal Assistant
	10	Public Administration	2 years	Accountant
	11	Public Relations, Economics, Humanitarian Studies	40 years	HR Manager

3.1.4. Data Collection Methods

- **Interviews with Female Employees in STEM**
  Semi-structured interviews were conducted with 11 female employees, each with varying job title, age, and level of seniority. The duration of the interviews ranged from 41 to 47 minutes. The interviews utilized open-ended questions to gather comprehensive data. Initially, interviewees were asked about their career trajectories and whether they had encountered challenges due to their gender in the workplace. When discussions of gender microaggressions emerged, follow-up questions were posed to explore the specifics of these experiences, including their context and impact on the individuals. For participants who could not recall any incidents, short vignettes describing gender microaggressions were read to prompt discussion. Additionally, participants were asked for their perceptions on how organizational and environmental factors might influence such microaggressions. The interview protocol for this category is provided in Appendix A.5.

- **Interviews with Gender-Studies Scholars**
  Semi-structured interviews were conducted with 2 university scholars specializing in gender studies. They provided insights into the societal context of gender microaggressions. The duration of the interviews ranged from 39 to 52 minutes. The interview questions focused on the Greek legislation and cultural factors that potentially impact gender microaggressions. This interview category was added to complement the data collected from female employees in STEM. The interview protocol for this category is provided in Appendix A.6.

3.1.5. Data Analysis

The research will follow a combination of deductive and inductive thematic analysis to leverage the advantages of both methods. First, recorded interviews were transcribed verbatim, capturing every word, pause, stutter, and filler to accurately reflect the participants' feelings. Next, deductive open coding was employed, using a predefined code list corresponding to the gender microaggressions taxonomies and the Ecological Systems Theory (EST). Inductive coding was then applied to allow new themes to emerge. An iterative axial coding process established connections between the initial coding categories. Finally, selective coding was used to refine and finalize the analysis.

3.1.6. Sampling Strategy

Gender microaggressions are microaggressions towards women. This study is concerned with the female population and their perspectives; therefore, it does not aim to generalize findings to the entire population. Consequently, a non-probability sampling method was adopted.

- **Female Employees in STEM**
  The study uses a convenience sampling strategy for the selection of female employees for interviews. The selection of participants is based on their availability and willingness to participate, rather than their representativeness of a larger population (Simkus, 2022). Due to the sensitive nature of gender microaggressions, recruiting participants proved to be significantly challenging. Following the last-minute withdrawal of the initial collaborating company and subsequent rejections from other firms, three companies were secured through personal connections. The HR departments of these companies provided the contact information of female employees who were available and willing to participate. As the selection of participants was based on administrative decisions, this methodology is classified as convenience sampling.

- **Gender Studies Scholar**
  Purposive sampling was used to select university scholars with expertise in gender studies. This sampling method is 'used to select respondents that are most likely to yield appropriate and useful information' (Green & Thorogood, 2018). Interviewing individuals who have knowledge on gender equality issues is more likely to yield insightful data regarding the environmental factors contributing to gender microaggressions.

3.1.7. Data Quality

Validity

To ensure validity, triangulation was employed, incorporating both source and theoretical triangulation. Source triangulation involved cross-verifying data from different participants, such as female employees and gender studies scholars. Theoretical triangulation integrated various theoretical frameworks, including two distinct taxonomies of gender microaggressions and the Ecological Systems Theory (EST) (Figure 3.3). This multi-faceted approach strengthens the construct validity of the study by providing a well-rounded and reliable analysis.

Reliability

The reliability of this qualitative phenomenological study was ensured through several methodological approaches. Firstly, transparent and systematic data collection and analysis methods were employed, such as providing the interview protocols, the analytical coding themes etc, that allow replication and verification by other researchers. Moreover, 2 academic students examined the findings to ensure that they accurately reflect their experiences and perspectives and to minimize personal biases.
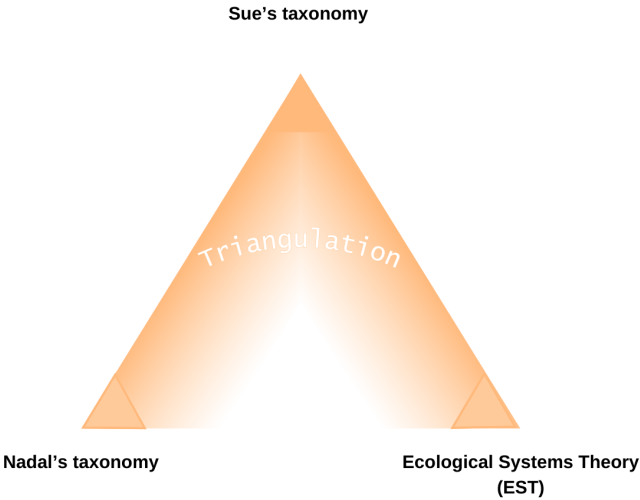
Figure 3.3: Triangulation of theoretical frameworks.

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Experiences of Gender Microaggressions

To understand how individual, organizational, and environmental factors contribute to the experiences of gender microaggressions in STEM, we must firstly deeply explore the phenomenon of gender microaggression itself. It is essential to recognize that women are not a homogeneous group; their experiences with gender microaggressions are diverse and multifaceted (Haynes-Baratz et al., 2022). Numerous confounding factors can impact the perceptions of discrimination. For example, personality traits can significantly impact how individuals perceive discrimination (J. Kim et al., 2021). A specific gender microaggression may be perceived in diverse ways by different women (Basford et al., 2014), with some even failing to recognize it. Additionally, coping mechanisms and the impacts of these microaggressions can also vary widely. Therefore, identifying the types of gender microaggressions observed in the STEM energy sector, as well as the coping mechanisms and their impacts on women, is crucial. These 3 categories synthesize the *experience of gender microaggressions for women in STEM*, providing a foundation to explore the individualistic, organizational, and environmental mechanisms that contribute to gender microaggressions. This section will attempt to address 3 research sub-questions: ***'What types of gender microaggressions do women experience in STEM ?'***, ***'How do women cope to gender microaggressions ?'*** and ***'What is the impact of gender microaggressions on women in STEM?'***

4.1. Types of Gender Microaggressions

Gender microaggressions manifest regularly for women in STEM and can entail severe implications for the recipients (J. Y. Kim & Meister, 2023). Due to their subtle nature, these microaggressions can manifest in multiple forms, requiring female recipients to expend additional cognitive effort to discern their sexist dimension (Algner & Lorenz, 2022). Given the diverse manifestations of gender microaggressions and the difficulty women may have in identifying them, it is crucial to determine the most prevalent types in STEM. This will enhance the understanding of their manifestations and clarify the ambiguity about whether an incident constitutes a gender microaggression.

This section will reveal the most prevalent types of gender microaggressions experienced by women in the Greek STEM energy sector and provide the most representative interview excerpts for each type. Furthermore, the specific examples of gender microaggressions will be associated with the corresponding coping mechanisms. This will enable a comprehensive view of the phenomenon and illustrate the immediate coping strategies for specific types, revealing specific cause-effect relationships. It is impor-

tant to note that associations are constrained by the character and the specificity of each event and do not imply that every woman experiencing such a gender microaggression would react in the same way. Instead, the aim of this association is to understand potential coping mechanisms.

Furthermore, the examples of gender microaggressions will be categorized according to the taxonomy by Sue (2010) (as analyzed in Subsection 2.2.2, which classifies them in 3 categories: *microassault*, *microinsult*, or *microinvalidation*). By providing specific examples and classifying them within each category, this approach will help readers understand the varying degrees of subtlety that gender microaggressions can exhibit. It will also offer a practical application of the theoretical framework, enhancing comprehension beyond explanation.

Table 4.1 provides a summary of the five most prevalent types of gender microaggressions observed. These findings were derived from semi-structured interviews with 11 female employees working in the Greek STEM Energy Sector. The following categories were identified:

- **Assumption of Inferiority**

- **Pathologizing Women's Maternal Identity**

- **Restrictive Gender Roles**

- **Sexual objectification**

- **Direct Address**

While three of these primary categories (*Assumption of Inferiority*, *Restrictive gender roles*, *Sexual objectification*) have been previously documented in Nadal's Taxonomy (Subsection 2.2.2) new catgories (*Pathologizing Women's Maternal Identity*, *Direct Address*) also emerged, underscoring the nuanced and evolving nature of gender microaggressions in this context. For a comprehensive overview of the complete list of gender microaggressions observed, please refer to Appendix B.1.

Table 4.2 summarizes the five most prevalent coping mechanisms observed. The following categories were identified: *Confrontation*, *Justification*, *Ignorance*, *Seeking Management Aid*, *Proving Themselves*. *Confrontation* refers to the victim directly responding to the perpetrator and challenging the microaggression. *Justification* is about rationalizing the motives of the perpetrator in order to justify the occurrence of the gender microaggression. *Ignorance* involves disregarding the microaggression to avoid conflict or disturbance. *Seeking management aid* involves reporting incidents to supervisors or leaders for support. *Proving themselves* refers to women continually demonstrating their competence to gain respect and validation. For a detailed overview of the complete list of coping mechanisms observed, please refer to Appendix B.2.

Table 4.1: Main types of gender microaggressions experienced by women in the Greek STEM energy sector.

Themes	Sub-themes	Definition	Definition
Types of Gender Microaggressions	**Assumption of Inferiority**	Assuming women are inferior because of their female identity	"Luv, I don't want to talk to a secretary. Give me an engineer"
	Pathologizing women's maternal identity	Treating the ability of women to bear children as something pathological	"Oh, come on, now you should go and have a baby and stop being so talkative."
	Restrictive Gender Roles	Dictating how women should behave, imposing on them narrow definitions of female roles.	"Go to your kitchen", "Who do you think you are?"
	Sexual Objectification	Treating women solely as an object of sexual desire, disregarding their other identities	"Your dress is nice" "You're wearing heels again"
	Direct Address	The way women are addressed, the way they are called (e.g., by their name)	"Come on, little girl," "My big girl "

Table 4.2: Main types of coping mechanisms in response to gender microaggressions.

Themes	Sub-themes	Example	Definition
Coping Mechanisms	Confrontation	Directly challenging the microaggression with the person responsible	He called me again and I said 'Listen.' 'Here,' I told him, 'I didn't come here to find a boyfriend, nor did I come here to be flirted. I came here to get a salary for the work I do, and the work I do is that of an engineer'.
	Justification	Rationalizing, justifying the microaggression	Even if, strong sexist comments are heard, they occur in a completely different tone, in a well-meaning way.
	Ignorance	Choosing to ignore the microaggression like it never occurred	I pretend I didn't hear it and continue (my responsibilities) undeterred.
	Seeking management aid	Requesting support from organizational leadership or HR to address the microaggression	I redirected the conversation to my supervisor.
	Prove themselves	Taking action to demonstrate their competence and worthiness in response to the microaggression	I had to prove twice who I am and what I know.

4.1.1. Assumption of Inferiority

This type of gender microaggression involves the unjustified assumption that women are less capable or competent solely due to their gender. In other words, it refers to the notion that women are inherently less valuable than men. This type emerged as the most prevalent across all three companies studied. Manifestations of this microaggression include undermining women's engineering and cognitive abilities, with some incidents even leading to the preconception that women cannot be engineers. To illustrate, an engineer who was in charge of a construction team and had an on-site visit to provide instructions, was mistakenly considered 'the daughter of the manual worker' rather than the responsible engineer. This incident is categorized as a microinsult.

> **I was responsible for a construction team and conducted various onsite inspections. One of the clients treated me as 'the repairman's daughter' and not as the engineer giving instructions. On the construction site, it was always like that; they were more likely to think I was the daughter of one of the workers rather than the engineer giving the orders.**

In this case, the engineer adopted the coping mechanism of 'proving herself'. She felt compelled to continually explain her qualifications and maintain a high level of vigilance to avoid mistakes, in order to demonstrate her competence. She aimed to establish herself as an exemplary and knowledgeable engineer to gain the trust and respect of her colleagues. This coping mechanism reflects the additional burden placed on women in male-dominated fields to continuously validate their expertise and capabilities.

> **Regarding my experience on the construction site, there was always this need to prove yourself two or three times more because you are a woman. You had to convince others that you are an engineer and that you know what you're doing, to gain their trust in the first place.**

Another recurring example of 'assumption of inferiority' was the reduction of women's professional identity to that of a secretary. Of course, being a secretary is a respectable occupation, but the problematic dimension in these instances was that women in higher-ranking positions were automatically presumed or treated as secretaries. This was the case for an engineer who received a call from a male client. Upon hearing a female voice, he immediately requested to talk to an engineer and not a secretary, presuming that a woman is incapable of demonstrating the professional capabilities to be an engineer.

> **We have a client who called me and said, "Luv, I don't want to talk to a secretary. Give me an engineer."**

The engineer coped with this gender microaggression using 'confrontation' and 'irony'. She responded in an ironic tone of voice, 'Congratulations, you made it! You already talk to one.' By using irony, she not only corrects the client's misconception but also emphasizes the absurdity of the assumption that a woman could not be an engineer. This approach serves as a means to assert her professional identity and challenge the stereotypes that undermine women's roles in engineering. It is important to note that both instances reflect two types of gender microaggressions: the assumption of inferiority and a demeaning address (which will be analyzed in subsequent sections).

4.1.2. Pathologizing women's maternal identity

A notable emerged type of gender microaggression was perceiving women's capacity for childbearing as negative or even pathological. This was experienced by both women with children and those without. The common thread observed among the instances in this category, was the negative and even pathological perception of motherhood and the conflation of female identity with maternal identity. These microaggressions manifested in various forms, ranging from explicit remarks to subtle environmental signals.

An overt example of such gender microaggression occurred when an engineer was told at a company to 'Go get pregnant.' In this instance, the perpetrator used the comment to imply that pregnancy is an insult. This comment was a blatant insult, a direct attempt to diminish the individual, resembling old-fashioned sexism. For these reasons, it is categorized as a microassault.

> **They have told me in another energy company, not the one I'm in now, "Go, have a child" because I was young and I didn't have any (children), I wasn't married, I didn't have a family. The said "Why don't you go and have a child?".**

A subtle example of this gender microaggression was experienced by another engineer who was pregnant during her work and sensed a hostile atmosphere that such a thing was not accepted. She interpreted environmental signals within her workplace that suggested that pregnancy would eventually result in her dismissal. Such an example reveals that pregnancy is viewed as a pathological condition within the company and is subject to reprimand. Additionally, it highlights organizational factors contributing to gender microaggressions, which will be examined in subsequent sections.

> **I have an example of the company wanting to fire me from my job because I got married and I was going to have a child. To avoid trouble, I decided to quit. But they intended to fire me because I got pregnant.**

Although this incident does not involve a directly offensive comment and is subtle in nature, it nonetheless qualifies as a microassault. This is because it constitutes an explicit discriminatory action with clear intent. In this example, the employee adopted the coping mechanism of 'resigning'. In an attempt to show that such an action is intolerable, she decided to quit and seek a better job. The use of the word 'trouble' indicates her potential fear of conflict and the repercussions of dismissal. This scenario represents an extreme incident of gender microaggression, illustrating how perpetrators can act unjustly and evade accountability.

The perception of a potential pregnancy as pathological also manifested during the hiring process. Questions regarding women's intentions to have children were a common finding in this study. However, the Court of Justice of the European Union (CJEU) has consistently ruled that questions regarding family planning intentions during hiring processes constitute direct discrimination and are illegal (Benoît-Rohmer, 2017). Since Greece is part of the European Union, this law applies, making such manifestations of gender microaggressions legally prosecutable. An example of this microaggression is:

> **Well, I've been asked a question in an interview "Are you married? Do you plan to start a family?" I mean I was asked that question.**

4.1.3. Restrictive Gender Roles

This category involves enforcing narrow definitions of female roles, compelling female employees to conform to traditional gender norms. Male perpetrators commit these microaggressions either consciously or subconsciously, driven by deep-seated gender stereotypes that restrict the roles and ambitions of both women and men.

These microaggression manifested in various ways. Explicitly offensive remarks, such as 'Go to your kitchen' (microassault), were observed. Additionally, astonishment at the decision of women of pursuing engineering professions was found, manifesting with comments such as 'Why do you, as a girl, want to be an engineer?' or 'Oh! A woman engineer?' (microinsults). Such comments convey the message that women should conform to restrictive traditional rules, such as domesticity, and not challenge the stereotypical male-dominated professions, such as engineering. The most overt manifestation of this type was experienced by an engineer who attended a client's presentation about a future production process in his factory. The attendees of the presentation included the female engineer, two male colleagues, and the male client. The client assuming that the female engineer was incapable of understanding the technicalities of such a process, personally addressed her and parallelized the production process to cooking. The following illustrates this microaggression:

> **The client turned to me and said, "In order for you to understand the production process, imagine you try to make a cake." (Laugh). Yes, I'm not kidding. He was saying, "Imagine it as if you were in your kitchen." He was trying to describe the process of making a pharmaceutical product and said to me, "Imagine you're in your kitchen, don't you need a place for pots?" The place for the pots was a parallel to the equipment storage or something like that. Later in the same conversation, I asked him a question about how they remove the content of a container if it doesn't go through quality control, and he commented admiringly, "See, the female mind thought similarly to how you'd throw away food from a pot."**

The clearly offensive nature of the incident categorizes it as a microassault. In this instance, the perpetrator communicates the message that women 'should stay in the kitchen' and not engage in engineering jobs, enforcing a clearly restrictive gender role. These comments can be characterized as derogatory and demeaning. This incident also overlaps with the 'assumption of inferiority' category, assuming that women are incapable of understanding engineering processes without simplified explanations. The woman that experienced this incident added:

> **He felt he needed to give me an example related to household, assuming that it would be more familiar for a woman. I responded, "I'm not even a good cook. It's not something I engage in." However, nothing changed after my response.**

The engineer employed 'confrontation' as a response mechanism. She indirectly indicated to the perpetrator that not all women are good cooks and that such a parallelism is unnecessary. Despite her response, his attitude remained unchanged, indicating the perpetrator's clear intent to demean the recipient.

4.1.4. Sexual Objectification

Sexual objectification refers to treating women as objects of sexual desire rather than as complete persons with agency and individuality. This type of microaggression often manifests through inappropriate comments, unwelcome behavior or environmental cues that focus on a woman's appearance or sexual attributes.

Nearly all incidents categorized under this form of microaggression were explicit verbal comments. However, one incident involved an environmental cue, where a female employee reported that a male colleague gazes at her 'in a very strange way' when she goes to the kitchen to heat her food. This behavior shows that the male employee treated her in a sexualized manner and objectified her. This microaggression is classified as a microassault, a non-verbal and overt discriminatory action directed at a female recipient (Capodilupo et al., 2010), consistent with the established definition.

The other incidents manifested in comments regarding female employees' appearances, ranging from overt to subtle manifestations. An overt comment involved a male colleague saying to another during a company's marathon initiative, 'Oh yeah, I knew what you were looking at and you finished so fast!' (microassault), implying he was looking at a female colleague's shorts. A less overt comment was directed at a female engineer: 'Oh, you're wearing heels again' (microinsult).

Another concerning incident involved a sexually suggestive comment from the leadership team directed at a female engineer responsible for recruiting a new engineer. This incident highlights the pervasive nature of sexual objectification in the workplace.

> **A very unpleasant recent incident that comes to mind involves a newly hired young woman at the company. She is very young, around 25 years old. At some point, the management made a comment that, without exaggeration, was along the lines of, "Why did you bring that girl here? Why didn't you choose a girl that we can look at?"**

This comment implies that women in this company are valued more for their physical appearance than for their professional and engineering qualifications. It suggests that women within this company are expected to serve the purpose of being visually appealing rather than contributing to the company's capabilities. Similarly, it is categorized as a microassault.

In this instance, the female attendee employed the coping mechanism of 'Ignorance', choosing to disregard the comment as if it had not occurred. She noted that while she used to confront gender microaggressions early in her career, she has since adopted a more passive approach, typically intervening only when such incidents are repeated or significantly severe. Research indicates that individuals frequently exposed to gender microaggressions often adopt passive or detached coping strategies (Sue et al., 2007). Therefore, this stance could be interpreted that she repeatedly experiences gender microaggressions in her workplace and 'ignorance' was viewed as the most effective technique for mitigating their emotional impact.

4.1.5. Direct Address

This category refers to directly addressing women in a condescending or belittling manner, which can be inherently facilitated through the use of diminutives in the Greek language. This specific type of gender microaggression corresponds to the category of 'use of sexist language' in Nadal's taxonomy (Capodilupo et al., 2010), which includes examples like referring to a woman as 'honey'. However, in this study's context, these microaggressions were expressed through the 'Greek diminutive', necessitating their classification under a distinct nomenclature.

The Greek diminutive is a morphological feature of the Modern Greek language. By adding 'derivational suffixes' to the end of a word, a modified version of the original word is created. This process is common in Greek and is usually well-meaning, used to indicate smallness, affection, familiarity etc (Makri-Tsilipakou, 2003). For example, a diminutive version of the word 'girl' in the English language would be conceptualized as 'girl + $\alpha\kappa\iota$' or 'girl+$diminutive$' , which roughly translates to 'little girl'. This practice also applies to names of close acquaintances, such as George + $\alpha\kappa\eta\varsigma$, usually expressing 'friendly, informal politeness'. However, when a diminutive form is used by an unfamiliar individual, it can imply depreciation. These diminutive terms are similar to pet names like 'kiddo' or 'girl',which are perceived to convey a negative undertone, suggesting that 'women don't belong in the workplace and lack competence' (A. Diehl & Dzubinski, 2020).

In the STEM sector, the direct address of female employees using diminutives was found to be a recurrent pattern. Notably, in all observed instances, the diminutive was utilized by male colleagues with whom the female employees shared only a strictly professional relationship. Due to this absence of familiarity, female targets interpreted such forms of direct address as demeaning and depreciative. Female participants reported that this form of speech is never used when addressing male colleagues within the company. For illustration, a female engineer mentioned:

> **I am 42 years old, and even today someone from management, when he wants to tell me something, he will call me Eva + $\alpha\kappa\iota$, whereas he wouldn't address a man in the same way. They call me Eva + $\alpha\kappa\iota$, especially in situations that I try to express my opinion as an engineer. That's when they throw in such a comment.**

(Note: The name 'Eva' is a random pseudonym used to protect the participant's identity)

This diminutive form of her name, translating in English as 'little Eva', represents a patronizing form of address in a professional context, denoting less respect. It is categorized as a microinsult. The employee notes that the diminutive form of her name is used particularly when she expresses her engineering ideas. This likely serves as a subtle means of undermining her professional authority and competence, reflecting a pervasive gender bias in the workplace. Additionally, it highlights a double standard within the company where women and men are addressed differently.

> **Initially, it bothered me more. I would try to defend my position.**

The engineer notes that, upon her initial encounters with such behavior, she opted for the coping mechanism of 'proving herself,' probably striving to demonstrate her competence and professionalism in response to the patronizing form of address. However, the word 'initially' in her statement might suggest that she has since abandoned this coping strategy and has shifted to 'ignorance'.

4.2. Impact of Gender Microaggressions on Recipients

Gender microaggressions, like other forms of gender discrimination, can have detrimental effects on the emotional and physical well-being of the recipient. Unlike more overt forms of discrimination, microaggressions are subtle, often ambiguous, and difficult to identify. Due to these characteristics, individuals may experience repeated exposure to gender microaggressions, leading to a cumulative negative impact (Sue, 2010a). The impact of microaggressions on individuals has been described as 'death by a thousand cuts' (Nadal et al., 2011). Detailed analysis of the impact of gender microaggressions is provided in Subsection 2.2.3.

Given the broad range of consequences identified in the literature, it is crucial to examine the impact of gender microaggressions within the context of the Greek STEM energy sector. By examining the impact, this study aims to enhance the understanding of microaggressions' implications and shed light on the extent of the problem.

The impact of gender microaggressions will not be linked to each type of gender microaggression, but rather viewed as the result of cumulative exposure to such incidents (Sue, 2010a). Therefore, the observed implications for female employees in the Greek STEM energy sector are considered to arise from the overall bundle of the reported gender microaggressions, rather than from individual incidents.

Table 4.3: Impact of gender microaggressions on female employees.

Themes	Sub-themes	Example
Impact of Gender Microaggressions	Frustration	I got upset when it was done by people in (high) positions.
	Resentment	He had pushed a nice little button for me, and I thought "I am not going to do you this favor".
	Awkwardness	It was weird. It was pretentious because we were all posing
	Change of Perspective	Well, this, that day had defined me a lot.
	Discouragement	I got a bit discouraged.
	Emotional Aversion	And I never want to hear this phrase. And I have heard it. But I have heard something similar.
	Sadness	A year might pass, and I might have forgotten what they said exactly. But the feeling I have for them doesn't change
	Self-doubt	It affects you more when you try to prove your worth so many times to someone. Then, at some point, you somehow start doubting yourself. You think, "Wait, why do I did I start doubting myself since I am sure about the things I do."

Female employees were asked if gender microaggressions have affected them and, if so, in what way. While most participants responded to the question, they were reluctant to provide detailed answers regarding the effects on their physical and mental health, often giving brief responses or avoiding the question entirely. Table 4.3 summarizes all the emerging individual implications of gender microaggressions. These themes predominantly emerged during the natural flow of interviews in discussions of other themes. Secondarily, they arose from direct questions about the impact.

The most prevalent impact of gender microaggressions observed was 'Frustration'. Participants expressed that gender microaggressions led to feelings of irritation and annoyance, contributing to a generally negative mood. A female engineer highlighted the cumulative effect of repetitive exposure to gender microaggressions on her emotional state.

> **These comments cause irritation, especially when I go through periods where I hear such comments more often, or if two or three (comments) occur in a row. They create tension and put me in a bad mood.**

In addition to frustration, the other categories of individual impact occurred in similar prevalence. Some women reported feelings of resentment towards the perpetrators, awkwardness, discomfort, discouragement, emotional aversion, or sadness. One employee noted a shift in life perspective following an incident of gender microaggression, stating that 'That day had defined me a lot'. Moreover, the impact of 'Self doubt' was a notable finding. One engineer reported that the repeated questioning of her mechanical abilities has led her to doubt herself, even though she is aware that this is a form of gender microaggression and that it does not actually reflect her technical abilities. The following is an excerpt from her statement:

> **Certainly, yes, it affects you. It affects you more when you try to prove your worth so many times to someone. Then, at some point, you start doubting yourself a little. You think, 'Wait, why do I have to do this since I am sure about the things I do.'**

This shows that gender microaggressions, in the form of gaslighting, can cause the target to question their perception of reality and ultimately self-doubt their abilities.

4.3. Additional Findings on Gender Discrimination

During the interviews, additional findings concerning gender discrimination in the workplace emerged that do not fall under the category of gender microaggressions. Specifically, the themes of *Lack of Experience with Gender Discrimination* and of *Sexual Harassment* were identified.

4.3.1. Lack of Experience with Gender Discrimination

Among the 11 women interviewed, 5 reported that they had not experienced any form of gender microaggression or discrimination in their workplace. To ensure clarity and comprehensive understanding, the participants were informed about definitions of sexism and gender microaggressions. Furthermore, short vignettes illustrating workplace gender microaggressions were read to them to aid memory recall. Following these clarifications, all 5 participants reiterated that they had not encountered any form of gender discrimination in their workplace. However, 3 of these participants later described gender discriminatory experiences during the interviews.

The first participant in this category, later recounted that she recommended a friend for a secretary position at her company, but her friend was not hired because she was considered unattractive and overweight.

> **I have practically a secretarial role. In the secretarial role, there is age and appearance discrimination. I have suggested a friend for a position, and they did not hire her because of her appearance, because she was quite overweight...For this specific position of secretary, there is discrimination against men. They mainly want women. They focus a bit on appearance, believing that women are usually friendlier and more cheerful. It's a better image for someone to see when entering a company.**

This excerpt reveals gender discriminatory behavior. In this company, women are considered more suitable for secretarial roles as they are perceived to be 'friendlier and more cheerful' constituting 'the ideal image for the company'. This notion represents 'a restrictive gender role' type of microaggression. The same participant indicated that in interviews with other companies, she was asked about her plans to start a family and was subsequently rejected from multiple interviews on the basis of this inquiry. Additionally, when asked what she perceives as a light form of sexism, this employee responded with 'light verbal abuse.' These accounts suggest that while the participant indeed encountered gender discrimination in her workplace, she did not perceive it as such.

The second participant, who also denied experiencing sexism in her workplace, later revealed that managers express differential treatment and more dismissive behavior towards women. Furthermore, the third participant mentioned that she has been reprimanded in the company for her attire because her 'knees and belly were more exposed than they should have been'. While certain positions require a strict dress code, the enforcement of dress code policies that specifically target women's attire, such as requiring them to cover their knees, can be indicative of gender discriminatory practices.

In summary, 2 female employees had not experienced any gender discrimination in their workplace while 3 female employees initially declared no experience with gender discrimination but later described experiences of sexism during the interviews.

4.3.2. Sexual Harassment

Sexual harassment and gender microaggressions both fall under the umbrella of gender discrimination but exhibit substantial differences. While gender microaggressions can be subtle and often unintentional, sexual harassment is always intentional and explicit. The impact of gender microaggressions on victims typically arises from repeated exposure, whereas the impact of sexual harassment can occur from a single event (Willness et al., 2007; Gartner, 2021). There are multiple definitions of what constitutes sexual harassment. For this study, we adopt the definition provided by Benya et al. (2018):

> Sexual harassment is composed of three categories of behavior: (1) gender harassment (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender), (2) unwanted sexual attention (verbal or physical unwelcome sexual advances, which can include assault), and (3) sexual coercion (when favorable professional or educational treatment is conditioned on sexual activity). Harassing behavior can be either direct (targeted at an individual) or ambient (a general level of sexual harassment in an environment).

Table 4.1 summarizes all the incidents included in the sexual harassment category. In this study, 5 incidents did not fit the definition of gender microaggressions and were classified as sexual harassment (4 of them were verbal while 1 of them was non-verbal).

