Unconscious Gender bias Among Seafarers: A Review of the Theoretical Literature

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ABSTRACT

This systematic literature review explores the concept of unconscious gender bias within the maritime industry, focusing specifically on seafarers. Unconscious bias refers to implicit stereotypes and attitudes that influence decision-making processes without conscious awareness. In the context of seafaring, where diverse crews operate in confined spaces for extended periods, understanding and addressing unconscious bias becomes crucial for fostering inclusive and harmonious shipboard environments and mitigating gender bias. The review begins by examining theoretical frameworks related to unconscious bias, drawing from psychological, organizational behavior, and maritime literature. Various models, such as the Implicit Association Test (IAT) and social cognitive theories, are explored to provide a foundation for understanding how biases develop and manifest among seafaring populations. The maritime industry's unique characteristics, including hierarchical structures, cultural diversity, and isolation during voyages, are analyzed to identify specific factors that may contribute to the emergence of unconscious biases. Additionally, the review delves into studies addressing the impact of biases on decision-making, communication, and overall team dynamics within the maritime context. Furthermore, the review explores interventions and best practices proposed in the literature to mitigate unconscious bias among seafarers. Training programs, diversity initiatives, and cultural awareness campaigns are examined for their effectiveness in promoting a more inclusive and equitable maritime workplace. Based on this review, we conceptualize unconscious gender bias as a socio-technical problem and propose a theoretical framework that offers a combination of technological, organizational, and societal approaches as well as three main propositions to possibly mitigate the biased effects. Lastly, this paper considers future research on the management of unconscious gender bias in the organizational context.

1 Introduction

1.1 Background

Gender dynamics in the maritime industry and community can significantly influence politics and policies within the sector. Traditionally, the maritime industry has been male-dominated, with women facing barriers to entry and advancement. This imbalance can shape political and policy decisions in several ways:

Representation and Leadership: The underrepresentation of women in leadership roles within the maritime industry can impact the development and implementation of policies. Without diverse perspectives at the decision-making table, policies may not adequately address the needs and concerns of women in the industry.

Workforce Development: Gender disparities in the maritime workforce can affect policies related to recruitment, training, and retention. Efforts to promote gender diversity and inclusion may influence policies aimed at increasing access to training and career advancement opportunities for women.

Safety and Welfare: Gender can also play a role in policies related to the safety and welfare of maritime

workers. For example, policies addressing sexual harassment and gender-based violence onboard ships are important for creating safe and inclusive work environments for all maritime personnel.

Regulatory Compliance: Gender considerations may be integrated into regulatory frameworks governing the maritime industry. For instance, policies related to equal employment opportunities, nondiscrimination, and gender equality may be included in national and international maritime regulations.

Social Responsibility and Sustainability: Increasingly, there is recognition of the importance of gender equality and diversity as part of corporate social responsibility initiatives in the maritime sector. Policies promoting gender equality can contribute to the sustainability and long-term viability of the industry by fostering a more inclusive and equitable workplace culture.

Overall, addressing gender dynamics in the maritime industry requires a multifaceted approach that involves stakeholders at various levels, including policymakers, industry leaders, labor unions, and advocacy groups. By promoting gender diversity and inclusion, policymakers can help create a more equitable and sustainable maritime industry that benefits all stakeholders.

Unconscious gender bias is defined as unintentional and automatic mental associations based on gender, stemming from traditions, norms, values, culture, and/or experience. Automatic associations feed into decision-making, enabling a quick assessment of an individual according to gender and gender stereotypes (ILO, 2017).

Widely shared cultural beliefs about gender, as contained in stereotypes, continue to disadvantage women in workplace settings (Alison T. Wynn & Shelly J. Correll, 2018). Stereotypes include beliefs that women are less competent than men in many domains, which lead women to be held to higher performance standards, to face increased scrutiny and shifting criteria when being evaluated, to encounter likeability and motherhood penalties, and to lack access to powerful networks. As a result, women experience disadvantages at work, including biases in hiring, evaluation, and promotion decisions. Such biases often operate outside conscious awareness, in what some scholars term "implicit bias," "unconscious bias," or "second-generation bias" (Ibarra et al. in Harvard Bus Rev, 91:60–66, 2013).

Organizations have engaged in bias-mitigation efforts, such as employee resource groups, unconscious bias training, and broad-scale diversity initiatives. However, such approaches to diversity can either fail or even backfire, exacerbating inequality. While some emerging research offers solutions for positive change, more research is needed to understand how organizations can decrease the effects of gender bias and achieve lasting equality in workplaces (Alison et al., 2018).

Despite gains in gender equality, women represent only 1.2% percent of the global seafarer workforce as per the BIMCO/ICS 2021 Seafarer Workforce Report. An estimated 90 percent of world trade passes through maritime or river transport and requires seafarers to operate the ships. Seafarers are therefore essential to international trade and the international economic system. The worldwide population of seafarers serving on internationally trading merchant ships is estimated at 1,892,720 seafarers, of which 857,540 are officers and 1,035,180 are ratings. While the global supply of officers is forecast to increase steadily, this trend is expected to be outpaced by increasing demand (International Chamber of shipping, 2023). IMO has been making a concerted effort to help the industry move forward and support women to achieve a representation that is in keeping with twenty-first-century expectations (Dzeverdanovic Pejovic, 2023). Rampant workforce inequalities and instability are becoming barriers that prevent the industry to access the resources it needs. So, the sector is struggling to attract new talent, and tapping into the second half of the population is becoming imperative.

The maritime sector makes considerable contributions to economies all over the world. In some countries, this industry forms the foundation of those countries' economic growth and development. The global maritime industry has been growing at an impressive rate, as of 2019, the total value of the annual world shipping trade had reached more than 14 trillion US Dollars (International Chamber of Shipping, 2023). According to the United Nations Conference on Trade and Development, the value of international maritime trade is expected to increase by around 3.4% at the conclusion of a five-year period