An employee described an explicit incident where a male colleague, while installing an electric cable below her, said 'I want to be between your legs.' According to the definition of sexual harassment, this example falls under the category of verbal unwanted sexual attention in a professional setting. It is noteworthy that the female target of this incident mentioned that the perpetrator said that 'just for fun'. This reveals that the female target employed the coping mechanism of 'justification', in an attempt to rationalize the motives of the perpetrator and justify the occurrence of such event.

Another concerning incident involved a phone call between a female engineer and a client, during which the client used sexually explicit language and cursed at her.

> **I've experienced swearing from a client like "Your company is a br*thel"and "You should shut it down" and "I'm aware of wh*res like you."**

The employee resorted to the coping mechanisms of 'Confronting' the client and of 'Seeking Management Aid'. She promptly reported the incident to her female supervisor and the male owner of the company. Subsequently, both the female supervisor and the male owner called the client to reprimand him. The client's responses varied significantly; he continued the harassing behavior towards the female supervisor while he showed the highest respect to the male owner, apologizing and stating 'I was clearly out of line'. He also mentioned that both the female supervisor and engineer 'exaggerated'. This client treated the female supervisor and the male owner differently based on gender.

Figure 4.1: Types of Sexual Harassment experienced by women in the Greek STEM Energy Sector.

Themes	Subthemes	Definition	Examples
Sexual Harassment	Verbal	Unwelcome remark or comments of a sexual nature about a person's clothing, behavior, or body. High-pressure requests for dates or sexual advances.	A colleague of mine, who just for fun, said the line 'I want to be between your legs' because he was placing a cable under my legs.
			I've experienced swearing from a client like "Your br*thel"(referring to the company) and "You should shut it down" and "I'm aware of wh*res like you."
			At the marathon, he said to the guy I was walking with, because I was wearing shorts, 'Oh yeah, I knew what you were looking at, and you finished fast. I'm running alone, that's why I'm still running. Well done, you had a goal.'
			When I was 25 years old, a partner called me back and said "So when will I take you out for coffee?" I replied to him "Excuse me? Will you take a male colleague (name mentioned) out for coffee?' Because it's one thing to suggest to a groupd of people to hang out together and it's another thing to say it to a girl." And he was 50 years old. He said the phrase "Let me take you for a coffee" to a young girl while she working.
	Non-Verbal	Unwanted actions or behaviors of sexual nature that do not involve spoken words (e.g., leering)	He looks at me in a very strange way when I go to the kitchen to heat up my food. It's his look and some of his comments.

5

Individual Factors

The main research question of this study is *'How do individual, organizational and environmental factors contribute to the experiences of gender microaggression in STEM?'* The previous chapter explored *the experiences of gender microaggressions*, analyzing the types of microaggressions encountered by women, the coping mechanisms they employed, and the impact of these experiences. This synthesis aimed to provide an understanding of the phenomenon and facilitate the exploration of the other components of the main research question. Building on this foundation, the current chapter will examine the individual factors that may contribute to these experiences and will attempt to address the sub-research question '***Which individual factors are reflected in the experiences of gender microaggressions in STEM?'***

Gender microaggressions is a complex phenomenon rooted in individual, organizational, and environmental dimensions. The contributing factors may vary depending on the context or level of focus at which one examines microaggressions. In the context of a Greek STEM energy company, gender microaggressions involve human interactions (individual factors), the organizational environment (organizational factors), and the broader societal context (environmental factors). These layers consist of various factors that create a complex network of relationships, ultimately resulting in the occurrence of gender microaggressions. Therefore, it is crucial to employ an individual focus and first investigate the individual sources of gender microaggressions, as these are the direct contributors to microaggressions' occurrence.

In this study, the term 'individual factors' refers to the immediate human encounters a female employee may have in the workplace, who can be sources of gender microaggressions. The empirical findings of this study identify four individual sources of gender microaggressions in the STEM workplace: *Leaders*, *Colleagues*, *Clients*, and *External Partners*.

5.1. Leaders

In this study the term *leader* refers to individuals who are high in the organizational hierarchy and exert influence within the company, such as managers and supervisors. Given their substantial influence, leaders have the potential to significantly impact the prevalence of gender microaggressions within the company (J. Y.-J. Kim et al., 2018). The empirical study revealed mixed perceptions of leaders, including both negative and positive perceptions. The negative perceptions of leader include instances where the leader contributed to gender microaggressions. The positive perception of leader includes examples that the leader attempted to mitigate gender microaggressions.

Negative Perception of Leaders

Among the 11 female employees who were interviewed, 4 identified leadership as the dominant individual source of gender microaggressions. Indeed, leaders accounted for most gender microaggression instances (20 occurences). Table 5.1 summarizes the findings related to negative perceptions of leaders concerning gender microaggressions. (For a detailed overview of all the negative perceptions of leaders, please refer to Appendix B.3.)

Leaders directly contributed by 'committing a gender microaggression'. Leaders indirectly contributed by 'serving as a bad prototype', 'endorsing a microaggression' committed by others, and displaying a 'lack of support'. The categories of *endorsing a microaggression* and demonstrating a *lack of support* are closely related yet differ substantially; *endorsing* involves instances where a leader agrees with the occurrence of a gender microaggression committed by someone else and, as a result, does not provide support. In contrast, a *lack of support* occurs when the leader disagrees with the occurrence of a gender microaggression but still fails to intervene, thereby demonstrating a lack of support.

A representative excerpt of an employee who identified the leadership as the primary individual factor of gender microaggressions is presented below:

> **The main source of sexism in this company is from superiors. The management teams considers a man to be of greater value simply because he is a man...When you tell me, "This is your destiny as a woman to have children and not to be an engineer and work," this comment is clearly sexist. However, he has the opportunity to say it because he holds a high hierarchical position.**

This incident illustrates a leader committing a gender microaggression by dictating a 'restrictive gender role'. The rudeness and deliberate intent of such a comment categorizes it as a microassault. Furthermore, this employee interprets that the occurrence of this microaggression is closely connected to the hierarchical position and power held by the leader. The female employee perceived that a leader's position of power contributed to the manifestations of gender microaggressions.

Another example involved a leader endorsing sexual comments made by an external partner of the company. Initially, the employee sought management intervention, but the manager replied 'Come on, he is just joking'. The same microaggressions continued, and at one point, the female employee, unable to tolerate the situation, cursed the external partner. The manager then called her into the office and reprimanded her.

> **One day he said something indecent, I was too tired, too irritated; it was a bad day and I lashed out at him. However, I was the one the boss scolded in the office. The manager said to me, 'Don't make a fuss'.**

This incident demonstrates that the manager not only failed to support to the target when was initially asked for, but also endorsed the microaggression by reprimanding only the target and not the perpetrator of the microaggression. This example illustrates a leader's *endorsement of gender microaggression*, as well as the establishment of a bad prototype within the company. His behavior signals that gender microaggressions are acceptable within the organization. As anticipated, employees who perceived that their company's leaders contributed to gender microaggressions, also evaluated them as *a negative prototype*.

Table 5.1: Leaders contributing to gender microaggression in the Greek STEM Energy Sector.

Themes	Sub-themes	Examples
Negative Perception of Leader	Comitting a microaggression	The managers seem to be more dismissive towards women. They seek advice from the men, while they only request the official stamp on the documents from me. I may have prepared the whole document but they will only talk to me for the stamp.
	Serving as a bad prototype	Not particularly, I wouldn't say that I admire the leadership team
	Endorsing a microaggression	However, I was the one the boss scolded in the office. He said to me, 'Don't make a fuss'.
	Lack of Support	(Laughter). In Greece getting assistance from the leadership team does not exist.

Positive Perception of Leaders

The empirical part also revealed the potential of leaders to counteract gender microaggressions. The main mechanism through which leaders were perceived positive in challenging gender microaggressions was by serving *as a positive prototype* and, secondarily, *by providing support*. Table 5.2 summarizes the findings related to positive perceptions of leaders concerning gender microaggressions. (For a detailed overview of all the negative perceptions of leaders, please refer to Appendix B.5.)

Findings revealed that female employees sought management aid more easily in companies where leaders served as *a positive prototype* compared to companies that leaders were perceived negatively. Specifically, an employee who expressed her admiration for her supervisor and considered her as a mentor, stated that she always reports a sexist incident she may encounter.

> **I always run to her for the best advice. She will listen to me and gives me the best advice regardless of the problem.**

Apart from *being a positive prototype*, leaders also challenged microaggressions by *providing support* in cases of gender discrimination. In one case, a female employee experienced cursing from a client (categorized as sexual harassment), and reported it to her female supervisor and male owner. Both showed support by calling the perpetrator. Another incident that the leadership provided support was when an employee shared her concerns with her female supervisors about gender microaggressions:

> **I asked my female supervisors "Why are you treated in a serious manner whereas I always have to fight back? Why do they talk to me like that?" They told me, "Okay, with time and experience, you'll see you will have a different experience,"**

In this case, her supervisors provided support and reassured her that things will work out. The fact that the employee shared her concerns in the first place shows that she may feel comfortable enough that she will receive leadership support.

It should be noted that out of all the instances reported regarding the positive perception of leaders, 5 inferences refer to female leaders and 3 inferences referred to male leaders. Also, no incident of sexual harassment emerged from leadership.

Table 5.2: Leaders counteracting gender microaggressions in the Greek STEM Energy Sector.

Themes	Sub-themes	Examples
Positive Perception of Leader	Being a positive prototype	She helps us. She gives us advice on everything; ranging from a breakup to dealing with a photovoltaic park shutting down. I always run to her for the best advice.
	Leader Support	But the woman said, "Why would you say that? It's not true what you're saying. It's a bit weird, stop it."

5.2. Colleagues

The term *colleagues* refers to individuals who belong in the same organizational hierarchy with the subjects of study. The findings revealed occurrences of gender microaggressions, where *colleagues* were one of the individual sources, as summarized in Table 5.3. Colleagues contributed to gender microaggressions through direct perpetration.

One example of a gender microaggression committed by a colleague belongs to the category of 'gender conformity'. A colleague told to a female employee that she is not going to get married and that 'she is sharp-tongued' and 'has an opinion on everything'. The rudeness and conscious bias of this incident classify it as a microassault. It constitutes a gender microaggression as it enforces traditional gender expectations, such as the notion that women should be more quiet and reserved. When a woman does not adhere to these gender norms, she is likely to be labeled as 'sharp-tongued' or opinionated.

Female employees perceived colleagues as the least individual source of gender microaggressions. Most women reported that they are on good terms with their colleagues and rarely if ever experience gender microaggressions from them. One female employee shared her interpretation of why gender microaggressions do not often arise from colleagues:

> **Because with all colleagues, we are on the same scale, on the same hierarchy, so I usually haven't faced such things. Even with colleagues in previous jobs, I haven't faced sexism.**

This employee attributes the absence of gender microaggressions from colleagues to the equal position of power shared among them. She suggests that equal power dynamics may mitigate the occurrence of gender microaggressions within the workplace.

However, a paradox exists. Although *colleagues* were perceived as the least significant source of gender microaggressions, they were the 3rd most dominant source (12 occurrences). Additionally, colleagues were the dominant source of sexual harassment. Of the 5 incidents that did not conform to the definition of gender microaggressions and were categorized as sexual harassment, 3 were committed by *colleagues* (detailed analysis of findings related to sexual harassment is provided in Subsection 4.3.2).

This paradox suggests that while the overall perception of colleagues might be positive, the findings still indicate a high number of gender microaggressions occurring from colleagues.

(For the purposes of this analysis, Table 5.3 provides the most representative incident of gender microaggressions but includes all acts of sexual harassment committed by colleagues.)

Table 5.3: Colleagues contributing to gender discrimination in the Greek STEM Energy Sector.

Themes	Sub-themes	Example
Negative Perception of Colleagues	**Comitting a microaggression**	Well, there are always comments like "You're not going to get married", "You're sharp-tongued" , "You have an opinion on everything!"
	Comitting sexual harassment	Look, this happened with a colleague of mine, who just for fun, said the line 'I want to be between your legs' because he was placing a cable under my legs.
		At the marathon, he said to the guy I was walking with, because I was wearing shorts, 'Oh yeah, I knew what you were looking at, and you finished fast. I'm running alone, that's why I'm still running. Well done, you had a goal.'
		He looks at me in a very strange way when I go to the kitchen to heat up my food. It's his look and some of his comments.

5.3. Clients

Clients emerged as another prominent individual source of gender microaggressions. They were the 2nd most cited source of microaggressions (14 occurrences). Clients contributed to gender microaggressions through direct perpetration. Notably, this group was responsible for 2 out of the 5 reported incidents of sexual harassment. Table 5.4 summarizes the findings of gender microaggressions and sexual harassment committed by clients. All gender microaggressions perpetrated by clients fell into the categories of either 'restrictive gender roles' or 'direct address'.

The most common gender microaggression from clients involved confusing female engineers for other professions, assuming they were not engineers. These microaggressions were classified as *microinsults*. One notable incident involved a client assuming and treating a female engineer at the construction site as the worker's daughter, rather than perceiving her as the responsible engineer. Another example involved a client who, despite professional interacting with a female engineer for five years, kept asking her, 'Are you an accountant?'.

Another common pattern was the way clients addressed female employees. Findings included instances where clients called women with a diminutive form of their name or overly familiar terms, such as 'Eva+$\alpha\kappa\iota$', 'Little girl', 'Luv' etc. These instances are categorized as *microinsults*.

(For the purposes of this analysis, Table 5.4 provides the most representative incident of gender microaggressions and includes all acts of sexual harassment committed by clients.)

Table 5.4: Clients contributing to gender discrimination in the Greek STEM Energy Sector.

Themes	Sub-themes	Example
Negative Perception of Client	**Comitting a microaggression**	I was responsible for a construction team conducting various onsite inspections. One of the clients treated me like 'the repairman's daughter' and not as an engineer giving instructions. On the construction site, it was always like that; they were more likely to think I was the daughter of one of the workers rather than the engineer giving the orders.
	Comitting sexual harassment	Now, from clients, it's different. I've experienced swearing from a client like "Your br*thel"(referring to the company) and "You should shut it down" and "I'm aware of wh*res like you." Now, excuse my language, but I'm conveying the conversation to you. "I'm aware of wh*res like you because I live across the street." I've had a client call me back when I was a kid, I was 25 years old and say "So when will I take you out for coffee?" I replied to him "Excuse me? Will you take a male colleague (name mentioned) out for coffee?'" Because it's one thing to suggest to a group of employees in a nice atmosphere to hangout out together and it's another thing to say it to a girl. And he was 50 years old. He said to a young girl while she working "Let me take you for a coffee."

5.4. External Partners

Another emerging individual source of gender microaggressions was *external partners*. This term refers to individuals outside the organization who collaborate to provide complementary resources and expertise to the organization (Brettel & Cleven, 2011). In the context of the Greek Energy STEM Sector, external partners are individuals who possess technical expertise and perform manual field work, such as connecting photovoltaic equipment. External partners contributed to gender microaggressions through direct perpetration and were the least frequent source of microaggressions (7 occurrences). No instances of sexual harassment were committed by external partners. Table 5.5 represents an example of gender microaggression committed by an external partner.

Similar to the *clients* category, all gender microaggressions committed by external partners belonged to the 'restrictive gender roles' or 'direct address' categories. Likewise, external partners presumed that the female employees they interacted with were not engineers or addressed the female employees in overly familiar terms.

Table 5.5: External Partners contributing to gender discrimination in the Greek STEM Energy Sector.

Themes	Sub-themes	Example
Negative Perception of External Partners	**Comitting a microaggression**	For example, it's a technician who lives in Larissa, or in Lemnos, wherever. We've never met, and he calls and says, "Come on, Eva + και , tell me what to do?" "Come on, my big girl, what's going on here?"

Figure 5.1: Distribution of gender microaggressions by individual factor (Leaders, Colleagues, Clients, External Partners).
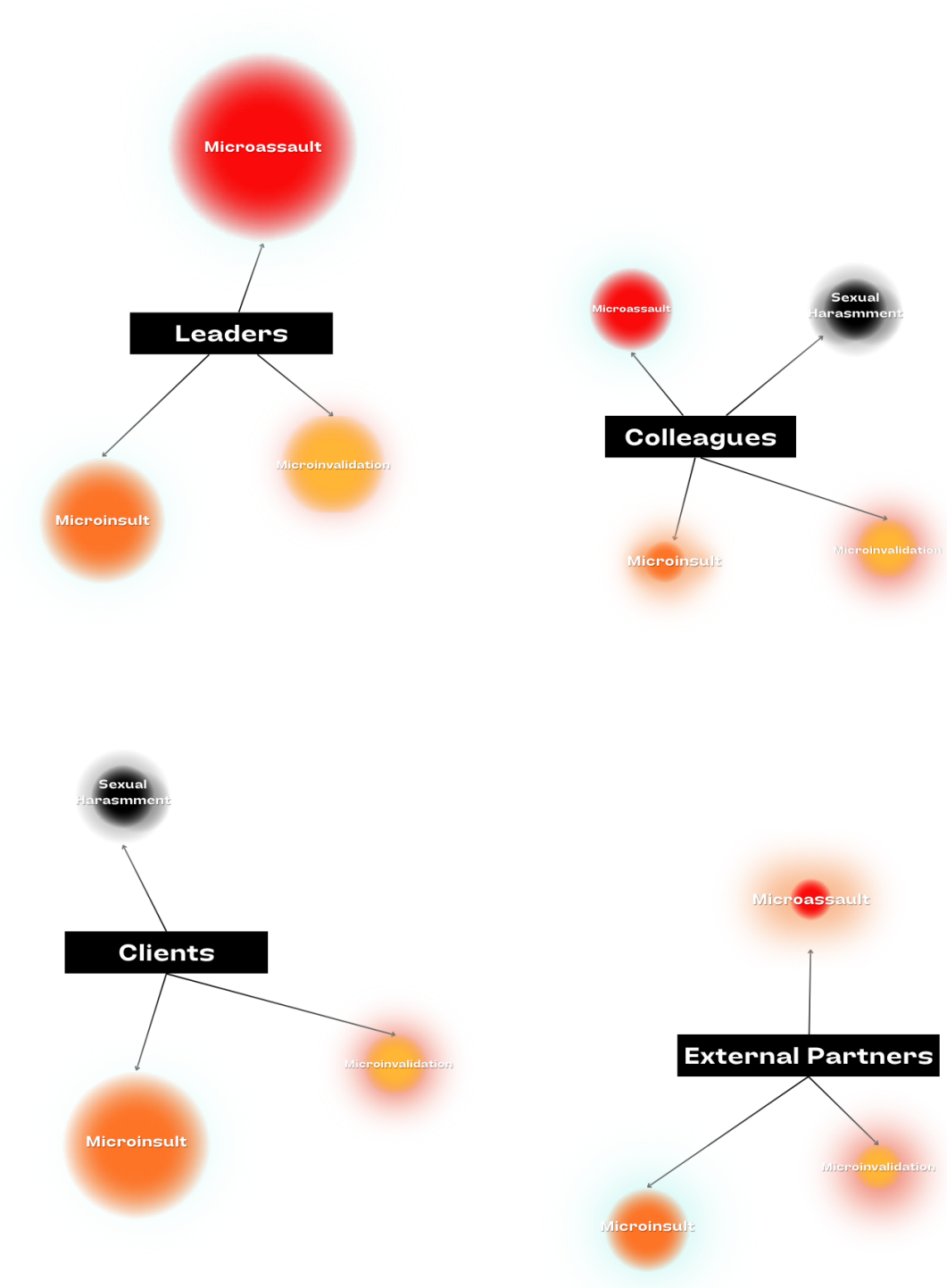
6

Organizational Factors

The previous chapter delved into the individual layer of the gender microaggressions phenomenon, the layer where gender microaggressions manifest. However, attributing the occurrence of gender microaggressions solely to the perpetrators would be an overly simplistic approach that overlooks the complexity and systemic nature of the phenomenon. Multiple factors across various layers may influence the occurrence of gender microaggressions (Haynes-Baratz et al., 2022).

To fully understand the phenomenon of gender microaggressions, it is crucial to consider the specific context in which each instance occurs (e.g., school, university, company etc.). Each context constitutes of different factors that shape the nature and extent of the microaggression. A growing body of research shows that gender microaggressions are pervasive in the workplace (J. Y. Kim & Meister, 2023). In the context of the Greek STEM Energy Sector, it is essential to apply an organizational lens to investigate the organizational factors that may contribute to these microaggressions.

The current chapter aims to address the sub-research question: '***Which organizational factors are reflected in the experiences of gender microaggressions in STEM?***' By examining the organizational factors, I aim to provide technological STEM organizations with a more holistic understanding of the phenomenon to facilitate its mitigation.

In this study, the term *organizational factors* refers to elements within an organization that contribute to gender microaggressions. These elements require individual action to trigger a microaggression (e.g. a biased policy that is enacted by an employee). However, they are often structured in ways that perpetuate gender biases, creating a fertile ground for such behavior. The organizational factors of *organizational culture*, *policies* and *social networks* were examined in the empirical part of this study to understand their potential contribution to gender microaggressions. However, the findings revealed that only *policies* was perceived as a potential contributor. No additional categories of organizational contributors emerged.

6.1. Organizational Culture

In this research, *organizational culture* is defined as a mix of 'beliefs, values, assumptions, symbols, behaviors, and artifacts' that the members of an organization collectively adopt (Schein, 1990). The literature review indicated that organizational culture could potentially contribute to gender microaggressions through mechanisms such as a climate of bullying or female under-representation. However, the empirical findings of this study indicated that the organizational culture did not contribute to gender microaggressions. Moreover, female underrepresentation was not observed.

Organizational Climate

All employees had a positive perception of the organizational climate (with the exception of one who had a neutral perception). Table 6.1 summarizes the positive perception of the organization culture in relation to gender microaggressions.

Table 6.1: Positive perception of organizational culture in relation to gender microaggressions.

Themes	Sub-themes	Example
Organizational Culture	Positive Perception	I'm very lucky in that regard, because from the very beginning, I felt immediately part of the team. So, people in the office were always helping me, and they didn't show any gender discrimination.
	Neutral Perception	Okay, I can't say I am dissatisfied with the working climate in general terms.

Employees described the organizational climate as friendly, supportive, cooperative, with one employee even perceiving it as 'family'. They unanimously stated that the organizational climate did not contribute to gender microaggressions. An illustrative example is provided below:

> **The organizational climate is very good, very good. Everyone is young and the rule is "we're all engineers" , men or women, and this comes out effortlessly. They don't behave in that way because they have to or because it's politically correct.**

In this case, the engineer perceived the climate within her company as supportive. She addressed a common gender microaggression she commonly experiences, with male clients or external partners undermining her engineering capabilities. She noted that such stereotype does not exist within the company's organizational culture. Therefore, the organizational climate of her company is perceived not to contribute to gender microaggressions.

Additionally, she highlighted the youthfulness of her colleagues. Notably, the term 'young' frequently recurred in employees' descriptions of their organizational climate. They vaguely attributed the positive organizational climate to the presence of numerous young colleagues, suggesting that age might be a confounding factor in gender microaggressions. The employees perceived that a younger workforce correlated with fewer stereotypical gender behaviors.

Moreover, it should be mentioned that all employees instinctively perceived the organizational culture as the climate between their colleagues, excluding the influence of leadership or other sources. Therefore, the definition of organizational culture in the empirical section is adjusted to the mix of 'beliefs, assumptions, symbols, behaviors' that colleagues (rather than all members) of the organization adopt.

However, despite the positive perception of the organizational climate, gender microaggressions did emerge from colleagues (Subsection 5.2), with colleagues being the 3rd source of microaggressions. This presents a notable contradiction: the coexistence of a generally positive organizational climate and

of instances of gender microaggressions. This contradiction could perhaps be elaborated through this statement:

> **Even if, strong sexist comments are heard, they occur in a completely different tone, and it's always in a teasing tone.**

This employee mentions that there are sexist elements within the company's organizational culture, but are delivered in a light-hearted manner. Despite these comments, she perceives the organizational climate positively. This paradox highlights a critical aspect of organizational culture: the discrepancy between perceived friendliness and underlying discriminatory behaviors. Despite the generally positive perception of organizational climate, gender microaggressions can still persist. Further investigation into this contradiction is needed to understand its implications fully.

Female Representation

The presence of women within a company is a reflection of the company's organizational culture. Female under-representation may suggest that women are not equally valued within the company (Capodilupo et al., 2010).

In this study, equal female representation was observed in all three companies (Table 6.2). In the 1st and 3rd company, gender ratios were almost balanced. In the 2nd company, female employees outnumbered male employees. Across all companies, women held leadership positions in equal numbers to men. Consequently, this study indicates that the organizational culture of all three companies promotes gender equality through female representation. No correlation was found between female under-representation and organizational culture.

Table 6.2: Female representation in 3 Greek STEM Energy companies.

	1st Company	2nd Company	3rd Company
Number of Employees	8	8	20
Number of Women	3	5	9
Gender Ratio (f:m)	37.50%	62.50%	45.00%

6.2. Social Networks

Social networks are informal structures formed from the interrelationships among employees (e.g., employees having lunch breaks together) (Karoui et al., 2015). In other words, social networks are the group of friendships formed within the company. The literature review indicated that networks comprised solely of the male gender (referred to as *homophilous*), might contribute to gender microaggressions (Faulkner, 2009). However, empirical findings of this study revealed that social networks were not perceived as contributors by the majority.

Among the 11 female participants, 10 did not perceive social networks as contributing to gender microaggressions, while 1 participant did. The 10 participants stated that they belonged both to homophilous and mixed social networks. They noted that even when male employees hang out with other employees of the same gender, this did not in any way affect the occurrence of gender discrimination.

Conversely, 1 employee mentioned that homophilous male social networks in her company might lead to more extensive gender microaggressions. She observed:

> **Male friendships might be different. When a lot of men get together and form these groups, maybe the comments go a little bit off the rails. When 2,3 particular male individuals get together, maybe the situation goes a bit out of hand.**

In this example, she indicated that when specific male groups gather at the office, sexist comments become more intense. This observation suggests a potential link between the formation of homophilous social networks and gender microaggressions. However, this perspective was not shared by the majority of employees. The divergence in experiences underscores the complexity of social dynamics within organizations. The fact that 91% of participants perceived no correlation between social networks and sexism is significant. Therefore, it can be concluded that social networks are not an organizational source of gender microaggressions, with potential isolated instances occurring.

6.3. Policies

Policies or informal rules within an organization can become instruments for gender microaggressions. It is not the policies themselves that inherently cause microaggressions, but rather the individuals who enforce them that lead to such occurrences (Bobbitt-Zeher, 2011). Nevertheless, addressing these biased policies is essential so that potential perpetrators have fewer tools that contribute to gender microaggressions.

Organizations can perpetuate gender microaggressions not only through the presence of gender-biased policies but also through the absence of sexism reporting mechanisms. A thorough understanding of both types of policies—those that introduce discrimination and those necessary to report it—is essential. This dual perspective will enable technological firms to identify organizational areas that gender biases may manifest and to devise more effective strategies to mitigate gender microaggressions.

Table 6.3 presents a summary of the 3 most prevalent ways that policies & informal rules contributed to gender discrimination. The findings were derived from semi-structured interviews with 11 female employees working in the Greek STEM Energy Sector. The following contributing ways were observed: *Discriminatory Hiring Practices*, *Exclusion of women from construction sites*, *Absence of Sexism Reporting Policies*. (For an overview of the complete list of discriminatory policies & practices observed, please refer to Appendix B.6.)

Table 6.3: Discriminatory policies and practices contributing to gender microaggressions.

Themes	Sub-themes	Explanation	Examples
Discriminatory Policies & Practices	Discriminatory Hiring Practices	Practices in the hiring process that discriminate based on gender	A position opened now, and the the management said that they prefer to hire a man and not a woman because she might get married, have children, etc.
	Exclusion of women from construction sites	Informal rules that do not allow women to visit and work on construction sites	However, they made it absolutely clear that they don't send women to the construction site, at least as site managers.
	Absence of Gender Equality Policies	The absence of formal policies within the company that support female employees	A specific procedure to address sexism does not exist. A procedure like reporting the incident to the supervisor and then the supervisor goes to the general manager, something like that does not exist. Yes, things, here, are a bit of a mess.

Discriminatory Hiring Practices

The empirical study uncovered discriminatory practices during the hiring process across all 3 STEM Energy companies. These practices included differential treatment of women due to potential pregnancy and stereotypical assignment of certain professional roles exclusively to women.

Discrimination Based on Pregnancy

Of the 11 women interviewed, 6 perceived that their companies avoided to hire women for specific job positions due to the potential prospect of pregnancy. This assumption was formed regardless of whether the women had any actual intention of becoming pregnant. For instance, a woman reported that, in her previous job application, recruiters told her she did not get hired because she was on a reproductive age and might get pregnant. She stated that despite her conscious decision not to have children, she was not hired based on this assumption. Another employee shared the following incident:

> **For example, a position opened up now and management said they would rather hire a man than a woman because she might get married, have children, etc.**

All incidents shared profound explicitness, with companies not attempting to conceal their discriminatory organizational practices. An extreme case involved a female employee whom the company intended to fire because of her pregnancy. Another employee shared her frustration with the gender discrimination she had to endure because of her pregnancy. She stated that she is unable to understand the application of such a discriminatory hiring practice as the maternity leave is covered by the government.

> **Especially when hiring a younger woman, management thinks, "Oh, she'll get married and have a child." They assume, "She'll be away for years." Even though the company doesn't pay for maternity leave, as it is covered by OAED and ESPA, but there is still the feeling that "I'll be paying her for two years to sit around".**

These discriminatory hiring practices manifested through direct questions about pregnancy intentions during interviews, as well as comments made by the management team within the office. All the reported manifestations belong in the gender microaggression category of 'Pathologizing women's maternal identity' (Subsection 4.1.2). This shows the interconnectedness of biased policies and gender microaggressions. Specifically, in this case, the gender microaggression occurs at the individual level (through the behavior of the perpetrator), while the original bias is rooted in the organizational layer (through organizational discriminatory practices). These findings underscore the need for organizations to critically examine and address their internal policies.

Gender-specific Recruitment

Empirical research revealed 3 occurrences related to gender-specific hiring practices. Specifically, organizations hired only women for secretarial or office positions, based on the assumption that the female gender is more compatible with these roles. All occurrences dictated confinement to traditional gender roles and expectations. For example, one employee reported a former organizational policy in her company that restricted office roles to women.

> **There is a rule that has now changed. In the past, the company didn't hire men for the office almost at all, but now it does. What the management told me in the**

> **past was that they preferred women for the office because they are softer or less likely to react to instructions given to them. They told me this clearly; it's not something I have assumed.**

This discriminatory hiring policy was based on the stereotype that 'women are softer or less likely to react', which falls under the microaggression category of 'Restrictive Gender Roles'. It resembles old-fashioned sexism and can be classified as microassault. The engineer who shared this incident reported that this policy is no longer in effect, only because she is now responsible for recruitment and chooses to disobey it. The fact that this policy technically still remains in place, indicates that the biased preconceptions of leadership may still persist, potentially leading to further gender microaggressions.

Similarly, an employee in a different company reported that her company aimed to hire only a woman for the secretarial position, based on the assumption that 'women are friendlier and more cheerful.' This practice also falls under the category of 'Restrictive gender roles' and is classified as a *microinsult*. Furthermore, another biased practice involved a company that sought to hire a female engineer but only to perform secretarial duties, based on the belief that only women would endure such absurd demand.

> **My previous company was looking for a person, a woman basically, who could simultaneously be an engineer, secretary, and site manager. And they thought only female engineers could meet the requirements of this role. Of course, the level of engineer they had in mind for a woman. The company was basically looking for a secretary.**

The above example reveals a discriminatory organizational practice applied only to women. Specifically, the company required excessive professional qualifications from female candidates (such combining the traits of an engineer and a site manager), only to have them perform secretarial duties with a corresponding low salary. This gender microaggression is categorized as 'Assumption of Inferiority' and conveys the message that women are less likely to react to such an injustice.

Exclusion of women from construction sites

A revelatory finding was an organizational policy applied in two of the three companies that restricted female engineers from accessing on-site energy construction sites. In the first company, this practice was an informal, fluid rule that did not explicitly prohibit but subtly discouraged female engineers from visiting on-site locations. A female engineer noted:

> **Let's say, we, women are in the office. We usually don't go at the construction site or the photovoltaic parks.**

In the second company, this practice was formalized and strictly adhered to, although it was not documented as an official policy due to its illegal nature. One female engineer recounted:

> **From the very first day I started working at this company, I expressed an interest in being involved with the construction site, as I didn't know exactly what my job responsibilities would be. However, they made it absolutely clear that they don't send women to the construction site, at least not as site managers, except for one specific woman. They almost ironically told me,**

> **'You'll understand when you meet her.' And indeed, I**
> **met that woman. The comment was because she has a**
> **more masculine appearance, voice, and behavior.**

In this case, the female engineer was denied access to the construction sited solely based on her female identity. This organizational practice is clearly discriminatory, treating women as second-class citizens. The exclusion of this engineer is categorized as a gender microaggression under 'Restrictive Gender Roles'. The overt and deliberate nature of this bias classifies it as a *microassault*.

Additionally, this scenario reveals a second microaggression: allowing only stereotypically 'masculinized' women to attend the construction site. The organization allows a specific female employee to visit the site because she is perceived as 'masculine' enough, deeming her suitable for this role. This manifestation is again categorized as 'Restrictive Gender Role' and a *microassault*.

Furthermore, this passage illustrates a third hidden microaggression, that of 'Gender Conformity'. This organization assumes that women with deeper voice or stereotypically 'masculine' appearances deviate from the female gender, thus are closer to the male gender and can therefore execute assignments 'meant for men'. The comment 'You'll understand when you meet her' is a gender microaggression, implying that women should dictate to stereotypical feminine traits and a deviation from the stereotypical 'feminine' image is abnormal. The female engineer reported that she viewed such comment as gaslighting, making her question if these stereotypical assumptions are her own belief.

The above incidents reveal the connection between a biased organizational policy and gender microaggressions. The organizational factor contributing to gender microaggressions is the exclusionary policy against women accessing construction sites. In the last example, the manifestation of this biased policy was through a triple gender microaggression (2 instances of restrictive gender roles and 1 instance of gender conformity).

Absence of Sexism Reporting Policies

The findings revealed a complete lack of guidelines, procedures and mechanisms for reporting incidents of workplace sexism. This was observed in all 3 companies. When female employees were questioned about the procedure for reporting gender discrimination incidents, the typical response was a pause, followed by the acknowledgment that no formal policy existed within their organization to address such issues. One employee reported:

> **A specific procedure to address sexism does not exist.**
> **For example, a procedure like reporting the incident**
> **to the supervisor and, then, the supervisor goes to the**
> **general manager, something like that, does not exist.**
> **Yes, things here are a bit of a mess.**

In light of this clarification, employees were prompted to consider how they would report sexism within their organization in a hypothetical scenario. Responses varied significantly; some employees indicated they would report incidents to their supervisor, leadership team, or HR department, while others expressed reluctance to report due to concerns about confidentiality or skepticism about the likelihood of meaningful change. It was revealed that the decision to report incidents was primarily driven by individual initiative. The majority of employees indicated that they would only consider reporting instances of extreme gender discrimination (such as sexual harassment or sexual assault) and not consider reporting gender microaggressions.

7

Environmental Factors

The context within microaggressions occur, significantly influences their manifestations. For example, gender microaggressions that occur within a family setting, may be influenced by different factors compared to microaggressions that occur within a workplace. Therefore, it is essential to disentangle the layers, that constitute each context to identify the influencing factors accurately. In the context of the Greek STEM Energy sector, there is the individual layer (human perpetrators), the organizational layer (organizational factors) and the environmental layer (environmental factors). This chapter will address the final component of the main research question: the *environmental factors* that influence gender microaggressions in the Greek STEM energy sector. It will employ an environmental lens to answer the following sub-research question: '***Which environmental factors are reflected in the experiences of gender microaggressions in STEM?.***'

By identifying the environmental contributors, I aim to provide a holistic understanding of the phenomenon of gender microaggressions. Additionally, the objective is to assist technological organizations and society at large in comprehending the systemic contributors, thereby promoting more effective change.

To identify the environmental contributors, it is necessary to zoom out from the organizational context and explore the broader Greek STEM energy sector. This environmental layer involves two dimensions: the STEM engineer sector and Greek society. Thus, the term 'environmental factors' refers to factors within either the STEM industry or Greek society that contribute to gender microaggressions. The empirical study identified 3 main categories of environmental contributors: *STEM Culture*, *Greek Law & Authorities*, and *Greek culture*. Findings related to *STEM culture* were derived from interviews with 4 female engineers in the Greek STEM energy sector. The findings concerning *Greek Law & Authorities* and *Greek Culture* were obtained from interviews with 2 gender studies scholars and were complemented from the female employees..

7.1. STEM Culture

The STEM sector has been historically male-dominated, fostering a 'masculinized STEM culture' in certain contexts. This culture encompasses the 'beliefs, behaviors, policies, practices, and procedures' that suggest that women are inherently less capable in STEM roles compared to men (Baird, 2018). It often goes along with the 'STEM prototype', which represents an ideal scientist or engineer as a white, cisgender, highly educated male scientist. (Cian & Dou, 2024).

Table 7.1 provides a summary of how STEM culture contributes to gender microaggressions. The mechanisms observed were the establishment of a *STEM masculinized culture* and of a *STEM prototype*. Findings were derived from interviews with 4 female engineers. Non-engineer female participants were excluded from this analysis.

Table 7.1: STEM culture contributing to gender microaggressions in the Greek STEM Energy Sector.

Themes	Sub-themes	Explanation	Example
STEM Culture	STEM Masculinized Culture	Prevailing norms in STEM that align with traditional male behaviors	Yes, you must become a person who swears, who doesn't care about anything. You have to become this person to prove you are equal to a man. A man doesn't necessarily have to reach these extremes.
	STEM Prototype	The stereotypical image of the ideal engineer	First of all, to prove your worth in the sector, you need to somehow reach the male prototype. That means practically renouncing your own nature to prove you are equal to a man. You shouldn't have children; you shouldn't be 'a kitty.'

Empirical findings highlighted the perception of a masculinized STEM culture, but only in certain engineering professions. For instance, a female engineer perceived that sectors such as electrical and mechanical engineering exhibit a more pronounced masculinized culture compared to sectors such as architecture. She suggested that the gender balance observed in the architectural sector may inhibit the establishment of this masculinized culture. She continued to add:

> **Architecture may be a more female-dominated profession, but still, when someone expects to talk to a great architect, they expect to talk to a great male architect, not a great female architect. That's the bad thing. This happens in all sectors though. The great scientist is always a man.**

Therefore, this engineer perceived the existence of a masculine *STEM prototype* without the accompanied *STEM culture*. In this case, the female engineer misaligned with the STEM prototype due to her female identity and was considered inferior. The ideal engineer was perceived as a male figure. This belief was manifested through a gender microaggression, that of a 'restrictive gender role'.

Another engineer perceived that the STEM sector expects conduct aligned more with extreme old-fashioned masculine behavior, requiring swearing, shouting and 'being tough'. She attributed her exclusion of attending the construction site to these STEM expectations.

> **Maybe people in STEM think it requires a tougher way of communicating with the crews or suppliers and that someone needs to shout, swear, and behave in such a way. Perhaps they expect a man would handle it better.**

Furthermore, a female engineer noted that, to be treated as a respectable engineer, a woman must deny her own female identity and imitate the male STEM prototype as closely as possible.

> **First of all, to prove your worth in the sector, you need to somehow reach the male prototype. That means practically renouncing your own nature to prove you are equal to a man. You shouldn't have children; you shouldn't be 'a kitty.'**

She posits that a female engineer must 'renounce her own nature' to reach the male prototype. In other words, she suggests that the closer a female engineer aligns with the male STEM prototype, the more respect she will receive.

The above findings identified the existence of a *masculinized STEM culture* that considers female engineers inherently less capable than men and of a *masculinized STEM prototype*, which idealizes the scientist or engineer as a white, cisgender, highly educated, old male. These observations were accompanied with gender microaggressions of 'restrictive gender roles'.

7.2. Greek Law & Authorities

The Greek Law encompasses provisions addressing gender discrimination in the workplace (such as protection against dismissal for pregnant women, mandatory equitable gender treatment etc.) (analyzed Subsection 2). Additionally, the Greek legal framework includes multiple authorities responsible for ensuring gender equity in employment settings. It is crucial to distinguish between the legal framework and the authorities, as legislation and its implementation are distinct entities. Understanding their roles separately is essential to evaluate their contributions to gender microaggressions.

Greek Law

Employee's Perception of the Greek Law

The majority of female employees perceived *Greek Law* as ineffective in protecting women against gender discrimination in the workplace. From the 11 female employees interviewed, 7 perceived Greek Law as ineffective, while 4 perceived it as effective. Notably, the women who viewed Greek Law negatively, expressed complete disappointment and were resolute in their negative perceptions. Some justified their opinions by referencing the high incidence of femicide in Greece, suggesting that if effective legislation existed, so many cases of Greek Femicide would not have occurred.

> **No. Greek Law not providing protection. We hear some many incidents every day. From femicide to very simple allegations of violence, either verbal or physical... The police often take it lightly, doing a typical job and either mocking you or saying, "Okay, that's how the situation is. That's how the law is. We can't do much." There is no protection.**

This employee expresses her frustration with the Greek law concerning female protection. She perceives an inadequate level of protection under the Greek legislation, even in the most extreme cases of femicide or abuse.

Academic's Perception of the Greek Law

In contrast to the employees' generally negative view, both gender-studies scholars assessed Greek Law as adequately effective in combating gender discrimination. They noted improvements in the Greek legal framework aligning with European standards, which demonstrates the state's commitment to gender equality. They cited specific statutes (e.g., Law 4808 of 2021 against sexual harassment, the Gender Equality Law) as evidence of legal efficacy. However, they acknowledged that there are areas where the law could be further improved, particularly in effectively addressing gender microaggressions.

In conclusion, a significant misalignment was observed between the perceptions of female employees and scholars regarding the effectiveness of Greek law. Female employees viewed it as inadequate, whereas academics considered it adequate.

Problematic areas of the Greek Law

Both female employees and academics perceived that the Greek Law contributes to gender microaggressions indirectly through absence of some legal provisions. Table 7.2 summarizes how Greek Law can contribute to gender discrimination in the workplace.

Female respondents highlighted *legal gaps* within Greek legislation that exacerbate workplace gender discrimination. One notable gap they mentioned is the absence of laws that directly address gender-based unequal pay. They believed that this omission makes it difficult for women to prove that these salary disparities are due to their gender, rather than other factors, such as professional qualifications.

Additionally, concerns were raised about the ineffectiveness of Greek law *in tackling gender microaggressions*. A gender scholar noted that gender microaggressions often leave no tangible evidence, complicating the formulation of laws to address these subtle forms of discrimination. Furthermore, an employee expressed frustration, noting that if the law fails to provide adequate protection against severe cases of sexual harassment, it is unlikely to effectively address subtler forms of gender discrimination. In conclusion, Greek law was perceived as insufficient in addressing gender-based unequal pay and gender microaggressions.

Table 7.2: The Greek Law contributing to gender discrimination in the workplace.

Themes	Sub-themes	Explanation	Example
Greek Law	Legal Gaps	Shortcomings or inadequacies in the Greek legilsation for the protection of women	I think one thing that is not covered by legislation is the salary part. In a free market, you can't force someone to pay you equally because you can't easily prove that the reason some employees receive different pay is due to their gender and not their personal characteristics.
	Gender Microaggressions & Law	Greek legislation not addressing gender microaggressions	I think that generally, any behavior that does not leave tangible evidence or cannot be easily proven is difficult to protect against. I have seen this occur in serious cases of sexual harassment as well as in cases of what we call microaggressions. For instance, if a woman reports that she felt someone spoke to her aggressively, derogatorily, or exhibited a negative attitude and energy towards her, it is unlikely that an unbiased, objective authority will take this accusation into account to investigate the matter.

Greek Authorities

In this study the term *Greek Authorities* refers to legal entities and organizations responsible for the protection of Greek women against gender discrimination. From the 11 female employees interviewed, 9 perceived that Greek Authorities function inadequately in enactment of the law. Similarly, the 2 academics interviewed shared this perception. Thus, the empirical study revealed an alignment between the perceptions of female employees and gender experts regarding the ineffectiveness of Greek authorities. This contrasts with the perception of the Greek law's effectiveness (Subsection 7.2), where a misalignment was observed.

Gender-studies academics highlighted the existence of multiple responsible Greek institutions catering for gender equality, such as the Greek Ombudsman or gender equality committees in Greek universities. They perceived that while a great number of authorities exists, there should be more and with higher specificity to the spectrum of sexism. An academic referred to a problematic instance concerning Greek authorities:

> **The Ministry of the Interior, if I'm not mistaken, issued ministerial decisions to establish additional authorities to receive reports, especially in the public sector. However, these authorities have not yet come into full operation or operate sporadically and have not received adequate training. We cannot evaluate how they work if they never come into operation. We cannot announce measures just for the sake of it.**

This example illustrates a problematic area where new authorities were to be created but their operationalization was never fully completed. The academic perceived an issue of improper implementation both on the part of the Greek government and on the part of the authorities. Despite attempts to introduce more specific bodies, the effort was never fully realized in this case.

Furthermore, an academic pointed out a great imbalance between the de jure (law) and de facto (practice) aspects of gender equality in Greece. She argued that this discrepancy indicates a severe dysfunction within the Greek authorities. To illustrate the authorities' under-performance, the speaker referenced a particular case of femicide in Greece:

> **Recently, there was a new femicide, where a woman went to the police station to request help three or four times. However, her husband still killed her, indicating that these institutions need to improve the way they operate.**

The academic emphasized that the operation of the responsible Greek authorities urgently needs improvement to effectively address both severe cases of sexual assault and milder instances of gender microaggressions. Moreover, another academic highlighted the problem of under-reporting incidents of sexism in Greece. She attributed this phenomenon to the improper functioning of the authorities, which has led Greek women to be aware of the gap and therefore refrain from reporting incidents, as they believe their reports will 'fall into void'. Admittedly, most female employees said that they would not seek assistance from an authority and would prefer hiring a private lawyer. They said they would report instances of gender discrimination only if it involved sexual harassment or assault. Moreover, the majority were not aware of the responsible authorities.

In summary, the *absence of more specific authorities*, the *improper functioning of authorities* and the *unawareness of authorities* were identified as contributors to gender discrimination in the Greek context (Table 7.3).

Table 7.3: Greek authorities contributing to gender discrimination in the Greek context.

Themes	Sub-themes	Explanation	Example
Greek Authorities	Ineffective Implementation	When responsible authorities fail to adequately protect women	In my opinion, there is always room for improvement for the responsible authorities. Unfortunately, in many cases, the existing authorities cannot cover the entire spectrum of attacks and discrimination women face. And for this reason, many women do not report incidents because they know that possibly a complaint or a report will fall into a void.
	Absence of Specific Authorities	Absence of authorities covering the entire spectrum of gender discrimination	In my opinion, there is always room for improvement for the responsible authorities. Unfortunately, in many cases, the existing authorities cannot cover the entire spectrum of attacks and discrimination women face.
	Unawareness of Authorities	Lack of knowledge about authorities responsible for protecting women	To be honest, no, I don't know the authorities that work for the protection of women. I have never had a similar problem, so I have not dealt with it at all.

7.3. Greek Culture

Modern *Greek culture* has been shaped by several key factors: the high value placed on the institution of family, the lack of a robust welfare system, the influence of the Orthodox Christian religion, and the impact of the Greek economic recession. These factors shape societal perceptions, particularly regarding the roles and views of Greek women. By examining how these elements of Greek culture interact, I will try to determine whether if and how these components contribute to manifestations of gender discrimination in the Greek STEM Energy context.

Greek Family

The importance attributed to the Greek Family is thought to correlate to an increased degree of 'gender specificity', positioning men as the primary financial providers and women as the primary caretakers (Dagkouli–Kyriakoglou, 2022). In this empirical study, gender stereotypes emerged from the family, primarily concerning *maternal prioritization* over career advancement.

A female engineer reported that she has experienced questions from her family circle about when she plans to start a family because 'time is flying by.' Emphasis on women to create a family was observed in many cases, with no similar pressure observed for other personal aspects such as career advancement. An academic scholar noted on this matter:

> **The fact that a woman dedicates a lot of her time to her career is not considered morally acceptable; it does not follow the moral imperatives.**

This finding captures the orientation of Greek women towards creating a family. The high importance attributed to the institution of Greek family was manifested mainly through the gender microaggression of 'restrictive gender role'. However, it should be noted that no family pressure steering women away from STEM fields was observed. On the contrary, female engineers reported that their families supported their decision to pursue engineering.

Greek Welfare System

A revelatory finding was that all 11 female employees interviewed, perceived the Greek welfare system as dysfunctional. Many of the interviewees asserted that the Greek welfare system is entirely absent. The frustration concerning this aspect was evident:

> **A welfare state was never established in Greece. It never existed.**

The female employees justified this perception by noting that they have not received help from the welfare system in difficulties related to their female identity. The areas identified as requiring welfare assistance concerned childcare and elderly care support. Academics noted that the Greek family compensates for the welfare deficit, a statement which can also be reformulated as that Greek women compensate for this deficit, as women are still considered the primary caregivers. Therefore, the Greek welfare system contributes to gender microaggressions through *lack of support*.

Orthodox Religion

Greece follows Orthodoxy, one of the branches of Christianity, which influences the Greek societal sphere. Orthodoxy is comprised from 2 dimensions: the Orthodox religion, which is a social phenomenon, and the Orthodox church, which is an institution. To understand the potential influence of Orthodoxy to gender discrimination in the Greek context, it is necessary to examine these 2 entities separately. For the empirical study of this matter, 2 academics were interviewed.

The main mechanism that *Orthodox religion* contributed to gender discrimination was through its *religious symbolisms*. Academics mentioned two significant symbolisms within Orthodox religious teachings that adversely affect the perception of women.

The first symbolism referred to the most respected female figure in Orthodox religion, Virgin Mary. She is a sanctified prototype whose significance largely stems from her role as the mother of Jesus Christ. An academic stated that this elevation of the motherhood identity within Orthodox Christianity implies that the ultimate purpose and value of women are tied to their capacity for motherhood. Such a representation may subtly reinforce the notion that women's primary role and identity should be centered around motherhood, thereby imposing restrictive gender roles within the Greek community.

The second religious symbolism mentioned concerned the 'Holy Family', the family unit of Jesus Christ, the Virgin Mary, and Saint Joseph. This symbolism sanctifies the institution of family. An academic perceived that the increased significance this symbolism attributes to the family unit promotes traditional gender roles.

Orthodox Church

The *Orthodox Church* functions as the institutional embodiment of the Orthodox Religion and is a religious institution. The empirical study identified that the main mechanism through which the Orthodox Church contributes to gender discrimination is through the *promotion of conservatism*.

Academics mentioned that the Orthodox Church disseminates conservative messages through its ecclesiastical discourse. These messages transmit discrimination to various groups, with women being one of them. An academic mentioned that 'it legitimizes a conservative discourse which contributes to the construction and reproduction of gender stereotypes'. An example of such rhetoric is the Church's stance on prohibiting abortions, which implicitly conveys a message of women's inferiority and subservience.

Moreover, academics emphasized that the Orthodox Church is highly influential in shaping Greek societal views. They attributed this power to several characteristics. Firstly, the opinion of the religious

leaders is considered to come from divine enlightenment and high spirituality, making their perceptions difficult to defy. Moreover, the Church has active participation in the Greek state, bearing constitutional recognition and governmental financial support. Therefore, academics considered that the Church holds considerable power within the Greek context and substantially influences societal perceptions of women.

Table 7.4: Orthodox Religion & Church contributing to gender discrimination in the Greek context.

| Themes	Sub-themes	Explanation	Example
Orthodox Religion	**Religious Symbolisms**	The influence of Orthodox religious teachings on reinforcing gender stereotypes	Orthodox religion has certainly affected the way we see women and generally how we interpret their role one-dimensionally through motherhood. Because a woman is holy only if she identifies with the Virgin Mary, who is essentially seen as the mother.
Orthodox Church	**Promotion of Conservatism**	Orthodox Church reinforcing conservative values in Greek society	The Greek Orthodox Church, like any religious institution, tries to protect its power and not to lose its parts, that is, from its kingdom, let's say. And presents itself very conservatively. So, it legitimizes a conservative discourse which contributes to the construction and reproduction of gender stereotypes.

Greek Economic Recession

Greece went through a great economic recession from 2009 to 2013, where the General Domestic Product (GDP) declined by 36%. This economic crisis has had a profound impact on contemporary Greek culture, potentially influencing societal perceptions of women's roles. Therefore, it is crucial to examine how the Greek crisis has affected gender dynamics.

Academics emphasized that the Greek economic crisis did not generate new instances of sexism but rather revealed and intensified existing ones. During periods of economic turmoil, there is a misconception that new gender stereotypes are created or unprecedented levels of sexism emerge. However, as they stated, this notion is inaccurate. According to scholars, sexism is not newly created during such crises; instead, it becomes more visible and pronounced. The economic crisis provides a conducive environment for previously less noticeable instances of sexism to surface. As articulated by one scholar:

> **Previous gender stereotypes, constructed and perpetuated in the pre-crisis social environment, continue to exist during the crisis. During the crisis, these stereotypes continue to exist and are revealed because the opportunity is given for that. During the crisis, this happens much more easily.**

Therefore, scholars argue that the Greek economic crisis did not create new forms of sexism but rather exposed existing ones. An observed mechanism through which the Greek economic recession contributed to gender discrimination was through the *stalling of gender equality progress*. Scholars observed that during the crisis, the feeling of social security diminished, as citizens could not predict the future ahead of them. Society focused on issues of survival and therefore lost its flexibility and ability to challenge established norms. Societal focus was shifted to the most fundamental matters, leaving little to no room for challenging gender stereotypes. Moreover, society embraced conservatism, including preexisting conservative views on women's roles, as an attempt to regain the lost security.

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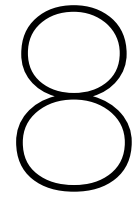
Discussion

To understand how individual, organizational, and environmental factors contribute to experiences of gender microaggressions in STEM, it is essential to deeply explore the phenomenon itself. This investigation aims to enhance our understanding of gender microaggressions and connect them to broader organizational and systemic context. To achieve this objective, female experiences of gender microaggressions in STEM were initially explored, followed by an examination of the individual, organizational, and environmental contributors to the phenomenon. The primary research question guiding this investigation was:

> ***How do individual, organizational and environmental factors contribute to the experiences of gender microaggressions in STEM ?***

To answer the main research question, the study examined 6 sub-research questions distributed in 4 Sections (*Experiences of Gender Microaggressions*, *Individual Factors*, *Organizational Factors*, *Environmental Factors*):

	Sub-research Questions
Experiences of Gender Microaggressions	1. What types of gender microaggressions do women experience in STEM? 2. How do women in STEM cope to gender microaggressions? 3. What is the impact of gender microaggressions on women in STEM?
Individual Factors	4. Which individual factors are reflected in the experiences of gender microaggressions in STEM?
Organizational Factors	5. Which organizational factors are reflected in the experiences of gender microaggressions in STEM?
Environmental Factors	6. Which environmental factors are reflected in the experiences of gender microaggressions in STEM?

The discussion section will provide a comprehensive understanding of the research findings within each of the 4 levels of analysis. For each level, the findings will be related to the research questions and existing literature, interpretations will be given, and unexpected results will be discussed. Subsequently, the analysis within each level will be synthesized to address the main research question. Finally, the limitations of the current study will be addressed, and recommendations for future research will be provided.

8.1. Interpretation of Experiences of Gender Microaggressions

1. What types of gender microaggressions do women experience in STEM?

Women are not a homogeneous group and each one of them perceives and experiences gender microaggressions in a different way (Haynes-Baratz et al., 2022). Therefore, to comprehend the individual, organizational, and environmental contributors of gender microaggressions in STEM, it is crucial to first understand the diverse female experiences of gender microaggressions within this context.

The prevalent types of gender microaggressions found were: *Assumption of Inferiority*, *Pathologizing Women's Maternal Identity*, *Restrictive Gender Roles*, *Sexual Objectification*, *Direct Address*. These types align with Nadal's established taxonomy (2010) and are and are well-documented in research (Subsection 2.2.2), with the exception of 2 specific types: *Pathologizing Women's Maternal Identity* and *Direct Address*.

Pathologizing Women's Maternal Identity refers to behaviors that negatively characterize women's capacity for childbearing, treating it as something pathological (e.g., 'She'll get pregnant and be absent for years'). Although this type bears resemblance to Nadal's category of *Restrictive Gender Roles*, it is distinct in one crucial aspect. The microaggressions included in this type did not convey the message of motherhood as the ultimate purpose of women, in order to taxonomize such behaviors as a *Restrictive Gender Role* microaggressions. Such microaggressions would impose the restrictive role of motherhood to women but at least would involve the positive connotation of bringing new life in this word. To the contrary, the microaggressions taxonomized under *Pathologizing Women's Maternal Identity* did not impose on women the maternal identity but conveyed the message that motherhood is something negative or even pathological. Therefore, this study introduces *pathologizing women's maternal identity* as a novel classification of gender microaggressions. I attribute the emergence of this new microaggression to the severe economic crisis that has impacted the Greek working environment. Greek firms continue to face significant economic challenges, with the past crisis increasing the likelihood of current businesses exiting the market by 5%-16% (Genakos et al., 2023). Consequently, Greek firms strive to remain in business by maximizing the utilization of their resources, including their human capacity. Even though maternity leave in Greece is covered by the government rather than the companies (Team & Team, 2021), the absence of an employee still creates a drop in human capacity. Therefore, any absence from the professional environment, even for obvious reasons such as pregnancy, is perceived as pathological and detrimental to business performance, even in cases that organizations do not have to cover the expenses. Female employees, in this case, become the 'scapegoats' for the broader economic challenges faced by Greek organizations. This situation illustrates the interaction between the environmental factor of the *Greek Economic Recession* with the individual factor of the *Leader* that manifests in the STEM organizational context through the gender microaggression of *Pathologizing women's maternal identity*. Therefore, this is an example of how a gender microaggression extends beyond the individual layer to the organizational and environmental layer. Such interaction will be further explored in the discussion of the main research question.

The other gender microaggression type that does not align with Nadal's taxonomy (2010) is *Direct Ad-*

dress. This refers to addressing women with an overly familiar language through the use of the Greek diminutive (e.g. Maria + $\alpha\kappa\iota$). Similarly, this type of gender microaggressions resembles Nadal's category of *Use of Sexist Language*, but there are substantial differences that justify its classification as a distinct category. Specifically, Nadal's *Use of Sexist Language* concerns demeaning references of women, using terms like 'honey', 'slut', etc. Conversely, *Direct Address* involves calling women through diminutive words, rather than using established insulting terms such as 'bitch'. The Greek diminutive, when used by familiar individuals such as family or friends, generally carries a positive connotation. However, its use by less familiar individuals, particularly in professional contexts, implies depreciation (Makri-Tsilipakou, 2003). Therefore, this study proposes *Direct Address* as a new category within the taxonomy of gender microaggressions. The absence of this gender microaggression in Nadal's taxonomy can be attributed to the nonexistence of the Greek diminutive in the English language. Its use in certain contexts can automatically expose Greek women to an experience of gender microaggression. The introduction of this new classification is significant as it expands the understanding of how gender microaggressions can manifest beyond English-speaking countries, thereby enriching the existing taxonomy of gender microaggressions.

Integration of Gender Microaggressions Taxonomies

This study utilized the frameworks of Sue and Nadal for categorizing gender microaggressions. Sue taxonomized gender microaggressions in 3 categories (*microassault, microinsult, microinvalidation*) (Subsection 2.2.2), based on the level of subtlety. Nadal categorized gender microaggressions in 8 analytical categories (Subsection 2.2.2). Sue's and Nadal's taxonomies are not contradictory but differ in their level of detail, allowing each gender microaggression to be simultaneously categorized by both frameworks. For example, a gender microaggression manifesting through *the use of sexist language* (Nadal) can also be characterized as a *microassault*, *microinsult*, or *microinvalidation* (Sue), based on how explicit or subtle it occurred. In other words, Sue's taxonomy is a broader classification of Nadal's taxonomy.

This research identified 5 dominant types of gender microaggressions, 3 of which align with Nadal's taxonomy and 2 of which are novel classifications introduced by this study. However, for these 2 novel types (*Pathologizing Women's Maternal Identity* and *Direct Address*) to gain practical significance and contribute to theoretical knowledge, it is imperative to integrate them into the existing taxonomies without assimilating them, thus creating a new classification system.

Figure 8.1 illustrates the integration of Sue's taxonomy, Nadal's taxonomy, and the emerging types of gender microaggressions identified in this study. The integrated system categorizes gender microaggressions into 3 primary types: *microassaults*, *microinsults*, and *microinvalidations*, following Sue's categories. Each circle in the figure includes several sub-circles, which represent the types of gender microaggressions observed in this study. Some sub-circles align with Nadal's taxonomy, while others are the new classifications. The size of each sub-circle represents the frequency and magnitude of each type's occurrence. For instance, within the *microassault* circle, *the type of pathologizing women's maternal identity* represents the largest sub-circle, indicating that this type of gender microaggression was the most prevalent among microassaults.

Microassaults is the most overt type of gender microaggressions, with a conscious intention to hurt the targeted person (Sue, 2010a). They were the the 2nd most observed category, with 16 inferences. In this study, microassaults manifested mostly through *pathologizing women's maternal identity* and *sexual objectification*. An example was a remark directed towards a woman, suggesting she should 'go, get pregnant.' This comment was clearly overt, therefore it is categorized as a microassault. Another example was a company's intention to fire an employee because she got pregnant.

Microinsults are unintentional actions often marked by rudeness and insensitivity (Capodilupo et al.,

2010). They were the 1st most observed category, with 34 inferences. Microinsults are not as profound as microassaults but not as subtle as microinvalidations. This type emerged mostly through the *assumption of inferiority*, followed by *direct address*. An example of such microaggression was a phone dialogue between a male client and a female engineer. The man automatically assumed that the woman is not an engineer and told her 'Connect me to an engineer'. This comment reflects unintentional insensitivity, presuming women cannot be engineers. Another example in this category was not allowing a woman to carry a piece of equipment because it was deemed too heavy to carry it as a woman. This unintentional biased behavior transmits the stereotype of female fragility.

Microinvalidations is the subtlest type of microaggressions, encompassing behaviors that nullify the experienced reality of the target (J. Y. Kim & Meister, 2023). They were the 3rd most frequently observed category, with 14 inferences. The primary manifestation was through the *denial of the reality of sexism*. Comments such as 'You're exaggerating' or 'Come on, it wasn't that bad' are examples of such microinvalidations. These comments nullify women's lived experiences of sexism in the workplace, causing them to question their reality. In another incident a female employee was going through the interview process and the male interviewer told her to join the company because 'We're very female-friendly.' The candidate reported that this remark made her question the company's true values and feel that her concerns about gender discrimination were not fully understood. Such comment simplifies and dismisses the complex and systemic nature of gender discrimination, thus invalidating the real and serious challenges women face in professional environments. It is categorized as a microinvalidations.

2. How do women in STEM cope to gender microaggressions?   While there is substantial research on coping strategies against sexism, there is a notable gap in the literature on coping strategies against gender microaggressions. One study has explored coping mechanisms of Black women dealing with gendered racial microaggressions (Lewis et al., 2013), but it does not exclusively focus on gender microaggressions and encompasses the intersecting racial dimension as well. Understanding the coping strategies women employ against gender microaggressions is crucial, as they can significantly influence the individual impact on women.

In this study, the prevalent coping mechanisms observed were: *Ignoring*, *Confronting*, *Justifying*, *Seeking Management Aid*, and *Proving Themselves* (Figure 4.2). Interestingly, the explicitness of the incident did not appear to influence the choice of coping mechanism, with *Ignoring* being the most frequently chosen strategy across *microassaults*, *microinsults*, and *microinvalidations*. Women often reported that ignoring the gender microaggression and going along with it was the best choice for many occasions. However, literature suggests that women who choose more passive coping strategies against sexism, such as *Ignorance*, may face higher anxiety and dissatisfaction (Rosenfeld & Jarrard, 1986). Conversely, *Confronting* was the second most chosen coping mechanism, which stands in direct contrast to *Ignoring*. Research indicates that non-aggressive confrontation of sexism is associated with better psychological outcomes, reducing feelings of helplessness and increasing a sense of control (Kaiser & Miller, 2004). Furthermore, male perpetrators often respond better to such a coping strategy (Lewis et al., 2012).

It is important to note that the point of this section is not to advise women on how to better respond to gender microaggressions, indirectly attributing the responsibility to them. Literature highlights that placing the responsibility on female targets and advising them to adopt the 'best' coping strategy can lead to microaggressions to continue or even aggravate (Bailey & Curry, 2023). Gender microaggressions themselves are inherently problematic, and it is the phenomenon itself that should be addressed and mitigated. However, this section serves to increase the understanding of the experiences of gender microaggressions in an attempt to highlight and address the issue.

Microassault

Differential Treatment

Sexual Objectification

Pathologizing women's maternal identity

Restrictive Gender Roles

Microinsult

Restrictive Gender Roles

Direct Address

Strength Inferiority

Gender Conformity

Assumption of Inferiority

Pathologizing women's maternal identity

Sexist Jokes

Microinvalidation

Technical Devaluation

Tokenism

Strength Inferiority

Denial of Reality of Sexism

Differential Treatment

Assumption of Inferiority

Overt

Subtle

Level of Subtlety

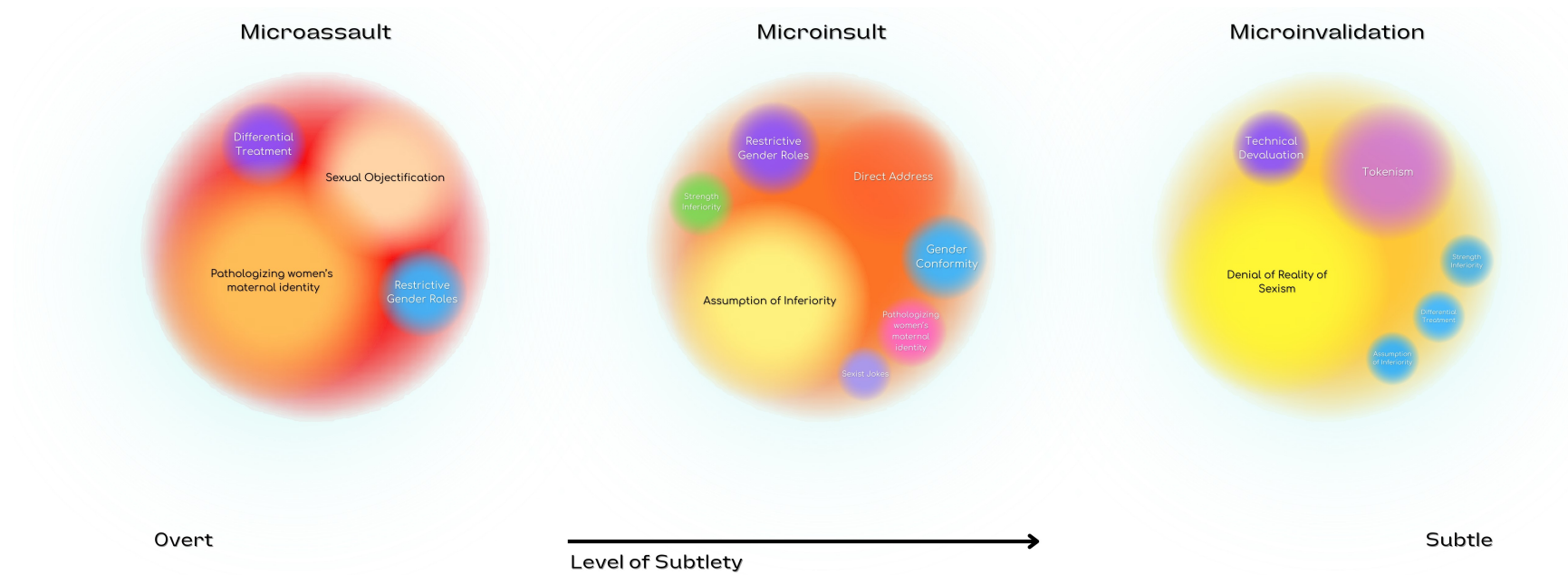**Figure 8.1:** Integrated Classification of Gender Microaggressions in the Greek STEM Energy Sector.

The impact of gender microaggressions in the scientific community is a subject of debate. Some scholars argue that the effects of these microaggressions are exaggerated (K. R. Thomas, 2008), while others contend that microaggressions not only have significant effects but also can be more damaging than overt sexism (Sue, 2010a) (Algner & Lorenz, 2022) (Haynes-Baratz et al., 2022). Therefore, understanding the impact of gender microaggressions on women in STEM is crucial to better clarify this ongoing debate.

The current study explored how gender microaggressions affect women in STEM. The observed effects were: *Frustration*, *Resentment*, *Awkwardness*, *Change of Perspective*, *Discouragement*, *Emotional Aversion*, *Sadness*, *Self-doubt*. Most reported effects were short-term and would dissipate, only to resurface with subsequent microaggressions. They were attributed to the repetitive exposure to gender microaggressions and not to a single occurrence (Sue, 2010a). These findings align with existing literature indicating that gender microaggressions can evoke negative emotions, such as frustration and sadness (J. Y. Kim & Meister, 2023), and can lead to behavioral changes, such as shifts in perspective (Sue, 2010a).

However, it should be noted that female participants were reluctant to provide detailed answers regarding the impact on their physical and mental health. The observations regarding the individual impact emerged organically during interviews focused on other themes. This reluctance could potentially be attributed to the prevalent stigma surrounding psychological issues in Greece, with mental illness often perceived as a sign of inferiority (Tzouvara & Papadopoulos, 2014).

The confirmation of negative emotional consequences for women due to gender microaggressions is a critical issue that necessitates attention, as it contributes to the underrepresentation of women in STEM. Persistent negative emotions, such as frustration and sadness, foster a hostile work environment, which may prompt women to leave the STEM field (A. B. Diehl et al., 2020). Furthermore, an ongoing unwelcoming atmosphere in STEM could deter future generations of women from pursuing careers in these fields, thereby perpetuating gender disparities (Kuchynka et al., 2017).

8.2. Interpretation of Sexual Harassment

Although the study did not specifically examine instances of sexual harassment, these issues unexpectedly arose during the empirical investigation. A total of 5 incidents of sexual harassment were reported (Table 4.1). These incidents included sexually explicit statements and jokes, sexual insults, persistent requests for dates, and inappropriate sexual gazes. Interestingly, all female employees who experienced these incidents did not perceive them as sexual harassment, but rather as gender microaggressions.This finding illustrates that objectively sexually harassing behavior can be perceived differently among women. The literature supports this variability in perception, indicating that individuals assess the severity of identical incidents of sexism differently (Smith, 1992), which is attributed to various factors, such as personality traits, relationship to the perpetrator etc. (Riemer et al., 2014).

The occurrence of sexual harassment incidents in this study, without directly investigating this issue, underscores the severity of the problem and its possible connection to gender microaggressions. The theory of the pyramid of sexual violence conceptualizes this interconnection through a pyramid structure (Figure 8.2). The pyramid is divided into several stages, with the base representing gender microaggressions and the subsequent stages escalating to sexual harassment, ultimately leading to rape, sexual assault, or homicide at the top of the pyramid. This model suggests that gender microaggressions can escalate into sexual harassment through normalization and tolerance of the previous behavior (Walker et al., 2023). Another theory reveals an overlap between gender microaggressions and sexual harassment,

indicating that certain microassaults (e.g., calling women 'sluts') coincide with sexual harassment and that higher occurrences of gender microaggressions increase the likelihood of sexual harassment (Gartner & Sterzing, 2016). Therefore, it is plausible that gender microaggressions in these companies were normalized and tolerated, facilitating the escalation to the 5 reported incidents of sexual harassment. This interpretation is supported by the empirical findings, with a manager invalidating the experience of a woman who experienced sexual harassment and sought management aid.

The high number of sexual harassment incidents, coupled with the victims' lack of recognition of their severity, is alarming. Since sexual assault follows sexual harassment in the pyramid, it is crucial to address and mitigate these behaviors to prevent further escalation.
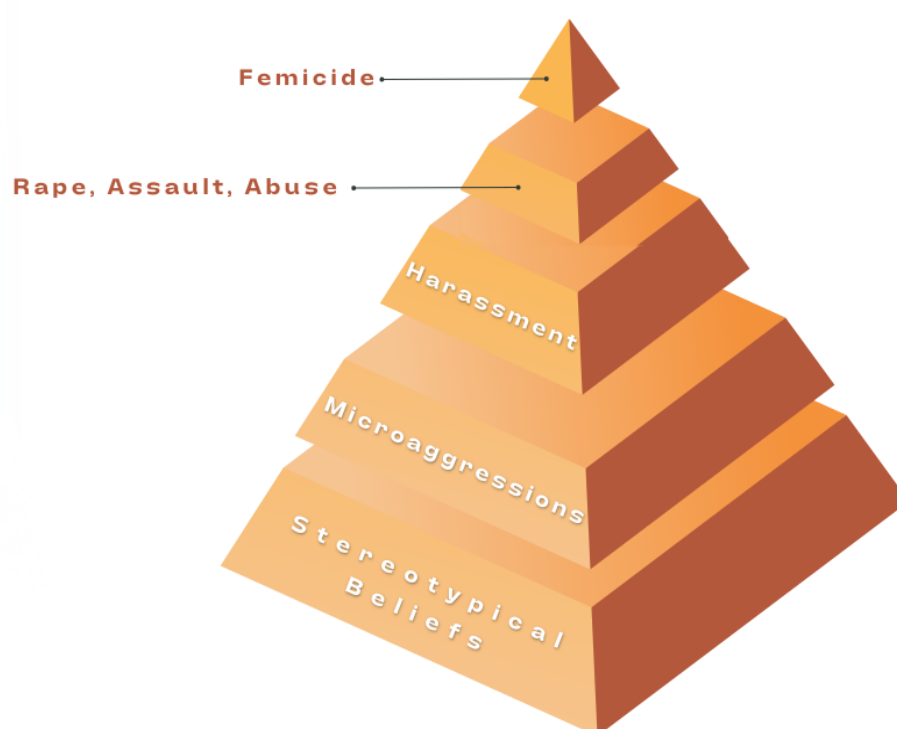

Figure 8.2: The Pyramid of Sexual Violence (adapted from Walker et al., (2023)).

8.3. Interpretation of Individual Factors

4. Which individual factors are reflected in the experiences of gender microaggressions in STEM?

Gender microaggressions are perpetrated by individuals with whom female employees interact with in the STEM workplace. Analyzing the categories of individual sources of gender microaggressions can uncover the types of gender microaggressions each category commits and enable targeted interventions at each source.

The empirical study identified the following individual factors contributing to gender microaggressions: *Leaders*, *Colleagues*, *Clients*, and *External Partners*. While the categories of *Leaders* and *Colleagues* aligned with the theoretical framework guiding this study (Figure 2.6), *Clients* and *External Partners* emerged as new categories. Additionally, the theoretically identified category of *Subordinates* was not observed, likely due to the hierarchical structure of the involved companies, which consisted of a management team and employees without an intermediate or subordinate level.

Leaders were the individual factor with the most occurrences of gender microaggressions. They contributed to gender microaggressions in 2 ways: *directly*, by committing a gender microaggressions themselves, or *indirectly*, by serving as a bad prototype, endorsing a microaggression committed by others, or showing lack of support. These observed patterns completely align with theory (Subsection 1). However, the frequent perpetration of gender microaggressions by leaders is particularly concerning, given their influential role in organizations (Uhl-Bien et al., 2007). Their contribution or tolerance of gender microaggressions can solidify such behaviors within the organization, signaling to male employees that such conduct is acceptable, leading to more microaggressions (Dipboye & Halverson, 2004). The high incidence of microaggressions by leaders can be attributed to the strict hierarchical structure typical of Greek businesses, where power is centralized at the top and managers make all the decisions (Papadionysiou, 2020). This hierarchy can incentivize leaders to abuse their power (Vredenburgh & Brender, 1998) by committing microaggressions, with little fear of repercussions.

The majority of employees did not perceive *Colleagues* as contributors to gender microaggressions. However, this group committed 12 microaggressions, making them the third most prevalent individual factor. This paradox in perception can be attributed to the positive organizational culture perceived by the majority of employees. If employees perceive good relationships with their colleagues, they may have more biased perceptions or justify their colleagues' sexist behaviors. Nevertheless, the experience of gender microaggression remains even if employees did not interpret it as such.

The emergence of *Clients* and *External Partners* as new factors in the study contributes to existing literature, highlighting problematic interactions beyond internal organizational boundaries and opening new avenues for targeted interventions. Moreover, it is notable that *Clients* and *External Partners* committed only two types of gender microaggressions: *Restrictive Gender Roles* and *Direct Address*. In contrast, *Leaders* and *Colleagues* exhibited a broader range of gender microaggressions. The limited interaction time and remote communication with clients and external partners likely reduces opportunities for diverse microaggressions. Conversely, the close and frequent interactions with leaders and colleagues may account for the greater variety observed. Understanding the specific types of microaggressions associated with each group enables us to identify the patterns in their behavior and tailor effective interventions for each group.

8.4. Interpretation of Organizational Factors

5. Which organizational factors are reflected in the experiences of gender microaggressions in STEM?

The empirical study identified that organizations contributed to gender microaggressions through *Policies*, either by enacting *Discriminatory Policies* or by *Lacking Sexism Reporting Policies*. Literature identifies that the existence of biased policies contributes to gender microaggressions, however, the classification of the specific policies are lacking. This study extends existing literature by identifying and categorizing the observed discriminatory practices contributing to gender microaggressions, which are: *Hiring Discrimination based on Pregnancy*, *Gender-specific Recruitment*, and *Exclusion from Construction Sites*.

The majority of women experienced gender discrimination during hiring due to potential pregnancy. This manifested though questions about pregnancy intentions, discriminatory comments, not getting hired or even dismissal. Remarkably, all incidents shared profound explicitness, with companies making no effort to conceal their biased practices. However, according to the Court of Justice of the European Union (CJEU), the application of discriminatory hiring practices due to potential pregnancy is illegal (Benoît-Rohmer, 2017). As Greece is a member of the E.U. , this legal framework applies within its jurisdiction. Therefore, a significant discrepancy between legal standards and their enforcement in Greece was found, indicating a need for further investigation. Moreover, the *Hiring Discrimination Based on Pregnancy* justifies the emergence of the microaggression of *Pathologizing Women's Maternal Identity* in this study. This discriminatory policy can be mirrored as a gender microaggression affecting not only women in the hiring process but also those already working in the organization. If organizations apply such policy, they view pregnancy as something negative, which is reflected through individuals enacting gender microaggressions. This illustrates the interconnection between organizational and individual factors and gender microaggressions. The gender bias is institutionalized through a biased policy, perpetrated by an individual and manifested through a gender microaggression.

Another revelatory finding was the *exclusion of female engineers from construction sites*, based on the stereotypical belief that women are ill-suited for manual work or inspections. This biased policy reflected the microaggression of *Restrictive Gender Roles* and was rooted in the assumption that women cannot assert themselves on construction sites and might 'disturb' the operations. The exclusion of female engineers from construction sites reveals the bias that women endure to this day. However, this organizational contributor reveals sexism not only on the part of organizations but also on the part of workers. Female engineers perceived that their organization potentially applies this policy to 'protect them' from the discrimination or sexual objectification from workers. Indeed, in this study, female engineers who were permitted to work on construction sites frequently encountered gender microaggressions from *external partners*. An illustrative example is a female engineer who was mistaken for a worker's daughter and had to assert her professional role to gain recognition. Also, the literature supports these findings, suggesting that women on construction sites are often less respected than their male counterparts and are more vulnerable to sexism and even sexual harassment (Regis et al., 2019). This reveals a deeply problematic area on the construction sites that requires a critical examination of organizational practices and policies applied in organizations and construction sites.

Contrary to expectations based on literature, the organizational factors of *Organizational Culture* and *Social Networks* were not found to contribute to gender microaggressions in this study. According to literature, *Organizational Culture* can contribute to gender microaggressions through a negative masculinized organizational culture or through absence of female representation. However, the findings concluded a positive climate and an equal female representation. Moreover, according to literature, *Social Networks* contribute to gender microaggressions through the establishment of homophilous friend-

ships. In contrast, this study identified the establishment of mixed gender friendships across all firms. All female participants did not perceive the *Organizational Culture* and *Social Networks* of their organizations as gender discriminatory. This divergence from literature could be attributed to contextual variations.

8.5. Interpretation of Environmental Factors

6. Which environmental factors are reflected in the experiences of gender microaggressions in STEM?

The empirical study identified several environmental factors that contribute to gender microaggressions in the Greek STEM Energy Sector. These factors are *STEM Culture*, *Law & Authorities*, *Family*, *Welfare*, *Orthodox Religion & Church* and *Economic Recession*. Existing literature on gender microaggressions often focuses on the phenomenon itself, frequently overlooking the broader context. This study broadens the scope by incorporating the environmental contributors.

STEM culture contributed to gender microaggression through the establishment of a *STEM masculinized culture* and of a *STEM prototype*. These findings correspond to literature and theoretical framework, which suggest that the STEM field is associated with stereotypically male behaviors (Subsection 1). Another contributor found was the Greek *law & authorities*. The *law* concerns legal provisions against sexism while the *authorities* concern the effective enactment of these provisions. The law indirectly contributed to sexism through *legal gaps* against certain sexist behaviors (e.g., gender pay inequality) and through *failing to address gender microaggressions*. This finding corresponds with literature stating that gender microaggressions often elude legislation due to their subtle nature (Lukes & Bangs, 2014). This justification could be extended to include the observation made by an academic scholar that gender microaggressions 'leave no tangible evidence,' making them difficult to be legally addressed. Consequently, the lack of legal recognition of gender microaggressions extends beyond the Greek context and is a universal phenomenon. It is important to note, however, that the Greek legal framework has been effective in addressing several forms of sexist conduct (e.g. sexual harassment, pregnancy protection, gender equality). While it may not be perfect, it has demonstrated its ability to address a wide spectrum of sexism manifestations, meeting European standards. The issue, however, lies not in the legal gaps but in the poor implementation of the law and the proper functioning of Greek authorities. Participants and academics highlighted the poor functioning of the authorities in preventing the recent series of femicides in Greece. Indeed, these findings align with statistical data, where femicides have increased by 187.5% between 2020 and 2021 (Christou, 2024), culminating in 24 reported femicides in 2022 (Stasinou, 2024). However, before femicide occurs, there are several antecedent indicators pointing to this direction. According to the pyramid theory of sexual violence (Subsection 8.2), the previous indicators of femicide are rape, physical and emotional abuse or sexual assault (Walker et al., 2023). Certainly, these behaviors leave tangible evidence that Greek authorities can act upon to prevent a potential femicide. Based on the finding that the Greek law effectively addresses these issues, it can be concluded that the Greek authorities severely underperform. If Greek authorities act poorly on the most severe manifestation of sexism, femicide, they are certainly ineffective in addressing gender microaggressions, which leave no tangible evidence and are not adequately covered by the law. Moreover, based again on the pyramid of sexual violence, gender microaggressions must be flourishing in the Greek context, for so many femicides to occur. The revelation of sexual harassment incidents in the empirical study, without specifically investigating this issue, further supports this conclusion. Therefore, addressing gender discrimination requires not only slight legal reforms but also enhanced implementation strategies and a proactive approach from Greek authorities. By strengthening responses to microaggressions, authorities can mitigate their escalation to more severe forms of gender-based violence, thereby fostering a

safer and more equitable environment within STEM and beyond.

Moreover, *family* was found as contributing to gender microaggressions through exerting pressure on women for *maternal prioritization*. It was often reported that women experienced pressure from family members to start a family. This was expressed through the gender microaggression of *restrictive gender role*. In this case, the environmental factor of *family* interacted with the individual factor of a family member and manifested in a gender microaggression. This example involves the interaction of contributors belonging in 2 different layers, with the absence of the organizational layer as this microaggressions was not manifested in the workplace. Nevertheless, this serves as a valuable illustration that the interplay between factors in different layers is not constrained to the specific context of the Greek STEM energy sector, but can extend to other settings, such as the domestic sphere. It is important to note however, that maternal prioritization was not accompanied by family discouragement from pursuing an engineering path; on the contrary, families often provided incentives and support for women to pursue an engineering career. Furthermore, *welfare* was found to be a contributor through *lacking support* to women, such as not providing assistance for childcare or elderly care support. All female employees and academics perceived a welfare deficit, with some employees calling the welfare system as 'completely absent'. This finding aligns with theory that states that the Greek welfare is underfunctioning due to lack of resources (Dagkouli–Kyriakoglou, 2022). Other contributors included the *Orthodox Religion* and the *Orthodox Church*, which contributed to gender microaggressions through certain *religious symbolisms* and through *conservatism*, respectively. Their influence to the matter was found to be increased by their participation of the Church to the Greek state and by the power of the religious leaders. Their contribution aligns with theory supporting that Orthodox religion carries certain androcentric properties that reinforce traditional gender roles (Purpura et al., 2023). Finally, the Greek *economic recession* was found to promote gender microaggressions by *stalling gender equality progress*. During the Greek economic crisis, social security diminished and societal initiative for challenging the stereotypical gender norms was stalled. Moreover, it was found that the crisis exposed the existing forms of sexism rather than creating new ones. This finding contradicts the theory that states that new forms of gender discrimination emerged during the Greek economic crisis (Anastasiou et al., 2015). One potential explanation for this discrepancy is that these forms already existed in a pre-crisis environment and were not reported. The Greek crisis intensified and subsequently exposed them. Consequently, these forms were identified at a different time, although they had existed prior to that point.

8.6. Synthesis of Factors contributing to Gender Microaggressions in STEM

How do individual, organizational and environmental factors contribute to the experiences of gender microaggressions in STEM?

The sub-questions of this study have unraveled the experiences of gender microaggressions in STEM and identified the individual, organizational, and environmental factors contributing to these experiences. Building on the theoretical framework guiding this investigation (Figure 2.6), I propose a novel conceptualization of the contributing factors of gender microaggressions in STEM. This framework of *the Ecological Systems Model of Gender Microaggressions* (Model 2), conceptualizes the interplay between various environmental, organizational and individual factors that lead to the occurrence of a gender microaggression at the center. A significant innovation in this conceptualization is the inclusion of the dimension of time, extending beyond the spatial context. This new framework offers a holistic approach to understanding gender microaggressions, depicting the interplay of contributing factors across different dimensions. The purpose of this theoretical model is to serve as a 'blueprint' guiding

individuals, technological organizations, and society at large about the factors that can promote gender microaggressions. By knowing the potential contributors, STEM organizations can be aware of potential 'red flags' and implement targeted interventions at the appropriate level and in the appropriate manner. This approach aims to reduce the incidence of gender microaggressions, thereby fostering a more inclusive and equitable environment within STEM fields.
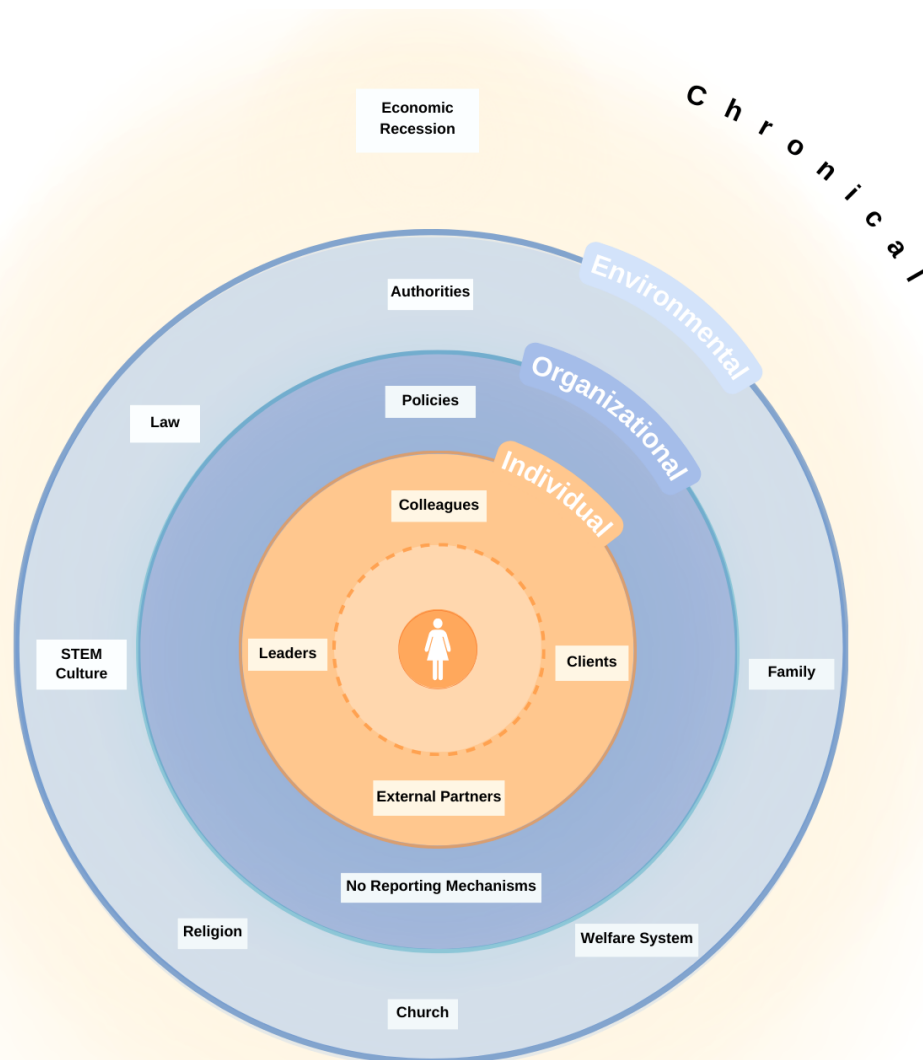
Figure 8.3: Ecological Systems Model of Gender Microaggressions.

Figure 8.3 conceptualizes this novel framework. It shows how gender microaggressions that manifest at the dotted inner circle (which contains the individual) are influenced by factors in different contexts and dimensions. The model comprises 2 dimensions: the *spatial* and the *time* dimension. The *spatial* dimension involves 3 layers (*individual*, *organizational*, *environmental*) that collectively shape the context in which gender microaggressions occur. The dimension of *time* involves factors such as significant life or historical events, that have influenced the occurrence of the microaggressions.

The study identified several contributors to gender microaggressions in the STEM workplace. The individual contributors were *leaders*, *colleagues*, *clients* and *external partners*. The organizational contributors were *discriminatory policies* and complete *absence of sexism reporting mechanisms*. The environmental contributors were *STEM culture*, *family*, *welfare*, *law*, *authorities*, *religion* and *church*. Furthermore, the *economic recession* of 2009 was the chronological contributor. The interaction of these factors was found to be more powerful than each factor individually, ultimately leading to the manifestation of gender microaggressions. Gender microaggressions manifest inside the dotted circle.

The development of this model was informed by the theoretical framework guiding this investigation and the empirical findings. An example that supports the synthesis of this framework is a woman who, during her interviews at a Greek STEM Energy firm, was asked about her intentions of having children in the near future. While this microaggression could be instinctively attributed to the insensitivity of the interviewing colleague or to the organization's reluctance to hire pregnant women, this issue is much more complex. In this case, it was found that the historical event of the Greek economic recession of 2009 has lasting effects, with organizations still struggling to remain in business (Genakos et al., 2023) and aiming for no loss of human capacity. This has led to the establishment of a discriminatory policy against hiring women who plan to get pregnant. In turn, this discriminatory policy was enacted by a colleague and finally resulted in the gender microaggression of '*Pathologizing woman's maternal identity*'. Although this policy is illegal according to the CJEU (Benoît-Rohmer, 2017), the woman did not report it due to the ineffectiveness of Greek authorities.

Based on the conceptual model, this case demonstrates the interplay of the factors across all layers: an individual factor (*colleague*) with an organizational factor (*discriminatory hiring policy*), an environmental factor (*Greek authorities*), and a chronological factor (*economic recession*). This example involves interactions across two dimensions and three layers. Thus, this novel framework enables the identification of influencing forces behind gender microaggressions, preventing simplistic attributions of blame to a single factor. Additionally, it highlights points of intervention to prevent or address gender microaggressions. If only the colleague was more sensitive against the issue and reported to the organization that asking such question is insensitive and illegal, maybe the organization would reconsider. Effective Greek authorities could have encouraged the woman to report the incident, leading to remedial actions. While these are assumptions, they underscore how proactive interventions at critical points could disrupt this chain of events that led to this gender microaggressions. Without this conceptual model, identifying the interacting factors and potential mitigation points would be unclear.

This framework can also be applied to simpler interactions, that do not involve factors across all layers. For example, a common microaggression reported was the diminutive addressing of women's names (e.g. Eva + $\alpha\kappa\iota$), signaling depreciation. A woman reported that an external partner consistently addressed her in that manner. According to the model, this interaction involves the organizational factor (*no reporting policy*) and the individual factor (*external partner*), leading to the microaggression of *direct address*. Here, there is no interaction with the chronological dimension or the environmental layer. Therefore, the model adapts to each case without necessitating the presence of all layers or dimensions.

While this framework was developed and applied in the context of Greek STEM Energy firms, it is hypothesized that it could be adapted to other contexts, such as different countries, professional fields, and organizations. Future research should investigate the applicability of this model in diverse contexts to validate its utility. Evaluators of gender microaggressions can modify the contributing factors to fit the specific context.

The framework of *Ecological Systems Model of Gender Microaggressions* (Model 2) complements the framework of *Integrated Classification of Gender Microaggressions* (Model 1) (presented in Figure 8.1). Simply put, Model 2 (Figure 8.1) provides a macro-level depiction of the factors contributing to gender microaggressions, while Model 1 (Figure 8.3) offers a micro-level depiction of the forms these

microaggressions can take. Model 2 is a broad overview of the context in which microaggressions occur, whereas Model 1 is a detailed view of the microaggressions themselves. Together, these frameworks capture the full context of gender microaggressions, from their manifestation at the individual level to the broader organizational, cultural, and chronological factors. These 2 complementary frameworks can be utilized in 2 ways: (a) in a *reactive* way (meaning when a gender microaggression has arisen), users can start at the micro-level, identifying the specific type of microaggression, and then work their way back to understand the larger context and contributing factors, delivering interventions at the appropriate level; and (b) in a *proactive* way (meaning before a gender microaggression has arisen), users can start from the macro-level, working their way in and taking intervening precautions at the appropriate level to prevent a gender microaggression from occurring.

By utilizing both models, stakeholders such as policymakers, organizational leaders, and educators can more effectively address and prevent gender microaggressions, fostering a more inclusive and equitable environment. This dual framework enables a nuanced approach, recognizing the interplay between individual behaviors and the broader systemic forces that perpetuate gender discrimination.
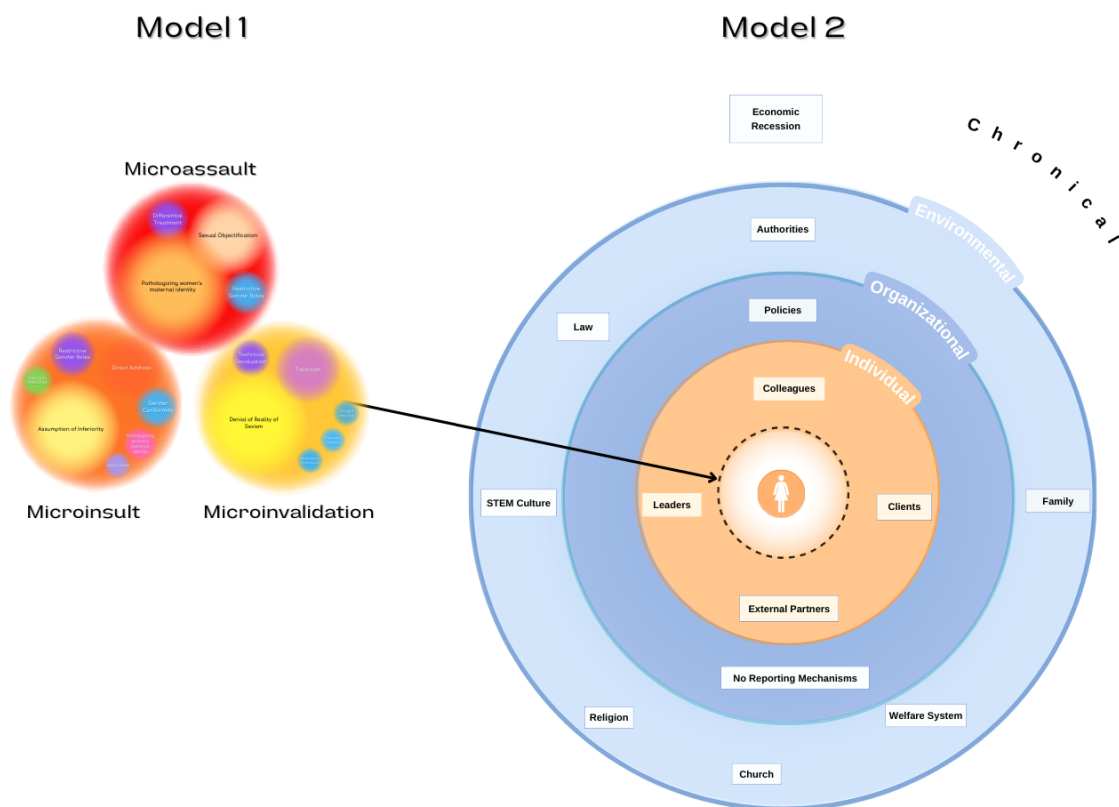

Figure 8.4: Integration of Model 1 and Model 2 for capturing the entire context of gender microaggressions.
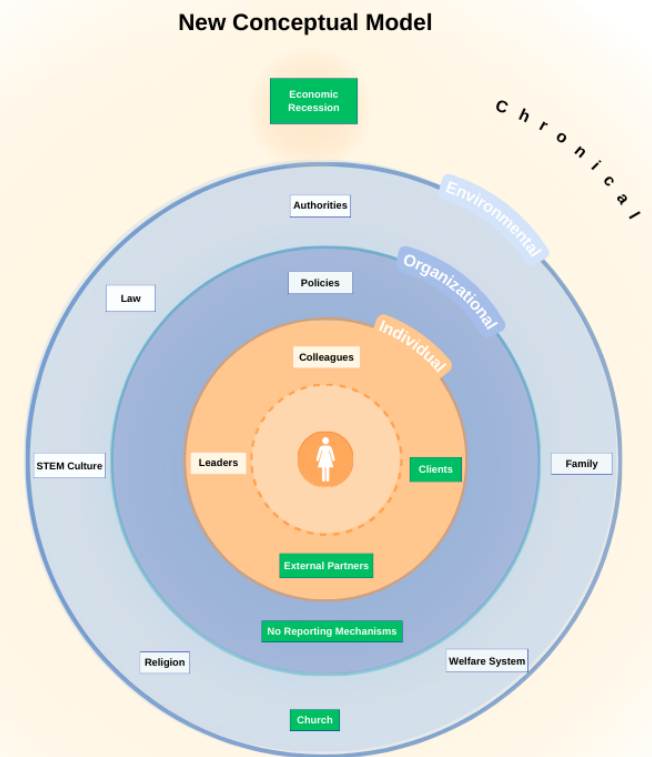
Figure 8.5: Comparison of the initial and revised conceptual framework.

8.7. Evolution of the Conceptual Framework: Initial vs. Revised Model

Changes were applied to the original theoretical framework, as some contributors identified in theory were not found while new ones emerged. The changes between the old and new version of the framework are presented in Figure **8.5**. The factors of *subordinates*, *organizational culture* and *social networks* were not found in the empirical study (depicted in red colour). No gender microaggressions emerged from *subordinates*, likely due to the hierarchical structure of the involved companies, which consisted of a management team and all employees at an equal hierarchical level. Moreover, both the *organizational culture* and *social networks* were perceived as not contributing to gender microaggressions. This could be attributed to strong friendship bonds stated by most participants.

Furthermore, the factors of *clients*, *external partners*, *no sexism reporting mechanisms*, *church*, and *economic recession* newly emerged (depicted in green colour) and were not defined in the theoretical framework guiding this investigation. Also, the dimension of time was added. The emergence of *clients* and *external partners* as sources of gender microaggressions indicates that such incidents can originate not only from internal employees but also from interactions with external stakeholders. Consequently, it is crucial to consider the external boundaries of an organization when addressing gender microaggressions. Moreover, the emergence of the *church* as a contributing factor revealed that religion and its institution are two separate forces contributing differently to gender microaggressions.

8.8. Theoretical Implications

The findings of this study present several important theoretical implications that extend the current understanding of gender microaggressions within STEM fields. Firstly, the study identified 2 new types of gender microaggressions, namely *pathologizing women's maternal identity* and *direct address* that were not previously provided by the current gender microaggressions taxonomies. This study broadens the understanding of gender microaggressions beyond the typical focus on English-speaking countries. This expansion is crucial as it provides a more diverse understanding of how gender microaggressions manifest in different cultural settings, thereby enriching the global discourse on gender discrimination. These two novel types of microaggressions enrich literature on what constitutes a sexist act and aid in its mitigation efforts.

Moreover, the study proposes 2 novel theoretical models: the *Integrated Taxonomy of Gender Microaggressions* (Model 1) and the *Ecological Systems Model of Gender Microaggressions* (Model 2). Model 1 provides a new classification system of gender microaggressions by incorporating all taxonomies together. This model allows researchers to utilize the advantages of both classification systems, categorizing microaggressions simultaneously based on their level of subtlety and the themes they convey. This comprehensive approach eliminates the need to choose between different taxonomies and ensures that no type of microaggression is overlooked. Given the subtle nature and difficulty of recognizing gender microaggressions, this framework enhances understanding and reduces the likelihood of leaving any microaggressions unidentified.

Model 2 draws on Bronfenbrenner's Ecological Systems Theory and adapts it to the theme of gender microaggressions. It provides a holistic conceptualization of the contributing factors of gender microaggressions in STEM, incorporating the individual, organizational, environmental and chronological dimension. It extends the literature beyond the focus on the individual layer and takes into account the dimension of time, which is often overlooked. Furthermore, Model 2 reveals new contributing factors to gender microaggressions such as *church*, *economic recession* etc. It captures all potential contributing forces to gender microaggressions within a simple conceptual framework (Figure 8.3) and can be adapted to various professional environments or countries.

A significant contribution is the complementary nature of Model 1 and Model 2. This is displayed in Figure 8.4. Model 1 can be placed within the smaller circle of Model 2, and when combined, they offer a comprehensive overview of both the types and contributors of gender microaggressions in STEM. This dual-model framework allows for a multi-layered analysis at both micro and macro levels, increasing our theoretical knowledge of gender microaggressions. A deeper theoretical understanding of the phenomenon leads to higher changes of effective practical interventions. Researchers can use this dual-framework for any specific example of gender microaggression they explore and make meaningful interconnections across different factors in various layers and dimensions. This enables them to more objectively determine the causes of these microaggressions

In conclusion, the theoretical implications of this study offer significant contributions to the literature on gender microaggressions. By broadening the scope of existing frameworks, introducing new types and dimensions, and identifying new contributing factors, this research enhances our understanding of gender microaggressions and provides valuable tools for future research.

8.9. Practical Implications

My study reveals that gender microaggressions are flourishing in the Greek STEM Energy context, and even escalating to more severe cases of gender discrimination, such as sexual harassment. To halt this disturbing phenomenon, it is crucial to deliver interventions against gender microaggressions, which are considered a pre-escalation of sexual harassment (Figure 8.2) (Walker et al., 2023). Tackling microaggressions is essential to counteract their negative effects and prevent their progression to sexual harassment. The high occurrence of microaggressions observed in this study, suggests that we need to start with the most simple solution, that of raising awareness. Increasing employees' awareness of gender microaggressions is the initial step towards creating a more equitable workplace. Educating employees can increase their recognition of microaggressions, their support to victims and help them become more mindful of their own behavior (Basford et al., 2014). Practitioners should educate all individual sources of microaggressions (e.g., leaders, colleagues, clients, and external partners) about the forms microaggressions can take, how individuals may perpetuate them, and which organizational, environmental and chronological factors may contribute to the issue. Additionally, educators can train each employee group based on the type of microaggression it is more likely to commit (Figure 5.1). For example, this study indicates that *leaders* are more likely to commit *microassaults*, the most overt form of gender microaggressions. Therefore, when training *leaders*, practitioners should tailor their programs to focus more specifically on *microassaults*, while still covering all types of microaggressions. Increasing the specificity of gender training programs per individual group, is more likely to yield better results.

In addition to addressing microaggressions, there is an urgent need to mitigate sexual harassment. This study revealed that sexual harassment at work is still prevalent. The *lack of organizational reporting mechanisms* found in this study, suggests the need for organizational change. Establishing internal organizational bodies or appointing individuals responsible for handling reports of sexual harassment and microaggressions is imperative. These organizational bodies should be properly trained to safeguard women's interests and act as a safety shield.

Moreover, this research found that organizations can behave unjustly against women without any repercussion. The findings of *discriminating women because of potential pregnancy* or *excluding female engineers from visiting construction sites* point to that direction. Although such actions are prohibited by Greek and European law, organizations persist in such practices. The study also revealed a notable deficiency in law enforcement by Greek authorities. The above findings collectively suggest an urgent reformation of the Greek authorities to ensure the effective implementation of the Law and to hold organizations accountable for gender discriminatory behaviors.

On a systemic level, this study exposed the wider environmental and chronological factors that contribute to gender microaggressions. Proposing immediate mitigation steps against the operation of certain environmental contributors, such as the *Orthodox Church* or the *Greek Family,* would be probably fruitless, as institutions within the environmental sphere are resilient to change. Nevertheless, exposing how these environmental forces contribute to microaggressions adds a small stepping stone in the battle against them. Increasing societal awareness about these systemic contributors can enhance sensitivity to the issue, and prompt environmental changes in the near future. This approach can set the foundation for long-term cultural and societal transformations aimed at reducing the prevalence of gender microaggressions.

Finally, this study proposed 2 novel theoretical frameworks that conceptualize the forms gender microaggressions can take and the factors contributing to the phenomenon. The 2 frameworks can be combined to capture the whole context of a gender microaggression, from contribution to manifestation. They can serve as 'blueprints' for organizations and practitioners guiding them in the battle against gender microaggressions. Specifically, they can be utilized in 2 ways: (a) in a *reactive* way (meaning when a gender microaggression has arisen), practitioners can start at the micro-level, identifying the specific type of microaggression, and then work their way back to understand the larger context and contributing factors, delivering interventions at the appropriate level; and (b) in a *proactive* way (meaning before a gender microaggression has arisen), practitioners can start from the macro-level, working their way in. By assessing each factor that potentially contributes to the phenomenon, they can identify 'red-flag' areas (e.g., discriminatory policy) and take intervening precautions at the appropriate level to prevent a gender microaggression from occurring.

By applying the insights from this study, technological organizations and society at large can identify and address microaggressions before they occur, implement more effective policies, and create a supportive environment that promotes gender equality in the STEM fields.

8.10. Limitations

While this study offers valuable insights into the experiences of female employees in the Greek STEM energy sector, several limitations must be acknowledged to inform future research endeavors. The female employees were recruited through convenience sampling, due to the high rejection rate I faced and the limited time to complete this study. Although a notable number of participants (11 female employees) were eventually recruited, this sampling strategy introduces certain biases. Recruiting participants based on their availability and willingness, limits the generalizability of the findings to the broader population of female STEM employees. Furthermore, convenience sampling can skew the sample towards individuals who are more accessible and cooperative, potentially excluding those who might have different or more critical experiences to share. This can lead to an over representation of certain viewpoints and an underrepresentation of others. Participants were recruited through their HR department, which could have influenced their answers due to fear of professional repercussions.

Additionally, only two gender studies scholars were included in this research, again due to a high rejection rate. This limited number of scholars may have restricted the diversity of expert perspectives on environmental factors. Furthermore, the study exclusively involved white female participants working in STEM, thus excluding those with intersectional identities whose experiences might substantially differ.

The phenomenological research design, chosen for its emphasis on subjective lived experiences, presents certain limitations. There is a risk of subjective findings or dishonesty in participants' accounts, which can limit the generalizability and accuracy of the results. Another limitation of this research design is that it dictates the researcher to deeply explore a phenomenon. In the case of a sensitive phenomenon, as

that of gender microaggressions, phenomenology can introduce researcher bias. The researcher might overemphasize certain events influenced by their own background, beliefs and preconceptions. The sensitive nature of the phenomenon necessitates careful handling by the researcher; any lack of sensitivity can lead to misinterpretation of findings.

Furthermore, the results are context-specific to the Greek STEM energy sector and different organizational and environmental contexts could result in different experiences of gender microaggressions and different contributing factors. The cultural context of Greece can shape perceptions of gender microaggressions, making it difficult to generalize findings to countries with different cultural norms regarding gender. Moreover, this study reported a contrasting finding: a positive evaluation of colleagues alongside reports of numerous microaggressions from colleagues. This paradox potentially introduces the limitation of social desirability bias, where participants may feel pressured to present their organization and colleagues favorably, leading to under-reporting or downplaying negative experiences. Another limitation is the cross-sectional design of the study, which examines the phenomenon of gender microaggressions at a single point in time, not allowing for exploration of its evolving nature. Finally, while the qualitative design permits an in-depth exploration of gender microaggressions, it limits the generalizability of the findings to a broader population.

8.11. Future Research

Building on the limitations identified, several directions for future research are recommended. Firstly, to counter the biases introduced by convenience sampling, future studies should employ stratified random sampling or other probability sampling techniques. This would ensure a more representative sample of female STEM employees and improve the generalizability of the findings. Additionally, recruiting participants through independent channels rather than through their HR departments would likely encourage more candid responses by alleviating fears of professional repercussions.

To overcome the limited number of gender studies scholars included in this research, future studies should aim to involve a larger and more diverse group of experts. This would enrich the analysis with a wider range of perspectives on the environmental factors influencing gender microaggressions. Additionally, expanding the participant pool to include women of different racial, ethnic, and intersectional identities would provide a better understanding of how these various identities intersect with gender to influence workplace experiences.

Considering the phenomenological research design's limitations, future research could benefit from incorporating mixed-methods approaches. By combining qualitative phenomenological methods with quantitative surveys or experiments, researchers can achieve a more balanced view that includes both subjective experiences and objective data. This approach can also help mitigate potential researcher biases and provide a more holistic understanding of gender microaggressions. Ensuring researchers maintain reflexivity and sensitivity throughout the research process is crucial to accurately interpreting and presenting findings on such a sensitive phenomenon.

Given the context-specific nature of this study, future research should explore different organizational and cultural contexts to understand how these factors influence experiences of gender microaggressions. Comparative studies across various sectors within the STEM field, and in countries with different cultural norms regarding gender, would provide valuable insights into the broader applicability of the findings. This would help identify universal patterns as well as context-specific differences in gender microaggressions. Addressing the issue of social desirability bias, future studies should consider employing anonymous data collection methods to reduce the pressure on participants to present their organization and colleagues favorably. Additionally, longitudinal research designs could capture the evolving nature of gender microaggressions over time, providing a deeper understanding of their long-

term impact on female employees. This approach would also help in identifying trends and changes in workplace dynamics. Lastly, while the qualitative design of this study allowed for an in-depth exploration of gender microaggressions, future research should also include quantitative methods to enhance the generalizability of the findings. Large-scale surveys or statistical analyses can provide a broader picture of the prevalence and types of gender microaggressions, complementing the rich, detailed accounts obtained through qualitative methods.

By addressing these limitations systematically, future research can contribute to a more comprehensive and nuanced understanding of gender microaggressions in the STEM workplace, ultimately aiding in the development of more effective interventions and policies to foster an inclusive and equitable professional environment.

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Conclusion

9.1. Summary

This research study aimed to explore how individual, organizational and environmental factors contribute to experiences of gender microaggressions in STEM. A qualitative phenomenological analysis of perceptions of female employees in the Greek STEM energy sector and gender-studies academics was conducted to answer this research question. The results indicate that individual, organizational and environmental factors interact in a complex interplay, akin to concentric circles surrounding the microaggression. Interacting forces originate at the macro-level, ultimately leading to the gender microaggression at the micro-level. Factors include historical events, cultural characteristics, organizational contexts, and individual perpetrators. These factors interact and create a new aggravated force that facilitates the occurrence of the gender microaggression. This interplay of the individual, organizational and environmental factors is depicted in the newly proposed conceptual model of this study, named **Ecological Systems Model of Gender Microaggressions** (Model 2) (Figure 8.3).

The proposed framework involves 2 dimensions: the *spatial* and the *time* dimension. The spatial dimension involves 3 layers (*individual*, *organizational*, *environmental*) that collectively shape the context in which gender microaggressions occur. The dimension of *time* involves factors such as significant life or historical events, that have influenced the occurrence of the microaggressions. This framework categorizes the identified contributors from this study to each relevant dimension and layer. The individual contributors are ***leaders***, ***colleagues***, ***clients*** and ***external partners***. The organizational contributors are ***discriminatory policies*** and ***absence of sexism reporting mechanisms***. The environmental contributors are ***STEM culture***, ***family***, ***welfare***, ***law***, ***authorities***, ***religion*** and ***church***. Furthermore, the ***economic recession*** of 2009 is a chronological contributor.

Moreover, exploring the factors that contribute to gender microaggressions would be incomplete without an examination of the phenomenon itself. Therefore, the types of gender microaggressions women experience in STEM were identified and categorized. The dominant types are: ***Assumption of Inferiority***, ***Pathologizing Women's Maternal Identity***, ***Restrictive Gender Roles***, ***Sexual Objectification***, and ***Direct Address***. Some categories align with existing knowledge, while some new ones emerged. These categories were integrated into existing taxonomies of gender microaggressions to create a new classification system, as illustrated in Figure 8.1. This newly proposed theoretical framework, is named **Integration of Gender Microaggressions Taxonomies** (Model 1) and is considered an extension of the Model 2. As previously explained, Model 2 outlines the factors contributing to gender microaggressions, with the smallest circle representing the immediate occurrence of the gender microaggression to the female individual. Within this smallest circle, Model 1 provides a detailed taxonomy of the specific

types of gender microaggressions a female individual can experience. Thus, Model 1 can be seen as the micro-level of gender microaggressions while Model 2 as the macro-level of gender microaggressions. These 2 frameworks combined together provide a holistic overview of the phenomenon, taking into account both the contributing factors and the types of microaggression.

Additionally, the coping mechanisms that women employ to handle gender microaggressions were identified, revealing ***Ignoring***, ***Confronting***, and ***Justifying*** as the prevailing ones. The impact of gender microaggressions on women, a topic of some debate in the scientific community, was also explored. The study confirmed the scholarly consensus that gender microaggressions significantly impact women, with ***Frustration***, ***Resentment***, and ***Discouragement*** being among the many implications.

This study sheds light on the phenomenon of gender microaggressions, revealing the various forms it can take in the STEM context. It highlights the different treatment female employees in STEM may experience due to their gender and shows how individuals, organizations, and society at large contribute to and reinforce this phenomenon. This study introduced two new theoretical models: the Integrated Taxonomy of Gender Microaggressions and the Ecological Systems Model of Gender Microaggressions. Both models can serve as 'blueprints' for organizations and society to identify potential types of gender microaggressions and the factors that contribute to them.

However, a disturbing finding emerged during the exploration of gender microaggressions. Despite not being the primary focus of this research, 5 instances of sexual harassment were reported. While literature reports that gender equality progress has been made in the workplace and sexual harassment is becoming extinct and gradually replaced by gender microaggressions (J. Y. Kim & Meister, 2023), this was not the conclusion of this current study. This finding indicates a regression to old-fashioned sexism and a renewed escalation of sexism. It underscores that sexism is not a static phenomenon but evolves over time, making such observations noteworthy. Moreover, according to theory, if gender microaggressions appear intensely and often, they can escalate to sexual harassment (Walker et al., 2023). The reporting of cases of sexually harassment in this study suggests that gender microaggressions are not only persistent in STEM but contribute to a more severe form of sexism, that of sexual harassment. This is particularly concerning and underscores the need for immediate response.

Therefore, this study confirmed the numerous challenges women in STEM face, extending beyond the spectrum of gender microaggressions and even escalating to sexual harassment. These gender discriminatory experiences impact women in STEM, creating a troubling experience. With the current reality, it is no wonder why some women may leave STEM or be deterred from joining. Although this research did not report any instance of women leaving STEM because of gender microaggressions, it provides a comprehensive exploration of this sub-type of sexism, which contributes to the persistent underrepresentation of women in STEM.

In conclusion, the implications of this study extend beyond academic discourse, highlighting urgent areas for policy intervention and organizational reform. Addressing gender microaggressions effectively requires a multi-faceted approach that involves changes at the individual, organizational, and societal levels. It calls for stronger policies, better reporting mechanisms, and a shift in cultural attitudes towards gender equality in STEM fields. The findings and conceptual models presented in this study not only contribute to the existing body of knowledge but also provide practical tools for stakeholders aiming to create more inclusive and equitable work environments. The urgency of addressing these issues cannot be overstated, as the persistence of gender microaggressions and the alarming signs of sexual harassment indicate a significant need for immediate and sustained action to protect and empower women in STEM and halt the problem of gender disparity in STEM.

9.2. Managerial Relevance

This study on gender microaggressions in the STEM workplace provides critical insights for managers and organizational leaders. By identifying specific types of gender microaggressions and their contributing factors, this research equips managers with the knowledge to recognize and address subtle forms of gender discrimination that might otherwise go unnoticed. The 2 proposed frameworks, the Integrated Taxonomy of Gender Microaggressions and the Ecological Systems Model of Gender Microaggressions, can serve as 'blueprints' for organizations to proactively check each factor. If a factor is found to contribute to gender microaggressions, organizations can deliver interventions at the appropriate level. Furthermore, this research highlights the significant role that organizational policies play in either mitigating or perpetuating gender microaggressions. For instance, discriminatory hiring practices or the lack of sexism reporting mechanisms were identified as key organizational contributors. By addressing these issues, organizations can foster a more inclusive and supportive work environment, which in turn can improve employee well-being, job satisfaction, and retention rates. Furthermore, leaders were shown to be both direct and indirect contributors to gender microaggressions, emphasizing the need to decentralize power to prevent exploitation and discriminatory behavior. Moreover, this study explored how individuals both within the organization (e.g., colleagues) and outside (e.g., clients) can perpetrate gender microaggressions. Understanding these dynamics allows managers to implement comprehensive strategies that address microaggressions not only internally but also with external forces.

9.3. Societal Relevance

The societal relevance of this study lies in its comprehensive examination of how broader cultural, religious, economic, and legal contexts influence the occurrence of gender microaggressions in the workplace. By providing a detailed analysis of the Greek context, including the impact of the family, the Orthodox Church, the law & authorities, the economic recession, and the welfare system, this research offers valuable insights into how societal forces can shape workplace dynamics. These insights are crucial for policymakers, educators, and advocacy groups working towards gender equality. The study underscores the pervasive impact of gender microaggressions on women's professional lives, highlighting the need for societal awareness and systemic change. By identifying and categorizing specific types of microaggressions, the research contributes to a more nuanced understanding of gender discrimination, which can inform public policies and educational programs aimed at promoting gender equality. Moreover, the introduction of the Integrated Taxonomy of Gender Microaggressions and the Ecological Systems Model are frameworks that could potentially be adapted and applied in different cultural and organizational contexts, thereby extending their relevance beyond the Greek STEM sector. These models can serve as tools for other societies to identify and address the multifaceted nature of gender microaggressions, contributing to global efforts towards achieving gender equality in various professional fields. In summary, this study not only advances academic knowledge on gender microaggressions but also provides practical tools and insights for organizations and societies striving to create more inclusive and equitable environments for all individuals, regardless of gender.

9.4. Academic Reflection

Reflecting on my academic journey, I can confidently say that I am not the same person when I started. I have evolved, becoming a person who adapts to changes more readily and has a deeper understanding of complex issues. The exploration of the sensitive issue of gender microaggressions has made me connect to the victims and cultivate my sensitivity and consciousness. But a particularly realization struck me with the exploration of this subject: we can all become potential perpetrators of gender microaggressions without even realizing it. As the researcher of this topic, I came to understand that I had committed gender microaggressions in the past. For example, this study led to me to understand that asking in a professional setting only to female employees how their kids are and followingly never asking this question to male employees is a gender microaggression. Such comment elevates the maternal identity of women and the profession identity of men. Despite my good intentions behind this comment, its negative impact remains. I share this personal experience to highlight the importance of this study that increases knowledge about the invisible issue of gender microaggressions and helps us identify behaviors to avoid. The intention of this study is not to make readers feel guilty, but to understand that everyone, including the researcher of this study, is capable of committing a gender microaggression. This study aims to combat ignorance of this phenomenon and validate the experiences of female employees in STEM.

This journey has also made me more resilient and patient. The hundreds of hours of studying and the excellent supervision and discussions with my advisors have shaped the person I am today. However, like life itself, this academic journey had its difficulties. One of the most significant challenges was the abrupt withdrawal of the first company that had agreed to participate in my study. After 1.5 half month of communications and progress, the company decided to withdraw, a mere 2 months before the submission deadline. Securing other companies for interviews proved to be a challenging task. The urgency and pressure to find participants tested my problem-solving skills and determination. Eventually, I managed to secure collaboration with 3 companies and 13 participants in total. I couldn't be more grateful to the participants for trusting me to share their experiences and knowledge. As the saying goes 'every cloud has a silver lining' and, indeed, this collaboration turned out even better than I had originally planned. Another challenge was the withdrawal from my first supervisor. I believe that my first supervisor and I had developed a close working relationship, and her guidance was instrumental in shaping the direction of my research. To be shockingly honest, she inspired me to choose this topic during one of her teachings in the first year of my studies. However, I did understand that her withdraw was beyond her control and these things occur in life.This gap was quickly filled by my other supervisors, Yusuf Dirie, Claudia Werker, and Hans de Bruijn, who all acted promptly and provided immense support.

In conclusion, while the journey was done with unexpected difficulties, each challenge contributed to my growth as a researcher and an individual. The skills and lessons learned during this process will undoubtedly benefit my future academic and professional endeavors. I am grateful for the support of my peers, the faculty, and most importantly my supervisors Jenny Lieu, Yusuf Dirie, Claudia Werker and Hans de Bruijn.

Bibliography

Ako-Brew, A. (2020). *Recognition of gender microaggressions in the workplace: The case of predisposition and propensity to recognize* [Doctoral dissertation, University of Missouri-Saint Louis]. https://www.proquest.com/openview/8d91d4707009a8fe9d937cce64cdda9d/1?pq-origsite=gscholar&cbl=18750&diss=y

Algner, M., & Lorenz, T. (2022). You're prettier when you smile: Construction and validation of a questionnaire to assess microaggressions against women in the workplace. *Frontiers in Psychology*, *13*, 809862. https://doi.org/10.3389/fpsyg.2022.809862

Almukhambetova, A., Kuzhabekova, A., & Hernández-Torrano, D. (2023). Hidden bias, low expectations, and social stereotypes: Understanding female students' retention in math-intensive stem fields. *International Journal of Science and Math Education*, *21*, 535–557. https://doi.org/10.1007/s10763-022-10256-8

Anastasiou, S., Filippidis, K., & Stergiou, K. (2015). Economic recession, austerity and gender inequality at work. evidence from greece and other balkan countries [International Conference on Applied Economics (ICOAE) 2015, 2-4 July 2015, Kazan, Russia]. *Procedia Economics and Finance*, *24*, 41–49. https://doi.org/https://doi.org/10.1016/S2212-5671(15)00610-3

Bailey, L., & Curry, A. (2023). Leading and mentoring women in stem: Mitigating gender & microaggressions. *The Scholarship Without Borders Journal*, *1*(2). https://doi.org/10.57229/2834-2267.1026

Baird, C. L. (2018). Male-dominated stem disciplines: How do we make them more attractive to women? *IEEE Instrumentation & Measurement Magazine*, *21*(3), 4–14. https://doi.org/10.1109/MIM.2018.8360911

Basford, T. E., Offermann, L. R., & Behrend, T. S. (2014). Do you see what i see? perceptions of gender microaggressions in the workplace. *Psychology of Women Quarterly*, *38*(3), 340–349. https://doi.org/10.1177/0361684313511420

Benoît-Rohmer, F. (2017). Lessons from the recent case law of the eu court of justice on the principle of non-discrimination. *Journal Name*. https://consensus.app/papers/lessons-recent-case-court-justice-principle-beno%C3%AEtrohmer/94f2075b753e5fa2bf8288757c13883b/?utm_source=chatgpt

Benya, F. F., Widnall, S. E., Johnson, P. A., Committee on the Impacts of Sexual Harassment in Academia, B. o. H. E., Workforce, P., & Affairs, G. (2018, June). *Sexual harassment of women*. NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK519455/

Blickenstaff, J. C. (2005). Women and science careers: Leaky pipeline or gender filter? *Gender and Education*, *17*(4), 369–386. https://doi.org/10.1080/09540250500145072

Bobbitt-Zeher, D. (2011). Gender discrimination at work: Connecting gender stereotypes, institutional policies, and gender composition of workplace. *Gender & Society*, *25*(6), 764–786. https://doi.org/10.1177/0891243211424741

Brettel, M., & Cleven, N. J. (2011). Innovation culture, collaboration with external partners and npd performance. *Creativity and innovation management*, *20*(4), 253–272. https://doi.org/https://doi.org/10.1111/j.1467-8691.2011.00617.x

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press. https://books.google.nl/books?hl=en&lr=&id=OCmbzWka6xUC&oi=fnd&pg=PA3&ots=yAJ1N0TUjb&sig=Nq2znVlBh1ii5TNi82G2uX9TI8k&redir_esc=y#v=onepage&q&f=false

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315827063-1/ecology-family-context-human-development-research-perspectives-urie-bronfenbrenner

Brooks, J. S., & Watson, T. N. (2019). School leadership and racism: An ecological perspective. *Urban Education*, *54*(5), 631–655. https://doi.org/https://doi.org/10.1177/0042085918783821

Capodilupo, C. M., Nadal, K. L., Corman, L., Hamit, S., Lyons, O. B., & Weinberg, A. (2010). The manifestation of gender microaggressions.

Cheryan, S., Ziegler, S. A., Montoya, A. K., & Jiang, L. (2017). Why are some stem fields more gender balanced than others? *Psychological Bulletin*, *143*(1), 1–35. https://doi.org/10.1037/bul0000052

Christou, A. (2024). Ecofeminism and the cultural affinity to genocidal capitalism: Theorising necropolitical femicide in contemporary greece. *Social Sciences*, *13*(5). https://doi.org/10.3390/socsci13050263

Cian, H., & Dou, R. (2024). Masculinized discourses of stem interest, performance, and competence that shape university stem students' recognition of a "stem person". *Journal of Research in Science Teaching*. https://doi.org/10.1002/tea.21937

Dagkouli–Kyriakoglou, M. (2022). 'keeping the children close and the daughters closer.'is family housing support in greece gendered? *European Journal of Women's Studies*, *29*(2), 266–281. https://doi.org/10.1177/13505068211046804

Darling, N. (2007). Ecological systems theory: The person in the center of the circles. *Research in human development*, *4*(3-4), 203–217. https://doi.org/10.1080/15427600701663023

Diehl, A., & Dzubinski, L. (2020). We need to talk about using pet names for women at work. *Fast Company*. https://www.fastcompany.com/90569439/we-need-to-talk-about-using-pet-names-for-women-at-work

Diehl, A. B., Stephenson, A. L., Dzubinski, L. M., & Wang, D. C. (2020). Measuring the invisible: Development and multi-industry validation of the gender bias scale for women leaders. *Human Resource Development Quarterly*, *31*(3), 249–280. https://doi.org/10.1002/hrdq.21389

Dipboye, R. L., & Halverson, S. K. (2004). Subtle (and not so subtle) discrimination in organizations. *The dark side of organizational behavior*, *16*, 131–158. https://books.google.nl/books?hl=en&lr=&id=DGYLXaRps5cC&oi=fnd&pg=PA131&dq=subtle+(and+not+so+subtle)+discrimination+in+organizations&ots=l1gbyBjfzP&sig=nOQTT-G7gJUYmUYmWy7I08NnTFE&redir_esc=y#v=onepage&q=subtle%20(and%20not%20so%20subtle)%20discrimination%20in%20organizations&f=false

Duerden, M. D., & Witt, P. A. (2010). An ecological systems theory perspective on youth programming. *Journal of Park & Recreation Administration*, *28*(2). https://www.researchgate.net/profile/Peter-Witt/publication/257127659_An_ecological_systems_theory_perspective_on_youth_programming/links/5554cf5208ae6fd2d821b80b/An-ecological-systems-theory-perspective-on-youth-programming.pdf

Eurostat. (2023a). Tertiary education statistics [Data extracted in July 2023. Planned article update: September 2024].

Eurostat. (2023b, June). *Science and technology workforce: Women in majority*. Retrieved February 14, 2024, from https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230602-1

Eurostat. (2024). *Women totalled almost a third of stem graduates in 2021* [Accessed: 2024-05-08]. Retrieved May 8, 2024, from https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240308-2

Fattoracci, E. S. M., & King, D. D. (2023). The need for understanding and addressing microaggressions in the workplace [PMID: 36379041]. *Perspectives on Psychological Science*, *18*(4), 738–742. https://doi.org/10.1177/17456916221133825

Faulkner, W. (2009). Doing gender in engineering workplace cultures. i. observations from the field. *Engineering studies*, *1*(1), 3–18. https://doi.org/10.1080/19378620902721322

Feigt, N. D., Domenech Rodríguez, M. M., & Vázquez, A. L. (2022). The impact of gender-based microaggressions and internalized sexism on mental health outcomes: A mother–daughter study. *Family relations*, *71*(1), 201–219. https://doi.org/https://doi.org/10.1111/fare.12622

Fischer, J., Gardner, T. A., Bennett, E. M., Balvanera, P., Biggs, R., Carpenter, S., Daw, T., Folke, C., Hill, R., Hughes, T. P., et al. (2015). Advancing sustainability through mainstreaming a social–ecological systems perspective. *Current opinion in environmental sustainability*, *14*, 144–149. https://doi.org/https://doi.org/10.1016/j.cosust.2015.06.002

Gartner, R. E. (2021). A new gender microaggressions taxonomy for undergraduate women on college campuses: A qualitative examination. *Violence Against Women*, *27*, 2768–2790. https://doi.org/10.1177/1077801220978804

Gartner, R. E., & Sterzing, P. R. (2016). Gender microaggressions as a gateway to sexual harassment and sexual assault: Expanding the conceptualization of youth sexual violence. *Affilia*, *31*(4), 491–503. https://doi.org/10.1177/0886109916654732

Gartner, R. E., Sterzing, P. R., Fisher, C. M., Woodford, M. R., Kinney, M. K., & Victor, B. G. (2020). A scoping review of measures assessing gender microaggressions against women. *Psychology of Women Quarterly*, *44*(3), 283–306. https://doi.org/10.1177/0361684320920834

Genakos, C., Kaplanis, I., Tagaraki, M. T., & Tsakanikas, A. (2023). Firm resilience and growth during the economics crisis: Lessons from the greek depression. https://eprints.lse.ac.uk/119705/

Gerring, J. (2009). Case selection for case‐study analysis: Qualitative and quantitative techniques. In *Oxford handbooks online*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199286546.003.0028

Gonzales, M. (2020). The chronosystem. In *Systems thinking for supporting students with special needs and disabilities: A handbook for classroom teachers* (pp. 123–136). Springer Singapore. https://doi.org/10.1007/978-981-33-4558-4_9

Green, J., & Thorogood, N. (2018). *Qualitative methods for health research*. SAGE Publications Ltd. https://www.torrossa.com/en/resources/an/5018381

Haynes-Baratz, M. C., Bond, M. A., Allen, C. T., Li, Y. L., & Metinyurt, T. (2022). Challenging gendered microaggressions in the academy: A social–ecological analysis of bystander action among faculty. *Journal of Diversity in Higher Education*, *15*(4), 521. https://doi.org/10.1037/dhe0000315

Hideg, I., & Shen, W. (2019). Why still so few? a theoretical model of the role of benevolent sexism and career support in the continued underrepresentation of women in leadership positions. *Journal of Leadership & Organizational Studies*, *26*(3), 287–303. https://doi.org/10.1177/1548051819849006

Hunt, D. V., Layton, D., & Prince, S. (2015). *Why diversity matters* [In Diversity Matters]. https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/why-diversity-matters

Iswari, P. C. C., Savira, A. W., & Mastuti, E. (2023). Overview of leaders' perceptions of the gender microaggression on women in the workplace. *Philanthropy: Journal of Psychology*, *7*(2), 154–169. https://doi.org/10.26623/philanthropy.v7i2.6799

Kaiser, C. R., & Miller, C. T. (2004). A stress and coping perspective on confronting sexism. *Psychology of Women Quarterly*, *28*, 168–178. https://doi.org/10.1111/j.1471-6402.2004.00133.x

Karoui, M., Dudezert, A., & Leidner, D. E. (2015). Strategies and symbolism in the adoption of organizational social networking systems. *The Journal of Strategic Information Systems*, *24*(1), 15–32. https://doi.org/https://doi.org/10.1016/j.jsis.2014.11.003

Kim, J. Y., & Meister, A. (2023). Microaggressions, interrupted: The experience and effects of gender microaggressions for women in stem. *Journal of Business Ethics*, *185*, 513–531. https://doi.org/10.1007/s10551-022-05203-0

Kim, J. Y.-J., Nguyen, D., & Block, C. (2018). The 360-degree experience of workplace microaggressions: Who commits them? how do individuals respond? what are the consequences? *Microaggression Theory: Influence and Implications*, *89*. https://books.google.nl/books?hl=en&lr=&id=u6JtDwAAQBAJ&oi=fnd&pg=PT178&dq=the+360-degree+experience+of+microaggressions&ots=E93rYQqTcm&sig=SJNB79lC3F9N5hai1v78F20kYEU&redir_esc=y#v=onepage&q=the%20360-degree%20experience%20of%20microaggressions&f=false

Kim, J., Song, K., & Sutin, A. R. (2021). Gender differences in the relationship between perceived discrimination and personality traits in young adulthood: Evidence using sibling fixed effects. *Social Science & Medicine*, *286*, 114329. https://doi.org/10.1016/j.socscimed.2021.114329

Kim, Y., Dimberg, S. K., Spanierman, L. B., & Clark, D. A. (2024). Gender microaggressions that target women in the us military: Examining links with depression and the moderating role of rank and coping. *Psychology of Women Quarterly*, *48*(1), 108–120. https://doi.org/https://doi.org/10.1177/03616843231202706

Kuchynka, S. L., Salomon, K., Bosson, J., El-Hout, M., Kiebel, E., Cooperman, C., & Toomey, R. (2017). Hostile and benevolent sexism and college women's stem outcomes. *Psychology of Women Quarterly*, *42*, 72–87. https://doi.org/10.1177/0361684317741889

Lester, S. (1999). An introduction to phenomenological research. https://www.researchgate.net/publication/255647619_An_introduction_to_phenomenological_research

Lewis, J. A., Mendenhall, R., Harwood, S. A., & Browne Huntt, M. (2012). Coping with gendered racial microaggressions among black women college students. *Journal of African American Studies*, *17*(1), 51–73. https://doi.org/10.1007/s12111-012-9219-0

Lewis, J. A., Mendenhall, R., Harwood, S., & Huntt, M. B. (2013). Coping with gendered racial microaggressions among black women college students. *Journal of African American Studies*, *17*, 51–73. https://doi.org/10.1007/S12111-012-9219-0

Lopez, R. (2011). Racial microaggressions and the black immigrants living in portugal. https://api.semanticscholar.org/CorpusID:142264686

Lukes, R., & Bangs, J. (2014). A critical analysis of anti-discrimination law and microaggressions in academia. *Research in Higher Education Journal*, *24*. https://eric.ed.gov/?id=EJ1064084

Makri-Tsilipakou, M. (2003). Greek diminutive use problematized: Gender, culture and common sense. *Discourse & Society - DISCOURSE SOCIETY*, *14*, 699–726. https://doi.org/10.1177/09579265030146002

Maltby, J., Day, L., Flowe, H. D., Vostanis, P., & Chivers, S. (2019). Psychological trait resilience within ecological systems theory: The resilient systems scales. *Journal of Personality Assessment*, *101*(1), 44–53. https://doi.org/10.1080/00223891.2017.1344985

Nadal, K. L., Davidoff, K. C., Davis, L. S., Wong, Y., Marshall, D., & McKenzie, V. (2015). A qualitative approach to intersectional microaggressions: Understanding influences of race, ethnicity, gender, sexuality, and religion. *Qualitative Psychology*, *2*(2), 147–163. https://doi.org/10.1037/qup0000026

Nadal, K. L., Hamit, S., Lyons, O., Weinberg, A., & Corman, L. (2013). Gender microaggressions: Perceptions, processes, and coping mechanisms of women [Vol. 1. Juggling, balancing, and integrating work and family roles and responsibilities, Vol. 2. Institutional equity and compliance, Vol. 3. Managing, leading, and developing employees, Vol. 4. Implementing best practices in human resources]. In M. A. Paludi (Ed.), *Psychology for business success* (pp. 193–220, Vol. 1-4). Praeger/ABC-CLIO.

Nadal, K. L., & Haynes, K. (2012). The effects of sexism, gender microaggressions, and other forms of discrimination on women's mental health and development. In P. K. Lundberg-Love, K. L. Nadal, & M. A. Paludi (Eds.), *Women and mental disorder* (pp. 87–102, Vol. 2). Praeger.

Nadal, K. L., Issa, M.-A., Leon, J., Meterko, V., Wideman, M., & Wong, Y. (2011). Sexual orientation microaggressions: "death by a thousand cuts" for lesbian, gay, and bisexual youth. *Journal of LGBT Youth*, *8*(3), 234–259. https://doi.org/10.1080/19361653.2011.584204

Neal, J. W., & Neal, Z. P. (2013). Nested or networked? future directions for ecological systems theory. *Social development*, *22*(4), 722–737. https://doi.org/https://doi.org/10.1111/sode.12018

OECD. (2024). *Education gps - greece - overview of the education system*. Retrieved February 14, 2024, from https://gpseducation.oecd.org/CountryProfile?primaryCountry=GRC&treshold=10&topic=EO

Offermann, L. R., Basford, T. E., Graebner, R., Basu DeGraaf, S., & Jaffer, S. (2013). Slights, snubs, and slurs: Leader equity and microaggressions. *Equality, Diversity and Inclusion: An International Journal*, *32*(4), 374–393. https://doi.org/https://doi.org/10.1108/EDI-05-2012-0046

Papadionysiou, E. (2020). *How organisational culture influence human resource practices and organisational performance: A comparative study among scandinavia and greece* [Doctoral dissertation, University of Patras. School of Management and Economics. Department of Business Administration] [Supervisory Committee: Myloni Barbara, Marouda Leonida, Petridou Eugenia, Androulakis Georgios, Glaveli Niki, Konstantopoulos Nikolaos, Sarri Aikaterini]. http://hdl.handle.net/10442/hedi/47570

Perez, C. C. (2019). The deadly truth about a world built for men–from stab vests to car crashes. *Sat*, *23*, 08–59. https://sprint-h2020.eu/images/articles/gender/The_deadly_truth_about_a_world_built_for_men__from_stab_vests_to_car_crashes___Women___The_Guardian.pdf

Perifanou, M., & Economides, A. A. (2020). Gender equality policies and initiatives for stem skills in greece. https://ruomo.lib.uom.gr/handle/7000/911

Phipps, S. T., & Prieto, L. C. (2021). Leaning in: A historical perspective on influencing women's leadership. *Journal of Business Ethics*, *173*, 245–259. https://doi.org/10.1007/s10551-020-04566-6

Pierce, C. M., Carew, J. V., Pierce-Gonzalez, D., & Wills, D. (1977). An experiment in racism: Tv commercials. *Education and Urban Society*, *10*(1), 61–87. https://doi.org/10.1177/001312457701000105

Purpura, A., Arentzen, T., & Harvey, S. A. (2023). *Rethinking gender in orthodox christianity*. Wipf; Stock Publishers. https://books.google.nl/books?hl=en&lr=&id=dZniEAAAQBAJ&oi=fnd&pg=PR7&dq=Rethinking+Gender+in+Orthodox+Christianity&ots=7ZtHpIVkSA&sig=M0Z_jgKGRN9NC2WgCxcc8fYpT_E&redir_esc=y#v=onepage&q=Rethinking%20Gender%20in%20Orthodox%20Christianity&f=false

Rahmani, S. (2020). Women's expereinces of internalized sexism. https://digitalcommons.nl.edu/diss/451/

Regis, M. F., Alberte, E., Lima, D. S., & Freitas, R. L. S. (2019). Women in construction: Shortcomings, difficulties, and good practices. *Engineering, Construction and Architectural Management*. https://doi.org/10.1108/ECAM-09-2018-0425

Reilly, E. D., Rackley, K. R., & Awad, G. H. (2017). Perceptions of male and female stem aptitude: The moderating effect of benevolent and hostile sexism. *Journal of Career Development*, *44*(2), 159–173. https://doi.org/10.1177/0894845316641514

Riemer, A. R., Chaudoir, S. R., & Earnshaw, V. (2014). What looks like sexism and why? the effect of comment type and perpetrator type on women's perceptions of sexism. *The Journal of General Psychology*, *141*(3), 263–279. https://doi.org/10.1080/00221309.2014.907769

Rosenfeld, L., & Jarrard, M. E. W. (1986). Student coping mechanisms in sexist and nonsexist professors' classes. *Communication Education*, *35*, 157–162. https://doi.org/10.1080/03634528609388334

Rosette, A. S., Akinola, M., & Ma, A. (2018). Subtle discrimination in the workplace: Individual-level factors and processes. *The Oxford handbook of workplace discrimination*, 7–24. https://books.google.nl/books?hl=en&lr=&id=wgJCDwAAQBAJ&oi=fnd&pg=PT24&dq=subtle+discrimination+in+the+workplace+individual-level&ots=eBaIquY2fM&sig=zumTh44oEugQQlg0oxA4A_PCgc0#v=onepage&q=subtle%20discrimination%20in%20the%20workplace%20individual-level&f=false

SAFER. (2019). Greece national report [Accessed: 24-03-2024]. *The Systematic Approaches For Equality of Gender - SAFER*. http://gendersafer.eu/sites/default/files/2019-11/Greece.National_Report_0.pdf

Saraceno, C., & Keck, W. (2010). Can we identify intergenerational policy regimes in europe? *European societies*, *12*(5), 675–696. https://doi.org/10.1080/14616696.2010.483006

Schein, E. H. (1990). *Organizational culture.* (Vol. 45). American Psychological Association. https://psycnet.apa.org/record/1990-15978-001

Schmader, T. (2023). Gender inclusion and fit in stem. *Annual Review of Psychology*, *74*, 219–243. https://doi.org/10.1146/annurev-psych-032720-043052

Schwerdel, S. A. (2021). *Women's lived experiences with benevolent sexism*. Lesley University. https://www.proquest.com/openview/3afba679a66ae3d8122802641ba405e1/1?pq-origsite=gscholar&cbl=18750&diss=y

Simkus, J. (2022). Convenience sampling: Definition, method and examples. *Retrieved Oktober*, *6*, 2022. https://www.simplypsychology.org/convenience-sampling.html

Smith, E. R. (1992). Differential perceptions of sexism. *Women & Therapy*, *12*(1), 187–200. https://doi.org/10.1300/J015V12N01_15

Sojo, V. E., Wood, R. E., & Genat, A. E. (2016). Harmful workplace experiences and women's occupational well-being: A meta-analysis. *Psychology of Women Quarterly*, *40*(1), 10–40. https://doi.org/10.1177/0361684315599346

Speer, J. D. (2023). Bye bye ms. american sci: Women and the leaky stem pipeline. *Economics of Education Review*, *93*, 102371. https://doi.org/10.1016/j.econedurev.2023.102371

Spencer, M. B., Dupree, D., & Hartmann, T. (1997). A phenomenological variant of ecological systems theory (pvest): A self-organization perspective in context. *Development and psychopathology*, *9*(4), 817–833. https://www.cambridge.org/core/journals/development-and-psychopathology/article/phenomenological-variant-of-ecological-systems-theory-pvest-a-selforganization-perspective-in-context/4E4052FA6A8D383CB2629931C42ED47E

Stamarski, C. S., & Son Hing, L. S. (2015). Gender inequalities in the workplace: The effects of organizational structures, processes, practices, and decision makers' sexism. *Frontiers in psychology*, *6*, 135488. https://doi.org/10.3389/fpsyg.2015.01400

Stasinou, N. (2024). Femicide: An "epidemic" in greece and the world (infographic). *H ΝΑΥΤΕΜΠΟΡΙΚΗ*. https://www.naftemporiki.gr/society/1563984/gynaikoktonies-mia-epidimia-stin-ellada-kai-ton-kosmo-infographic/

Steenkamp, J.-B. E. (2001). The role of national culture in international marketing research. *International marketing review*, *18*(1), 30–44. https://www.emerald.com/insight/content/doi/10.1108/02651330110381970/full/html?casa_token=mc-HpZuW-h4AAAAA:y9T-QLwMHic52civFjY4vBSafCQrfd02WmICcCDB-GuJnmB9ZJbtIIk9jY15R01W4wxEz7FuibxObisGRCezzM8z8fqXgFXCbwAcPiMgroi7eC7NtgCw

Sue, D. W., Capodilupo, C. M., & Holder, A. M. B. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*, *62*(4), 271–286. https://www.counseling.org/docs/default-source/practice-briefs/racial-microaggressions.pdf?sfvrsn=433ca07c_1

Sue, D. W. (2010a). *Microaggressions in everyday life: Race, gender, and sexual orientation*. John Wiley & Sons.

Sue, D. W. (2010b). Microaggressive impact on education and teaching: Facilitating difficult dialogues on race in the classroom. In *Microaggressions in everyday life: Race, gender, and sexual orientation* (pp. 231–254). John Wiley & Sons.

Swearer, S. M., & Espelage, D. L. (2004). A social-ecological framework for bullying prevention and intervention in schools. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in american schools: A social-ecological perspective on prevention and intervention* (pp. 1–12). Lawrence Erlbaum Associates. https://books.google.nl/books?hl=en&lr=&id=d2-NAgAAQBAJ&oi=fnd&pg=PA61&dq=A+Social-Ecological+Framework+for+Bullying+Prevention+and+Intervention+in+Schools&ots=gtC7e8xGJ3&sig=P5S7UOwzuEOBjgA_iqF42lksbfY&redir_esc=y#v=onepage&q=A%20Social-Ecological%20Framework%20for%20Bullying%20Prevention%20and%20Intervention%20in%20Schools&f=false

Team, G., & Team, G. (2021). Maternity leaves offered in greece [Accessed: 2024-06-19].

Theofanopoulos, H., Theophylaktos, K., Mezartasoglou, D., Stambolis, K., & Terzidou, E. (2023, May). Energy and Employment in Greece [Email: info@iene.gr]. www.iene.gr

Thomas, K. R. (2008). Macrononsense in multiculturalism. https://doi.org/10.1037/0003-066X.63.4.274

Thomas, U., & Drake, J. (2016). Grace under fire: Examining the underrepresentation and persistence of women in stem professions from an ecological systems theory perspective. In *Critical research on sexism and racism in stem fields* (pp. 1–22). IGI Global. https://doi.org/10.4018/978-1-5225-0174-9.ch001

Timmerman, G., & Bajema, C. (2000). The impact of organizational culture on perceptions and experiences of sexual harassment. *Journal of Vocational Behavior*, *57*(2), 188–205. https://doi.org/10.1006/jvbe.1999.1741

Tzouvara, V., & Papadopoulos, C. (2014). Public stigma towards mental illness in the greek culture. *Journal of psychiatric and mental health nursing*, *21*. https://doi.org/10.1111/jpm.12146

Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era [Leadership and Complexity]. *The Leadership Quarterly*, *18*(4), 298–318. https://doi.org/https://doi.org/10.1016/j.leaqua.2007.04.002

Vila, B. (1994). A general paradigm for understanding criminal behavior: Extending evolutionary ecological theory. *Criminology*, *32*(3), 311–360. https://doi.org/10.1111/j.1745-9125.1994.tb01157.x

Vishnevsky, T., & Beanlands, H. (2004). Qualitative research. *Nephrology Nursing Journal*, *31*(2), 234.

Vredenburgh, D., & Brender, Y. (1998). The hierarchical abuse of power in work organizations. *Journal of business ethics*, *17*, 1337–1347. https://doi.org/10.1023/A:1005775326249

Walker, A., Barton, E., Parry, B., & Snowdon, L. (2023). Preventing sexual harassment through a prosocial bystander campaign: It's safetosay. *Journal of Community Safety and Well-Being*, *8*, 130–138. https://doi.org/10.35502/jcswb.329

Walters, A. (2023). *Masculine culture, gender roles, and the underrepresentation of women in stem fields* [Doctoral dissertation, University of Minnesota]. https://www.proquest.com/openview/ef3fe980dc4ac49b1e321d51864f92c6/1?cbl=18750&diss=y&pq-origsite=gscholar

Wang, M.-T., & Degol, J. L. (2017). Gender gap in science, technology, engineering, and mathematics (stem): Current knowledge, implications for practice, policy, and future directions [Epub 2016 Jan 13]. *Educational Psychology Review*, *29*(1), 119–140. https://doi.org/10.1007/s10648-015-9355-x

Weiss, H. B., Lopez, M. E., Kreider, H., & Chatman-Nelson, C. (2013). *Preparing educators to engage families: Case studies using an ecological systems framework*. Sage Publications. https://books.google.nl/books?hl=en&lr=&id=idF1AwAAQBAJ&oi=fnd&pg=PP1&dq=The+Role+

of+Family‚+School‚+and+Community+Systems+in+Shaping+Academic+Achievement:
+An+Ecological+Systems+Analysis&ots=YPL6fd6cW1&sig=acpXd6pkvuJYLAF6naCQC
kCTOVc#v=onepage&q=The%20Role%20of%20Family%2C%20School%2C%20and%
20Community%20Systems%20in%20Shaping%20Academic%20Achievement%3A%20An%
20Ecological%20Systems%20Analysis&f=false

Whiston, S. C., & Cinamon, R. G. (2015). The work–family interface: Integrating research and career counseling practice. *The Career Development Quarterly*, *63*(1), 44–56. https://doi.org/10.1002/j.2161-0045.2015.00094.x

Willness, C., Steel, P., & Lee, K. (2007). A meta-analysis of the antecedents and consequences of workplace sexual harassment. *Personnel Psychology*, *60*, 127–162. https://doi.org/10.1111/j.1744-6570.2007.00067.x

Yang, Y., & Carroll, D. W. (2018). Gendered microaggressions in science, technology, engineering, and mathematics. *Leadership and research in Education*, *4*, 28–45. https://eric.ed.gov/?id=EJ1174441

Yee, S. F. (2019). The framework of transcendental phenomenology. In *A phenomenological inquiry into science teachers' case method learning* (pp. 1–21). Springer Singapore. https://doi.org/10.1007/978-981-13-2679-0_1

Yesilirmak, A. C., Tayfur Ekmekci, O., & Bayhan Karapinar, P. (2023). Desire to work with woman manager: Interplay between sexism and organizational culture. *Gender in Management: An International Journal*, *38*(5), 581–598. https://www.emerald.com/insight/content/doi/10.1108/GM-07-2021-0225/full/html

Yoder, J. D., & Kahn, A. S. (1992). Toward a feminist understanding of women and power. *Psychology of Women Quarterly*, *16*(4), 381–388. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1471-6402.1992.tb00263.x?casa_token=pkYkOFgeMaEAAAAA:DTXG0UtnXuTXuvEazj5AJxkBa5Ln61gMWGu_7h4dwye0V-7OMxLo6BnVzWCdjusvnsndppG9iPqERrk

Appendix

A
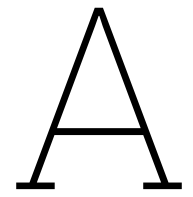
Empirical Study

A.1. Data Management Plan

Plan Overview

A Data Management Plan created using DMPonline

Title: Master Thesis Data Management Plan

Creator: Vicky Maritsa

Affiliation: Delft University of Technology

Template: TU Delft Data Management Plan template (2021)

Project abstract:

My study will explore a form of subtle gender discrimination in the workplace. This form of sexism is called 'gender microaggression'. I will conduct phenomenological study in the energy sector in Greece. I will try to explore how women perceive this form of sexism in their work, what are the consequences on the individual and organization, and what are the contributing factors to the phenomenon. The study will involve 2 participant categories. I will interview 11 female employees from 3 companies (1st category) and 2 gender expert academics (2ndcategory).

Regarding the 1st interview category, the 11 participants will be selected from a larger pool of potential participants sourced through the HR department. This larger pool helps to minimize the risk of reidentification and ensures a diverse range of perspectives.

I have already contacted with the HR department, and they have allowed me to interview the female employees. I have also approval for interviews from the 2 academics. The 1st category will answer questions if they have experienced any form of gender microaggression and how they perceive. The 2nd category will answer questions concerning the societal factors contributing to this phenomenon.

ID: 149336

Start date: 02-04-2024

End date: 01-09-2024

Last modified: 06-06-2024

Master Thesis Data Management Plan

0. Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.

My faculty data steward, Nicolas, Dintzner, has reviewed the DMP on 15/04/2024.

2. Date of consultation with support staff.

2024-04-15

I. Data description and collection or re-use of existing data

3. Provide a general description of the type of data you will be working with, including any re-used data:

Type of data	File format(s)	How will data be collected (for re-used data: source and terms of use)?	Purpose of processing	Storage location	Who will have access to the data
Interview Transcripts /Audio Recordings	.docx, .pdf	Semi-structured interviews with female employees and gender studies academics.	To analyze perceptions of gender microaggressions and organizational and environmental factors contributing to gender microaggressions	Project Drive /MS Teams	Vicky Maritsa (Master Student)
Email Adresses	.csv	Collected from the HR representative of the company and from the experts	To facilitate long-distance interviews and communication with the company's representative	Project Storage Drive	- Vicky Maritsa - Jenny Lieu - Claudia Werker
Analytical codes from thematic analysis	.docx, .xslx	Derived from interview transcripts	To categorize data for thematic analysis of gender microaggressions within STEM	Project Storage Drive	- Vicky Maritsa - Jenny Lieu - Claudia Werker

4. How much data storage will you require during the project lifetime?

- < 250 GB

Data Volume:
The anticipated data volume is expected to be relatively low (<250 GB). The majority of the data will come from interview transcripts but again it is expected to be lower than 250 GB. As the data volume is relatively low, no challenges are identified.

Data Collection:

Category	Data Collection/Processing	Organizing Data	Consistency and Quality
1. Interview Transcripts *Employees AND Executives AND Experts*	The process will involve audio recording, transcribing these recordings, and conducting qualitative coding. Initially, audio recordings will be securely saved on project storage drive. Then, these recordings will be deleted for confidentiality reasons. The transcribed texts will then undergo qualitative coding utilizing the *ATLAS.ti* software.	Each audio recording will be stored in an encrypted code with the name "Audio_Recordings". This folder will contain 3 subfolders with the names "Interviews_Employees", "Interviews_Executives", "Interviews_Experts". **"Interviews_Employees" Folder** The name convinction of each audio recording of the employees will be based on the assigned pseydo-code (e.g., pseydo-Code1_Audio_employee). Then each audio will be transcripted and each transcript will be saved in a seperate encrypted folder named as "Transcripts". Each transcript will be named after the pseydo-code (e.g.pseydo-Code1_Transcript). When the transcript for all audio recordings is complete, the "Audio_Recordings" folder will be deleted. **"Interviews_Experts" Folder** The name convinction of each audio recording of the experts will be based on their first name (e.g., FirstName_Audio_Expert). Accordingly, the audio will be transcripted (e.g. FirstName_Transcript_Expert). The audio recordings will not be deleted, as there are no serious confidentiality implications.	- Follow case study protocol - Engage in peer reviews with my supervisors - Formulate controlled vocabulary with terms such as gender microaggressions etc. and share this vocabulary with supervisors. - Follow the theoretical frameworks established in literature (specifically, the gender microaggressions, and the EST). Allow the theory to guide my research.
Email Adresses	The HR representative will provide me with the email adresses for online interviews. Accordingly, the experts will provide me with their email adresses. The emails will be collected strictly for the online communication.	Email adresses will be stored in an encrypted separate folder. This folder will contain three subfolders (organization emails, employee emails, and expert emails). The naming convention for employee emails will utilize their given pseudo-code, formatted as "pseudo-code1_email."	
Analytical codes from thematic analysis	Collecting the relevant codes from the qualitative analysis software *ATLAS.ti* . These data will be processed for research findings.	A new file will be created with the name "Codes". This file will entail 3 subfolders, namely "Codes_Employees", "Codes_Executives", "Codes_Experts". Each subfolder will contain the qualitative codes results.	

II. Documentation and data quality

5. What documentation will accompany data?

- Data dictionary explaining the variables used
- Methodology of data collection

III. Storage and backup during research process

6. Where will the data (and code, if applicable) be stored and backed-up during the project lifetime?

- Project Storage at TU Delft

IV. Legal and ethical requirements, codes of conduct

7. Does your research involve human subjects or 3rd party datasets collected from human participants?

- Yes

8A. Will you work with personal data? (information about an identified or identifiable natural person)

If you are not sure which option to select, first ask your **Faculty Data Steward** *for advice. You can also check with the* **privacy website** *. If you would like to contact the privacy team: privacy-tud@tudelft.nl, please bring your DMP.*

- Yes

The PII such as name, age, work experience will not be asked in order to reduce the risk of re-idendification. The female participants will be selected from a larger pool of potential participants sourced through the HR department of each company. This larger pool helps to minimize the risk of reidentification and ensures a diverse range of perspectives. Audio recordings and informed consent forms will be gathered using pseudonymization, with each participant being assigned a pseudocode. Transcripts of interviews will be provided to participants prior to use and any changes requested will be allowed.

8B. Will you work with any other types of confidential or classified data or code as listed below? (tick all that apply)

If you are not sure which option to select, ask your **Faculty Data Steward** *for advice.*

- Yes, data which could lead to reputation/brand damage (e.g. animal research, climate change, personal data)

I am collecting data related to personal experiences of gender microaggressions within a specific company. Disclosing the company's name might harm its reputation. Additionally, a re-identification of female employees could harm their reputation within the company.

The female participants will be selected from a larger pool of potential participants sourced through the HR department of each company. This larger pool helps to minimize the risk of reidentification and ensures a diverse range of perspectives. Transcripts of interviews will be provided to participants prior to use and any changes requested will be allowed.

9. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your **Faculty Contract Manager** *when answering this question. If this is not the case, you can use the example below.*

Internal Master Thesis Project

10. Which personal data will you process? Tick all that apply

- Other types of personal data - please explain below
- Data collected in Informed Consent form (names and email addresses)
- Names and addresses
- Signed consent forms
- Gender, date of birth and/or age
- Email addresses and/or other addresses for digital communication

Job description, domain of activity, age will be kept in ranges of 10 years

11. Please list the categories of data subjects

- Female employees from the company
- Experts on the phenomenon of gender microaggression (Academics)

Everyone is located in Greece

12. Will you be sharing personal data with individuals/organisations outside of the EEA (European Economic Area)?

- No

15. What is the legal ground for personal data processing?

- Informed consent

16. Please describe the informed consent procedure you will follow:

All study participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview.

17. Where will you store the signed consent forms?

- Same storage solutions as explained in question 6

18. Does the processing of the personal data result in a high risk to the data subjects?

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a **Data Protection Impact Assessment (DPIA).** In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data during your research (check all that apply).
If two or more of the options listed below apply, you will have to **complete the DPIA**. Please get in touch with the privacy team: privacy-tud@tudelft.nl to receive support with DPIA.
If only one of the options listed below applies, your project might need a DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to get advice as to whether DPIA is necessary.
If you have any additional comments, please add them in the box below.

- None of the above applies

19. Did the privacy team advise you to perform a DPIA?

- No

22. What will happen with personal research data after the end of the research project?

- Anonymised or aggregated data will be shared with others
- Personal research data will be destroyed after the end of the research project

I will use pseydo-anonymization. The perceptions of anonymous gender microaggressions will be shared with others.

23. How long will (pseudonymised) personal data be stored for?

- Other - please state the duration and explain the rationale below

During the duration of the project + 1 month

24. What is the purpose of sharing personal data?

- Other - please explain below

Not sharing personal data

25. Will your study participants be asked for their consent for data sharing?

- Yes, in consent form - please explain below what you will do with data from participants who did not consent to data sharing

V. Data sharing and long-term preservation

27. Apart from personal data mentioned in question 22, will any other data be publicly shared?

- All other non-personal data (and code) underlying published articles / reports / theses

29. How will you share research data (and code), including the one mentioned in question 22?

- My data will be shared in a different way - please explain below

It will be indicated in the Appendix of my master thesis

30. How much of your data will be shared in a research data repository?

- < 100 GB

31. When will the data (or code) be shared?

- At the end of the research project

32. Under what licence will be the data/code released?

- Other - Please explain

Dutch Laws

VI. Data management responsibilities and resources

33. Is TU Delft the lead institution for this project?

- Yes, the only institution involved

34. If you leave TU Delft (or are unavailable), who is going to be responsible for the data resulting from this project?

35. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

Time will be dedicated to data management.

Created using DMPonline. Last modified 06 June 2024

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A.2. Human Research Ethics Checklist (HREC)

Delft University of Technology
HUMAN RESEARCH ETHICS
CHECKLIST FOR HUMAN RESEARCH
(Version January 2022)

IMPORTANT NOTES ON PREPARING THIS CHECKLIST

1. An HREC application should be submitted for every research study that involves human participants (as Research Subjects) carried out by TU Delft researchers
2. Your HREC application should be submitted and approved **before** potential participants are approached to take part in your study
3. All submissions from Master's Students for their research thesis need approval from the relevant Responsible Researcher
4. The Responsible Researcher must indicate their approval of the completeness and quality of the submission by signing and dating this form OR by providing approval to the corresponding researcher via email (included as a PDF with the full HREC submission)
5. There are various aspects of human research compliance which fall outside of the remit of the HREC, but which must be in place to obtain HREC approval. These often require input from internal or external experts such as Faculty Data Stewards, Faculty HSE advisors, the TU Delft Privacy Team or external Medical research partners.
6. You can find detailed guidance on completing your HREC application here
7. Please note that incomplete submissions (whether in terms of documentation or the information provided therein) will be returned for completion **prior to any assessment.**
8. If you have any feedback on any aspect of the HREC approval tools and/or process you can leave your comments here

I.   Applicant Information

PROJECT TITLE:	**Gender Microaggressions in STEM**
Research period: *Over what period of time will this specific part of the research take place*	**02/04/2024 – 02/07/2024**
Faculty:	**TPM**
Department:	**Organization & Governance**
Type of the research project: *(Bachelor's, Master's, DreamTeam, PhD, PostDoc, Senior Researcher, Organisational etc.)*	**Master's**
Funder of research: *(EU, NWO, TUD, other – in which case please elaborate)*	
Name of Corresponding Researcher: *(If different from the Responsible Researcher)*	**Vasiliki Maritsa**
E-mail Corresponding Researcher: *(If different from the Responsible Researcher)*	**V.Maritsa@student.tudelft.nl**
Position of Corresponding Researcher: *(Masters, DreamTeam, PhD, PostDoc, Assistant/ Associate/ Full Professor)*	**Masters**
Name of Responsible Researcher: ***Note:*** *all student work must have a named Responsible Researcher to approve, sign and submit this application*	**Jenny Lieu**
E-mail of Responsible Researcher: *Please ensure that an institutional email address (**no Gmail, Yahoo, etc.**) is used for all project documentation/ communications including Informed Consent materials*	**J.Lieu-1@tudelft.nl**
Position of Responsible Researcher : *(PhD, PostDoc, Associate/ Assistant/ Full Professor)*	**Assistant Professor**

II.   Research Overview
NOTE: *You can find more guidance on completing this checklist* here

a)   Please summarise your research very briefly (100-200 words)
What are you looking into, who is involved, how many participants there will be, how they will be recruited and what are they expected to do?

Add your text here – (please avoid jargon and abbrevations)
My study will explore a form of subtle gender discrimination in the workplace. This form of sexism is called 'gender microaggression'. I will conduct a case study in a chemical firm in Greece. I will try to explore how women perceive this form of sexism in their work, what are the consequences on the individual and organization, and what are the contributing factors to the phenomenon. The study will involve 3 participant categories. I will interview approximately 10 female employees from the company (1st category), 2 or more executives from the company (2nd category) and 2 or more representatives from a Greek NGO (3rd category).
The 10 participants for the 1st interview category will be selected from a larger pool of potential participants sourced through the HR department. This larger pool helps to minimize the risk of reidentification and ensures a diverse range of perspectives.
I have already contacted with the HR department, and they have agreed to interview the female employees and executives. I am also in contact with the Greek NGO. The 1st category will answer questions if they have experienced any form of gender microaggression and how they perceive. The 2nd category will answer questions regarding the organization's culture, policy and leadership style. The 3rd category will answer questions concerning the societal factors contributing to this phenomenon.

b) **If your application is an additional project** related to an existing approved HREC submission, please provide a brief explanation including the existing relevant HREC submission number/s.

Add your text here – (please avoid jargon and abbrevations)

c) **If your application is a simple extension of, or amendment to,** an existing approved HREC submission, you can simply submit an HREC Amendment Form as a submission through LabServant.

III. Risk Assessment and Mitigation Plan

NOTE: You can find more guidance on completing this checklist here

Please complete the following table in full for all points to which your answer is "yes". Bear in mind that the vast majority of projects involving human participants as Research Subjects also involve the collection of **Personally Identifiable Information (PII)** and/or **Personally Identifiable Research Data (PIRD)** which may pose potential risks to participants as detailed in Section G: Data Processing and Privacy below.

To ensure alignment between your risk assessment, data management and what you agree with your Research Subjects you can use the last two columns in the table below to refer to specific points in your Data Management Plan (DMP) and Informed Consent Form (ICF) – **but this is not compulsory**.

It's worth noting that **you're much more likely to need to resubmit your application if you neglect to identify potential risks** , than if you identify a potential risk and demonstrate how you will mitigate it. If necessary, the HREC will always work with you and colleagues in the Privacy Team and Data Management Services to see how, if at all possible, your research can be conducted.

ISSUE	Yes	No	*If YES please complete the Risk Assessment and Mitigation Plan columns below.* **RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	*Please provide the relevant reference #* DMP	ICF
A: Partners and collaboration						
Will the research be carried out in collaboration with additional s: orating research and/or commercial organisations r a work experience internship provider[1] *[1] If yes, please include the graduation agreement in this application*		NO				
2. Is this research dependent on a Data Transfer or Processing Agreement with a collaborating partner or third party supplier? *If yes please provide a copy of the signed DTA/DPA*		NO				
3. Has this research been approved by another (external) research ethics committee (e.g.: HREC and/or MREC/METC)? *If yes, please provide a copy of the approval (if possible) and summarise any key points in your Risk Management section below*		NO				
B: Location						

ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
4. Will the research take place in a country or countries, other than the Netherlands, within the EU?	YES		Research will be conducted in Greece. Greece belongs to the E.U., so the legislative requirements are similar to those in the Netherlands. Research will need to comply with the: • EU General Data Protection Regulation (GDPR) • Greek Laws 4624/2019 and 3471/2006 that complement the E.U. GDPR • Guidelines of the Hellenic Data Protection Authority (HDPA) The risk arising here is failing to fully comply with the supplementary regulatory frameworks established by both the European Union and Greece. Another risk is the language barrier.	Comprehensively read the E.U. GDPR , the Greek Laws 4624/2019 and 3471/2006, and the HDPA guidelines. Write a list of the main principles of all 4 directives regarding data handling practices, such as data processing, minimization, anonymity and confidentiality, data security, transparency, data retention, and documentation. Include them in the Informed Consent form. Inform the participants, in simple terms, for all the above practices and obtain consent. The PI is Greek and will be able to accommodate the language barrier.		
5. Will the research take place in a country or countries outside the EU?		NO				
6. Will the research take place in a place/region or of higher risk – including known dangerous locations (in any country) or locations with non-democratic regimes?		NO				
C: Participants						
7. Will the study involve participants who **may** be vulnerable and possibly (legally) unable to give informed consent? (e.g., children below the legal age for giving consent, people with learning difficulties, people living in care or nursing homes,).		NO				
8. Will the study involve participants who **may** be vulnerable under specific circumstances and in specific contexts, such as victims and witnesses of violence, including domestic violence; sex workers; members of minority groups, refugees, irregular migrants or dissidents?	YES		Approaching the issue of gender, a subtle type of sexism, there's a potential for negative emotions to emerge. Although I am not exploring severe and prosecutable forms of sexism, such as sexual harassment or assault, discussing gender microaggressions could trigger memories of such experiences among victims and witnesses. This can include the following risks: • Emotional Distress • Privacy Concerns	The mitigation steps will be: • *Pre-interview screening* Before interviewing the participants, I will implement a screening process to evaluate their readiness to address sensitive topics. Those unwilling to discuss sensitive topics will be excluded. • *Anonymous online interview*		

ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
			• Unwillingness to discuss	Provide this option for participants that declare privacy concerns. • *Informed consent* Obtain informed consent. • *Interview environment* Create a safe interview environment. Use a quiet, private space. Inform the participants that they can withdraw at any given time. • *Participant Transcript Review* Once transcription is finished, share each participant's transcript with them. Request their consent to use the transcribed document. Make adjustments or remove sections of the transcript according to their feedback. • *Post participation follow up* Contact with participants a week after the interviews to check on their well-being. • *Support Resources* Offer a list of counseling and mental health services for participants experiencing significant discomfort during interviews or follow-up communication.		
9. Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator (such as own children, own students or employees of either TU Delft and/or a collaborating partner organisation)? *It is essential that you safeguard against possible adverse consequences of this situation (such as allowing a student's failure to participate to your satisfaction to affect your evaluation of their coursework).*		NO				
10. Is there a high possibility of re-identification for your participants? (e.g., do they have a very specialist job of which there are only a small number in a given country, are they members of a small community, or employees from a partner company collaborating in the research? Or are they one of only a handful of (expert) participants in the study?	YES		As the study involves employees from organizational settings (including private companies and non-governmental organizations), there is a risk of re-identification within these entities. The specific nature of the work environments and the sensitive topic of gender microaggressions could lead to stigmatization and marginalization if individuals or organizations are explicitly identified. This could compromise the confidentiality promised to the participants and potentially affect their professional relationships and personal well-being.	The mitigation steps will be: • *Anonymize Organizations:* Use designations such as *Organization 1, Organization 2* etc., for the entities involved. This method will be used for both companies and NGOs, but it will not specify which is which, ensuring participant protection. Following this, the collected data will be aggregated and made accessible to HR without revealing whether the data refers to companies or NGOs. • *Increase the participant pool*		

ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
				Recruit as many women as possible from the company, so that the re-identification risk decreases. Ideally, 10 female participants will be selected. These participants will be selected from a larger pool of potential participants sourced through the HR department. This larger pool helps to minimize the risk of reidentification and ensures a diverse range of perspectives. • *Avoid specific questions* Avoiding specific inquiries that could lead to re-identification, such as name, age, ethnicity, address, and work experience, as these details are not pertinent to the research. • *Pseudonymize participants* Identify each participant based on a unique assigned code and not their name. • *Informed Consent* Include information ensuring the anonymity, the risks and the mitigation plans. • *Data Privacy* Ensure the data privacy by signing an agreement with the company declaring that the collected data will remain confidential. Only the final Master thesis report will be shared.		
D: Recruiting Participants						
11. Will your participants be recruited through your own, professional, channels such as conference attendance lists, or through specific network/s such as self-help groups		NO				
12. Will the participants be recruited or accessed in the longer term by a (legal or customary) gatekeeper? (e.g., an adult professional working with children; a community leader or family member who has this customary role – within or outside the EU; the data producer of a long-term cohort study)	YES		The participants will be recruited from the HR department of the company. So the HR employee responsible for the recruitment of the participants will be the gatekeeper. As I will not have direct access to the participants, the HR department, serving as the intermediary might introduce bias in participant selection. Specifically, they might select participants who present the company in a more favorable way. Additionally, being selected by the HR department, participants may feel obliged to participate. This can introduce the risk of limiting participant autonomy.	The mitigation steps will be: • *Collaboration with the gatekeeper* Close collaboration and ongoing communication with the HR department throughout the recruiting process. Ensure that the research objectives and requirements are clearly communicated and followed. • *Setting recruitment criteria* To reduce selection bias, I will provide HR with a set of criteria and explain the reasoning behind each one. I'll request HR to identify individuals across different		

ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
				departments and roles who meet these criteria, focusing on achieving a varied group of participants. • *Informed consent* In the document, I will clearly state that involvement is voluntary, and participants can withdraw at any time. Also, I will highlight that choosing nonparticipation in this study will not entail any professional repercussions. • *Information on risk of stigmatization* Inform the participations of the risk of stigmatization due to the sensitive nature of my topic. Inform them about the mitigations steps, as outlined *in Question 10* (e.g., increasing participants pool, ensuring anonymity and data privacy, and not collecting personal information) .		
13. Will you be recruiting your participants through a crowd-sourcing service and/or involve a third party data-gathering service, such as a survey platform?		NO				
14. Will you be offering any financial, or other, remuneration to participants, and might this induce or bias participation?		NO				
E: Subject Matter *Research related to medical questions/health may require special attention. See also the website of the CCMO before contacting the HREC.*						
15. Will your research involve any of the following: • Medical research and/or clinical trials • Invasive sampling and/or medical imaging • Medical and *In Vitro Diagnostic Medical* Devices Research		NO				
16. Will drugs, placebos, or other substances (e.g., drinks, foods, food or drink constituents, dietary supplements) be administered to the study participants? *If yes see here to determine whether medical ethical approval is required*		NO				
17. Will blood or tissue samples be obtained from participants? *If yes see here to determine whether medical ethical approval is required*		NO				
18. Does the study risk causing psychological stress or anxiety beyond that normally encountered by the participants in their life outside research?	YES		The sensitive nature of my study involves the potential risk of causing stress or anxiety. These could be induced due to:	The mitigation steps will be: • *Steps defined in Question 8*		

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
			• *Reminder of past trauma* As mentioned in *Question 8*, exploring the issue of gender microaggressions - which are minor, subtle forms of gender microaggressions – can remind experiences of extreme cases of gender discrimination such as sexual harassment. Describing such events is clearly out of the scope of my research, however the risk remains. • *Privacy Concerns* Some participants might fear an unfortunate event of data exposure an of re-identification within the company. In such case, they may fear damage to their professional reputation or retaliation. • *Feelings of hopelessness* In a scenario where participants are confirming incidents of gender microaggressions without seeing actionable interventions, feelings of hopelessness might emerge. This could contribute to feelings of anxiety or distress.	The steps previously outlined are: *Pre-interview screening, anonymous online interview, participant transcript review, informed consent, safe interview environment, post participation follow-up, support resources.* • *Inform participants about the selection process* Recruit as many women as possible from the company, so that the re-identification risk decreases. Ideally, 10 female participants will be selected. These participants will be selected from a larger pool of potential participants sourced through the HR department. This larger pool helps to minimize the risk of reidentification and ensures a diverse range of perspectives. Reassure the participants that the re-identification risk is minimized as much as possible and describe them analytically about the selection process.		
19. Will the study involve discussion of personal sensitive data which could put participants at increased legal, financial, reputational, security or other risk? (e.g., financial data, location data, data relating to children or other vulnerable groups) *Definitions of sensitive personal data, and special cases are provided on the TUD Privacy Team website.*		**NO**				
20. Will the study involve disclosing commercially or professionally sensitive, or confidential information? (e.g., relating to decision-making processes or business strategies which might, for example, be of interest to competitors)	**YES**		There is the risk of disclosure of: • *Personal sensitive information* There is the risk of unexpected personal findings, such as discovering incidents of sexual assault and harassment that could have legal implications. Although these findings are clearly out of the scope of my	The mitigations steps will be: • *Provide guidance* In case of discovering findings related to sexual harassment or sexual assault, the participants will be provided with special guidance. They will be encouraged to advice consulting and mental health services and professionals. The		

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		Please provide the relevant reference #	
ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
			research, participants might feel the urge to discuss them, confusing the phenomenon my research addresses. • *Organizational sensitive information* The findings may reveal organizational policies, practices, cultures, leadership approaches and social networks that perpetuate gender microaggressions. Additionally, revelations about coworkers committing gender microaggressions may emerge.	participants will be asked if they want to legally report such information. In case of participants not wanting to report such an incident and are not in immediate harm, confidentiality will be kept. • *Informed Consent* In this form, outline clearly that this research does NOT explore sexual harassment or sexual assault incidents. Inform participants that such revelations will not be disclosed. • *Pseudonymize participants* Identify each participant based on a unique assigned code and not their name. • *Feedback loop with the organization* Establish constructive communication with the organization and propose intervening steps in case of revealing organizational aspects related to gender microaggressions.		
21. Has your study been identified by the TU Delft Privacy Team as requiring a Data Processing Impact Assessment (DPIA)? *If yes please attach the advice/ approval from the Privacy Team to this application*		NO				
22. Does your research investigate causes or areas of conflict? *If yes please confirm that your fieldwork has been discussed with the appropriate safety/security advisors and approved by your Department/Faculty.*		NO				
23. Does your research involve observing illegal activities or data processed or provided by authorities responsible for preventing, investigating, detecting or prosecuting criminal offences *If so please confirm that your work has been discussed with the appropriate legal advisors and approved by your Department/Faculty.*		NO				
F: Research Methods						

ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
24. Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people in non-public places).		NO				
25. Will the study involve actively deceiving the participants? (For example, will participants be deliberately falsely informed, will information be withheld from them or will they be misled in such a way that they are likely to object or show unease when debriefed about the study).		NO				
26. Is pain or more than mild discomfort likely to result from the study? And/or could your research activity cause an accident involving (non-) participants?		NO				
27. Will the experiment involve the use of devices that are not 'CE' certified? *Only, if 'yes': continue with the following questions:*		NO				
• Was the device built in-house?						
• Was it inspected by a safety expert at TU Delft? *If yes, please provide a signed device report*						
• If it was not built in-house and not CE-certified, was it inspected by some other, qualified authority in safety and approved? *If yes, please provide records of the inspection*						
28. Will your research involve face-to-face encounters with your participants and if so how will you assess and address Covid considerations?	YES		• *Risk of transmission* The primary risk is the transmission of COVID between the participants and the researcher. This can occur when the infected person is asymptomatic or when one of the parties has not disclosed being ill. • *Participant concerns about COVID* There is the risk of participants not participating to research due to COVID concerns.	• *Health Protocols* The chairs for the in-person interviews will be placed at least 2 meters apart, which is the recommended distance for not contracting COVID. I will also ask the participants if they have COVID concerns and if they require me to wear a mask. • Offer the possibility to do the interview online.		
29. Will your research involve **either:** a) "big data", combined datasets, new data-gathering or new data-merging techniques which might lead to re-identification of your participants **and/or** b) artificial intelligence or algorithm training where, for example biased datasets could lead to biased outcomes?		NO				
G: Data Processing and Privacy						

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		Please provide the relevant reference #	
ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	DMP	ICF
30. Will the research involve collecting, processing and/or storing any directly identifiable PII (Personally Identifiable Information) including name or email address that will be used for administrative purposes only? (eg: obtaining Informed Consent or disbursing remuneration)	YES		Risk of losing the data (data loss, leak)	The list of participants will be stored at TUD on the project drive. Accessible only to the right people.		
31. Will the research involve collecting, processing and/or storing any directly or indirectly identifiable PIRD (Personally Identifiable Research Data) including videos, pictures, IP address, gender, age etc and **what other Personal Research Data (including personal or professional views) will you be collecting?**	YES		My research will entail collecting, processing and storing audio recordings and professional views. Specifically, participants will not reveal their name during the audio recording. They will be asked about their personal views on the organizational aspects that may contribute to gender microaggressions. The risks are: *Privacy Risk* The most significant risk is the unauthorized access to PIRD. *Compliance Risk* The researcher not complying by mistake to the data protection regulations.	*Pseudonymize participants* Identify each participant based on a unique assigned code and not their name. *Informed consent* Require the participants informed consent on sharing their personal views on the organizational aspects that contribute to gender microaggressions. Also, require consent for the audio recording. Require consent for the collection, processing and storing of PIRD. *Encryption* Employ strong encryption to restrict access to the data collected. *Compliance with GDPR*		
32. Will this research involve collecting data from the internet, social media and/or publicly available datasets which have been originally contributed by human participants		NO				
33. Will your research findings be published in one or more forms in the public domain, as e.g., Masters thesis, journal publication, conference presentation or wider public dissemination?	YES		Accidentally revealing ID of participants in the thesis	Full anonymization, reviewed by company thesis.		
34. Will your research data be archived for re-use and/or teaching in an open, private or semi-open archive?	YES		Accidentally revealing ID of participants in the supplementary material	Only protocol info in the appendices.		

H: More on Informed Consent and Data Management

NOTE: You can find guidance and templates for preparing your Informed Consent materials) <u>here</u>

Your research involves human participants as Research Subjects if you are recruiting them or actively involving or influencing, manipulating or directing them in any way in your research activities. This means you must seek informed consent and agree/ implement appropriate safeguards regardless of whether you are collecting any PIRD.

Where you are also collecting PIRD, and using Informed Consent as the legal basis for your research, you need to also make sure that your IC materials are clear on any related risks and the mitigating measures you will take – including through responsible data management.

Got a comment on this checklist or the HREC process? You can leave your comments <u>here</u>

IV.   Signature/s

> *Please note that by signing this checklist list as the sole, or Responsible, researcher you are providing approval of the completeness and quality of the submission, as well as confirming alignment between GDPR, Data Management and Informed Consent requirements.*

Name of Corresponding Researcher (if different from the Responsible Researcher) (print)

Signature of Corresponding Researcher:

Date: 30/05/2024

Name of Responsible Researcher (print)

Signature (or upload consent by mail) Responsible Researcher:

Date: 30/05/2024

V.   Completing your HREC application
Please use the following list to check that you have provided all relevant documentation

Required:
- o **Always:** This completed HREC checklist
- o **Always:** A data management plan (reviewed, where necessary, by a data-steward)
- o **Usually:** A complete Informed Consent form (including Participant Information) and/or Opening Statement (for online consent)

Please also attach any of the following, if relevant to your research:

Document or approval	Contact/s
Full Research Ethics Application	After the assessment of your initial application **HREC will let you know if and when you need to submit additional information**
Signed, valid Device Report	Your Faculty HSE advisor
Ethics approval from an external Medical Committee	TU Delft Policy Advisor, Medical (Devices) Research
Ethics approval from an external Research Ethics Committee	Please append, if possible, with your submission
Approved Data Transfer or Data Processing Agreement	Your Faculty Data Steward and/or TU Delft Privacy Team
Approved Graduation Agreement	Your Master's thesis supervisor
Data Processing Impact Assessment (DPIA)	TU Delft Privacy Team
Other specific requirement	Please reference/explain in your checklist and append with your submission

A.3. HREC Approval

Date 06-Jun-2024
Correspondence hrec@tudelft.nl

TUDelft Delft University of Technology

Human Research Ethics
Committee TU Delft
(http://hrec.tudelft.nl)

Visiting address
Jaffalaan 5 (building 31)
2628 BX Delft

Postal address
P.O. Box 5015 2600 GA Delft
The Netherlands

Ethics Approval Application: Gender Microaggressions in STEM: A Case study in a Greek chemical firm.
Applicant: Maritsa, Vicky

Dear Vicky Maritsa,

It is a pleasure to inform you that your application mentioned above has been approved.

Thanks very much for your submission to the HREC which has been approved.

In addition to any specific conditions or notes, the HREC provides the following standard advice to all
applicants:
• In light of recent tax changes, we advise that you confirm any proposed remuneration of research subjects
with your faculty contract manager before going ahead.
• Please make sure when you carry out your research that you confirm contemporary covid protocols with
your faculty HSE advisor, and that ongoing covid risks and precautions are flagged in the informed consent
- with particular attention to this where there are physically vulnerable (eg: elderly or with underlying
conditions) participants involved.
• Our default advice is not to publish transcripts or transcript summaries, but to retain these privately for
specific purposes/checking; and if they are to be made public then only if fully anonymised and the
transcript/summary itself approved by participants for specific purpose.
• Where there are collaborating (including funding) partners, appropriate formal agreements including clarity
on responsibilities, including data ownership, responsibilities and access, should be in place and that
relevant aspects of such agreements (such as access to raw or other data) are clear in the Informed
Consent.

Good luck with your research!

Sincerely,

Dr. Ir. U. Pesch
Chair HREC
Faculty of Technology, Policy and Management

A.4. Informed Consent

TUDelft

Informed Consent Form

Participant Information

You are being invited to participate in the Master's Thesis study titled Gender Microaggressions in STEM: A Case Study in a Greek chemical firm. This Master Thesis is being done by Vasiliki Maritsa from the TU Delft. This research is chaired by Dr. Claudia Werker (Associate Professor at the Faculty of Technology, Policy, and Management at TU Delft), and supervised by Dr. Jenny Lieu, Assistant Professor in the same faculty.

The purpose of this research study is to explore the phenomenon of subtle gender discrimination, known as gender microaggressions, within STEM field, and it will take you approximately 45 minutes to complete. You will be asked to participate in an audio-recorder interview. The data will be used for analysing:
- the perceptions of gender microaggressions,
- their implications
- the organizational and environmental factors contributing to gender microaggressionsThe findings will be published in this Master's Thesis and archived in the TU Delft Repository.

We will be asking you to:
- discuss any experiences you might have had with gender microaggressions in theworkplace

And if so,
- evaluate the impact of such experiences
- share your perspectives on organizational and environmental factors that maycontribute to gender microaggressions.

As with any online activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by pseudonymizing your responses and securely storing all research data in accordance with TU Delft guidelines. Personal data such as names or specific identifiers will not be shared beyond the TU Delft study team. You are being selected out of a large participant pool provided by HR. Your input will be aggregated with the input of other participants in the result section of the public thesis. You will be anonymous in any all output.

Your participation in this study is entirely voluntary and you can withdraw at any time. Not participating in this study will have no effect on your job or standing within the company. You are free to omit any questions. All personal data collected during the study (consent form, audio recording and transcript) will be deleted at the latest one month after the completion of the study (approx. 01/10/2024)

For further inquiries or to withdraw from the study, please contact Vicky Maritsa at V.Maritsa@student.tudelft.nl .

PLEASE TICK THE APPROPRIATE BOXES	YES	NO
A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICPANT TASKS AND VOLUNTARY PARTICIPATION		
1. I have read and understood the study information dated [*DD/MM/YYYY*], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction. 2. I have read and understood the information above, and I consent to participate in the study and the data processing described above. 3. I understand that discussion will be about gender microaggression.	☐	☐
4. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	☐	☐
5. I understand that taking part in the study involves:	☐	☐
• Participating in audio-recorded interviews • Collection of information through audio-recordings and written notes • Transcription of these audio-recordings into text and storage • Permanent deletion of audio recordings once transcription is complete.		
6. I understand that the study will end in the beginning of September.	☐	☐
B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)		
7. I understand that taking part in the study involves the following risks:	☐	☐
a) <u>Risk of COVID transmission</u> Face-to-face interviews poses the risk of COVID transmission. b) <u>Risk of Breach of Confidentiality</u> As the research involves online methods (e.g. email communications), there is the risk of privacy violations stemming from potential unauthorized access or exposure of data during storage or transmission. c) <u>Risk of Emotional Discomfort</u> Discussing experiences of gender microaggressions may evoke emotional discomfort such as psychological stress, anxiety, sadness, feelings of hopelessness etc. d) <u>Risk of Severe Emotional Distress and Unintended Disclosure of Past Traumatic Experiences</u> Although sexual harassment and sexual assault is clearly NOT the scope of this research, discussing about gender microaggressions could bring up past traumas for individuals who have experienced such events and could potentially lead to unintended revelations.		

PLEASE TICK THE APPROPRIATE BOXES	YES	NO
8. I understand that the above risks will be mitigated accordingly by:	☐	☐
a) Ensuring physical distance and sanitation measures. Masks will be available at the interview location. Option for online interview is also available. b) Storing electronic data at a designated storage drive provided from TU Delft and only the responsible researcher having access. Using encryption. Permanently deleting audio-recordings after encryption. c) Reassurance that the interview can stop at any point. Provision of list of professional mental health advisors and services.		
9. I understand that taking part in the study also involves collecting specific personally identifiable information (PII) (name, email address, gender, signed consent form) and associated personally identifiable research data (PIRD) (audio recordings, perceptions on gender microaggressions, perceptions on organizational aspects) with the potential risk of my identity being revealed, risk of stigmatization, risk of marginalization.	☐	☐
10. I understand that the following steps will be taken to minimize the threat of a data breach and protect my identity in the event of such a breach (pseudonymization, privacy agreement with the company, selection from a large participant pool provided by HR, data aggregation, secure data storage at TU Delft cloud, limited access, transcription, deletion of audio recordings after transcription).	☐	☐
11. I understand that personal information collected about me that can identify me, such as (e.g. my name), will not be shared beyond the study team.	☐	☐
12. I understand the transcript of the interview will be provided to me prior to any use. I understand that I have the right to request adjustments, permanent deletion of specific sections, or the entire document.	☐	☐
13. I understand that the (identifiable) personal data I provide will be destroyed after 1 month of the duration of the project, approximately in October.	☐	☐
C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION		
14. I understand that after the research study the de-identified information I provide will be used for the Master's thesis.	☐	☐
15. I agree that my responses, views or other input can be quoted anonymously in research outputs	☐	☐
D: (LONGTERM) DATA STORAGE, ACCESS AND REUSE		
16. I give permission for the de-identified perceptions of gender microaggressions, perceptions of organizational and environmental factors, and perceptions of microaggressions' implications that I provide to be archived in the TU Delft Master's Thesis repository so it can be used for future research and learning.	☐	☐
17. I understand that access to this repository is restricted only to TU Delft employees and students according to the access status of the repository. The data stored will be anonymized.	☐	☐

Signatures

_____	_____	_____
Name of participant [printed]	Signature	Date

I, as researcher, have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

_____	_____	_____
Researcher name [printed]	Signature	Date

A.5. Interview Protocol for Female Employees

Hello, my name is Vicky Maritsa. I have studied Chemical Engineering at the National Technical University of Athens and am currently pursuing my master's in Management of Technology at TU Delft in the Netherlands. I would like to thank you for taking the time to participate in this interview. I understand that your time is valuable, and I appreciate your willingness to share your experiences. The focus of my thesis is on a subtle form of gender discrimination in the workplace, known as gender microaggressions. During this interview, we will discuss your experiences and perspectives regarding gender discrimination in the workplace. Your insights will be valuable in helping me understand this phenomenon. You can skip any question or stop the interview without any reason. If you feel uncomfortable at any time during the interview, do not hesitate to say it.

General Questions (5 minutes)

1. What is your academic background?

2. What is your job title at the company?

3. How long have you been working at the company?

4. How many women work in your department?

5. If you feel comfortable, could you share your age or age range?

6. Could you describe your overall work experience in the field?

7. Who are you as a person?

Experiences of Microaggressions and Individual Factors (30 minutes)

1. Could you share any incidents where you felt you were treated differently at work because of your gender?

→ If yes (follow-up questions):

• Could you tell me more about this particular incident?

• Who was this person (superior, colleague, subordinate)?[1]

• How did you react?[2]

• Did you share the incident within the organization?

• (If yes) How did the organization respond?

• Do you feel that these experiences have affected you in any way?[3]

(If participants could not recount specific incidents of gender microaggressions, **examples of gender microaggressions were read to them to to prompt discussion.)

---

[1]Individual Perpetrators
[2]Coping Mechanisms
[3]Impact of gender microaggressions

Organizational Factors (10 minutes)

1. **Organizational Culture**[4]

   - How would you describe the atmosphere in your workplace?

   - Would you say that the organizational climate of your company is friendly towards women?

2. **Policies**[5]

   - Do you believe that your company implements policies that discriminate against women?

   - Has your organization implemented any policies or initiatives for gender equality?

3. **Social Network**[6]

   - Do you have work friendships in your workplace?

   - Do you think that work friendships differ for men and women in your workplace? If so, how?

4. **Leadership**

   - Do you feel that your superiors (management team) treat male and female employees equally?

   - Would you say that you admire the leadership team?

Environmental Factors (10 minutes)

1. **STEM Culture**[7]

   - Would you say that the overall culture in the engineering field aligns with male stereotypes?

   - Do you believe that women are considered inferior within the engineering community?

2. **Greek Legislation**[8]

   - Do you believe that Greek legislation provides adequate protection against incidents of sexism?

   - Are you aware of the legal services in Greece aimed at protecting women?

   - Would you consider reaching out to one of these organizations in the event of sexism?

3. **Greek Culture**[9]

   - Would you say that family is the most important support system?

   - How does your family feel about you being an engineer? Have you experienced any pressure or expectations?

---

[4]Theory about negative organizational climate leading to gender microaggressions
[5]Discriminatory Policies contributing to gender microaggressions
[6]Theory about homophilous social networks leading to gender microaggressions
[7]Theory about STEM masculinized and STEM prototype leading to gender microaggressions
[8]Relationship between Greek legislation, authorities and microaggressions
[9]Theory about increased familialism cultivating traditional gender roles

**Examples of Gender Microaggression

- **Microassault**
  The use of sexist language by male colleagues, like using the terms "slut" and "blonde" when referring to women.
- **Microinsults**
  Female employees that are excluded from tasks that require physical strength due to potential stereotypes that women are 'fragile'.
  A female engineer was ignored by her male colleagues for the first half-hour of a meeting as if she were invisible, even though she was responsible for the project.
- **Microinvalidation**
  Workplace policy that requires female employees (but not male employees) to keep their office doors open.
  Denial of promotion to a female employee due to her pregnancy, with the supervisor saying, "I would make you the head of the office, but look at your condition now."

A.6. Interview Protocol for Gender-studies Scholars

Hello, my name is Vicky Maritsa. I have studied Chemical Engineering at the National Technical University of Athens and am currently pursuing my master's in Management of Technology at TU Delft in the Netherlands. I would like to thank you for taking the time to participate in this interview. I understand that your time is valuable, and I appreciate your willingness to share your experiences. The focus of my thesis is on a subtle form of gender discrimination in the workplace, known as gender microaggressions. The title of my thesis is: *Gender Microaggressions in STEM: A Phenomenological Study in the Greek STEM Energy Sector*. As you are expert on the matter, I would like to discuss about the societal context of gender microaggressions and the potential contributors to the phenomenon. You can skip any question or stop the interview without any reason.

1. **Introduction:**

   • Could you share with me your academic and professional background?[10]

   • What do you consider to be the main problems faced by Greek women in the workplace today?

2. **Organizational Policies:**

   • Do you believe that there exist workplace policies that discriminate against women within the Greek context? If so, could you give some examples?[11]

   • Would you say that there is a lack of organizational policies that protect women from sexism?[12]

3. **Greek Culture:**[13]

   • Do you think that gender stereotypes prevail in Greek society? If so, could you name a few?

   • Do you believe that gender stereotypes in Greece affect women's participation and treatment in the workplace? If so, how?

4. **Family and Welfare State:**[14]

   • Do you consider the family institution as the main support mechanism for Greek people?

   • Do you think that the emphasis on the family institution in Greek society acts as a reinforcing factor of sexism? If so, in what way?

   • Do you believe that the Greek family directs women towards more traditional roles?

   • Would you say that the welfare system is lacking in Greece?

5. **Orthodoxy:**[15]

   • How would you say Orthodoxy views or perceives women?

   • Do you believe that Orthodoxy and the Church contribute to the establishment of social stereotypes regarding the role of women and perhaps their participation in the workplace?

---

[10]Relevance to the topic of gender microaggressions
[11]Theory about discriminatory policies leading to gender microaggressions
[12]theory about absence of policies leading to gender microaggressions
[13]Theory about prevailing traditional gender norms in Greece
[14]Theory about familialism and absence of welfare reinforcing traditional gender norms in Greece
[15]Theory about patriarchical beliefs of Orthodoxy

6. **Economic Crisis:**[16]

   - Do you believe that the economic crisis has in any way affected sexism in Greece?

7. **Legal and Political Framework:**

   - Do you believe that Greek legislation is effective in protecting women from gender discrimination in the workplace?

   - Do you believe that the implementation of Greek legislation is effective?

   - Do you believe that Greek legislation offers adequate protection against both overt and more subtle forms of gender discrimination?

   - Do you believe that there are enough organizations and authorities to protect women in Greece? Do you think these organizations are effective?

   - Do you believe that Greek women turn to these organizations?

---

[16]Theory about economic crisis strengthening sexism

B

Findings

B.1. Experiences of Gender Microaggressions

Table B.1: Types of Gender Discrimination identified in the Greek STEM Energy Sector.

Themes	Subthemes	Note
Types of Gender Microaggressions	**Assumption of Inferiority**	Assuming women are inferior because of their female identity
	Pathologizing women's maternal identity	Treating the ability of women to bear children as something pathological
	Restrictive Gender Roles	Dictating how women should behave, imposing on them narrow definitions of female roles.
	Sexual Objectification	Treating women solely as an object of sexual desire, disregarding their other identities
	Direct Address	The way women are addressed, the way they are called (e.g., by their name)
	Denial of Reality of Sexism	Not accepting the existence or impact of sexism
	Tokenism	Doing a superficial effort to be inclusive of women, to give the appearance of equality without actually achieving it
	Strength Inferiority	Assuming women do not have the physical power even for the simplest manual tasks
	Technical Devaluation	A female employee's knowledge and abilities are undervalued due to her female identity
	Ageism	Prejudice faced by women because of their age
	Differential Treatment	Treating female and male employees differently
	Swearing	The use of offensive, profane or vulgar language on women because of their female identity
	Sexist Jokes	Comments intended to be humorous that demean, streotype or belittle women because of their female identity
	Undermining Authority	Questioning a female's authority because of her female indentity
No Experience of Gender Microaggressions	**N/A**	Women reporting that they have not encountered any form of sexism or gender microaggression in their workplace
Sexual Harassment	**Verbal**	Unwelcome remark or comments of a sexual nature about a person's clothing, behavior, or body. High-pressure requests for dates or sexual advances.
	Non-Verbal	Unwanted actions or behaviors of sexual nature that do not involve spoken words (e.g., leering)

Table B.2: Coping mechanisms in response to Gender Microaggressions.

Themes	Sub-themes	Examples
Coping Mechanisms	Confrontation	He called me again and I said "Listen." "Here," I told him, "I didn't come here to find a boyfriend, nor did I come here to be flirted. I came here to get a salary for the work I do, and the work I do is that of an engineer".
	Justification	Even if, strong sexist comments are heard, they occur in a completely different tone, in a well-meaning way.
	Ignorance	I pretend I didn't hear it and continue (my responsibilities) undeterred.
	Seeking management aid	I redirected the conversation to a female supervisor.
	Prove themselves	I had to prove twice who I am and what I know.
	Cursing	I also occasionally curse at them (the offenders).
	Reinterpretation	So I wore it as a small galo, huh, how do we call it? Like a medal of honor.
	Retaliation	So, he walks in the next day, and in front of everyone, I told him off.
	Assertiveness	I cut it off immediately and can be a bit of a "b*tch".
	Threatening	And if he doesn't take care of you, I will.
	Crying	I reacted with tears.
	Ironic Laugh	I smile in a way that shows them I pity them.
	Leveraging	Do I turn it (this behavior) to my advantage? Yes.
	Minimization	Well. But never mind, better this way.
	Persuasion	And I had to make a whole speech to convince him that I was right.
	Resigning	To avoid trouble, I decided to quit.
	Seeking Female Support	No, to the contrary, I discuss it with the other women, and they respond, "Yes, you're right", "Yes, that happens."
	Self-blame	I would feel a bit like the little girl complaining that someone spoke to her badly.
	Denial	I don't consider that as sexism. I would not leave it like that nor let it affect me.

B.2. Individual Factors of Gender Microaggressions

Table B.3: Individual factors contributing to gender microaggressions in the workplace.

Themes	Sub-themes	Explanation	Examples
Leader	Comitting a microaggression	The leader directly comitting a gender microaggression	The managers seem to be more dismissive towards women. They seek advice from the men, while they only request the official stamp on the documents from me. I may have prepared the whole document but they will only talk to me for the stamp.
	Endorsing a microaggression	The leader indirectly endorsing or supporting a microaggressive behavior	However, I was the one the boss scolded in the office. He (the manager) said to me, "Don't make a fuss".
	Lack of Support	The leader not showing support in cases of microaggressions	(Laughter). In Greece getting assistance from the leadership team does not exist.
Colleagues	Comitting a microaggression	Colleagues directly comitting a gender microaggression	When I announced my pregnancy to the company, one colleague made a very inappropriate comment. He said, "Oh, congratulations, congratulations. After all, this is the woman's purpose."
	Comitting sexual harassment	Colleagues comitting a sexual harassment act	Look, this happened with a colleague of mine, who just for fun, said the line "I want to be between your legs" because he was placing a cable under my legs.
Clients	Comitting a microaggression	Clients comitting a gender microaggression	I had many phonecalls with clients that the first word was 'Hello, hello girl', while they didn't know me, 'Give me a technician'. (I replied) 'Yes, I'm listening.' 'Yeah, aren't you an accountant?' 'No, I'm a technician. I'm in the technical department. I'm a technician. Tell me how I can help.'
	Comitting sexual harassment	Clients comitting a sexual harassment act	Now, from clients, it's different. I've experienced swearing from a client like "Your br*thel"(referring to the company) and "You should shut it down" and "I'm aware of wh*res like you." Now, excuse my language, but I'm conveying the conversation to you. "I'm aware of wh*res like you because I live across the street."
External Partners	Comitting a microaggression	External Partners comitting a gender microaggression	It's a technician that we've never met, and he calls and says, "Come on, [a diminutive form of her name], tell me what to do?" "Come on, my big girl, what's going on here?"
	Comitting sexual harassment	External Partners comitting a sexual harassment act	When I was a kid, I was 25 years old, I've had a partner call me and say "So when will I take you out for coffee?". And he was 50 years old. He said that to a young girl while she working 'Let me take you for a coffee'

Table B.4: Leaders contributing to gender microaggressions in the Greek STEM Energy Sector.

Themes	Sub-themes	Explanation	Example
Negative Perception of Leader	**Comitting a microaggression**	The leader directly comitting a gender microaggression	I have an example of being fired from my job, fired because I got married and I was going to have a child.
			A very unpleasant recent incident that comes to mind is that the company is about a newly hired young girl. She is very young, around 25 years old. And the management made a comment at some point that... without exaggeration, I'm quoting, or maybe I won't quote it exactly, because it is too much, 'Why did you bring that girl here? Why you didn't choose a girl that we can look at?'
			I've heard various things like 'Women pay attention to details. Their designs are more detailed.'
			the main form of sexism comes from superiors
			Incidents have happened from superiors.
			Now with the superiors... The unequal relationship with the superiors you understand it at all levels and is observed in all companies.
			When a woman is on maternity leave, the employer is not obligated financially to pay the leave, there are other governmental supports that still cover it at least a part of it. However, as [mentions name of her colleague] mentioned before, there is an underlying belief from employes: 'I pay you and you sit around.'
			Leadership considers a man to be of greater value because he is a man.
			The previous employer was looking for a person, a woman basically, who could simultaneously be an engineer, secretary, and site manager. And he thought only female engineers could meet the requirements of this role. Of course, the level of engineer he had in mind for a woman. He was basically looking for a secretary.
			Essentially, it is a red flag for employers if a woman wants a family while pursuing a career.
			we have communication issues with the bosses. Yes. I think they are completely dismissive towards us.
			The managers seem to be more dismissive towards women. They seek advice from the men, while they only request the official stamp on the documents from me. I may have prepared the whole document but they will only talk to me for the stamp.
			The managers seem to be more dismissive towards women. They seek advice from the men, while they only request the official stamp on the documents from me. I may have prepared the whole document but they will only talk to me for the stamp.
			We have communication issues with the bosses. Yes. I think they are completely dismissive towards us.
	Endorsing a microaggression	The leader indirectly endorsing or supporting a microaggressive behavior	Then, the company owner came and he stood in the middle and we, the women, gather around him and pointed at a sign.
			Now from the moment she is rehired after pregnancy, if the company decides to fire her after a month, this is something that falls into these law gaps.
			However, I was the one the boss scolded in the office. He (the manager) said to me, 'Don't make a fuss'.
	Lack of Support	The leader not showing support in cases of microaggressions	(Laughter). Yes. In Greece getting assistance from the leadership team does not exist.
			However, I was the one the boss scolded in the office. He (the manager) said to me, 'Don't make a fuss'.

Table B.5: Leaders counteracting gender microaggressions in the Greek STEM Energy Sector.

Themes	Sub-themes	Explanation	Example
Positive Perception of Leader	**Being a positive prototype**	The leader or supervisor serving as a positive prototype	She helps us. She's not our mom because we are not many years apart, but she is our friend. She gives us advice on everything; , ranging from a breakup to dealing with a photovoltaic park shutting down. I always run to her for the best advice. She will listen to me and gives me the best advice regardless of the problem.
			Without her, I would not have achieved the work progress I have now. She helped me from the first day of my internship until now, as I have some responsibilities and some power
			she devotes a large part of her time to us at her own personal cost. She stays extra hours to finish her own work, to teach us and fill our gaps so we can evolve.
			Clearly, she is a role model
			The owner works non-stop. This man has incredible engineering knowledge and will never raise his voice. However, he will ask question after question, analyzing everything thoroughly.
			Yes, I would intervene in case of a microaggression to make the girls feel better.
			Look I particularly admire my employer's leadership and management skills. I think he is very good at what he does. I consider him as my mentor. He may not know it, but I consider him somehow.
			In my employer's and my manager's honor, I have never been treated differently because I was a woman. On the contrary, they always accepted my knowledge. Equality was not an issue.
			And the manager says to me 'Why do we even have to speak about diversity; We are all engineers. I reply to him 'you just broke the barrier of segregation'. As you said, we all are engineers. It's not about me being a woman, you being a man. We're all engineers. Well, so, in this company, I've been treated very nicely.
			And to the employer's credit, he's one of the few Greek employers where being married or having children does not matter.
			It's a really big honor, I mean, I think there's a big difference compared to the other employers.
	Leader Support	The leader or supervisor providing support when needed	Well, he's the type that comes out naturally, it's what I was telling you before, equal opportunity comes out effortlessly. They (the management team) don't see it any other way. They're young people.Yeah, that. I consider him my mentor. That't it.
			I have brought the child with me to work because I couldn't find another alternative (at that time) and there was absolutely no issue. On the contrary, the first time I brought my son to the office, the boss approached him (her son) and said, 'Let's paint at my office'. They painted in the office. Yeah. Very, very cool. And at the time, the boss didn't have kids yet. Now he has and understands more.
			To a certain degree, yes, I admire the management team. You can never say anything is 100% right.
			The female supervisor called him, and they cursed each other.
			Why are you treated in a serious manner whereas I always have to fight back? Why do they talk to me like that?" They told me, "Okay, with time and experience, you'll see you will have a different exoerience,"
			But the woman who was also interviewing me, said, "Why would you say that? It's not true what you're saying. It's a bit weird, stop it."
			But shouldn't she feel that someone has her back, when they speak French to her (when men misbehave towards her)?
			Apart from going to the bosses and saying 'You know what? I have this issue,' there is no other way in the company to address it
			From personal conversations I've had with the leadership team, they have told me that they want a bit of equality and balance between the genders.

B.3. Organizational Factors

Table B.6: Organizational Policies & Practices contributing to gender discrimination in the Greek STEM Energy Sector.

Themes	Sub-themes	Explanation	Examples
Discriminatory Policies & Practices	Discriminatory Hiring Practices	Practices in the hiring process that discriminate based on gender	A position opened now, and the the management said that they prefer to hire a man and not a woman because she might get married, have children, etc.
	Exclusion of women from construction sites	Informal rules that do not allow women to visit and work on construction sites	However, they made it absolutely clear that they don't send women to the construction site, at least as site managers.
	Absence of Gender Equality Policies	The absence of formal policies within the company that support female employees	A specific procedure to address sexism does not exist. A procedure like reporting the incident to the supervisor and then the supervisor goes to the general manager, something like that does not exist. Yes, things, here, are a bit of a mess.
	Salary Inequality	Paying female and male employees unequally based on gender	There is no equality in salary, meaning if a man and a woman are in the same position with the same capabilities, the man will be paid more.
	Lack of Gender Equality Initiatives	The absence of actions aimed at promoting gender equality	No.Gender equalities initiatives wouldn't be included in the company's things-to-do list.
	Biased Performance Review	Performance evaluation processes that discriminate based on gender	Well, an employee's deviation from the male prototype does not affect the hiring process, but it definitely affects promotions.
	Discriminatory Dress Code	A policy regarding dress code that unfairly imposes different standards based on gender	A policy the company implements concerns the dress code. I was reprimanded for my attire, but it was just me. Maybe my knees or belly were more exposed that they should have been.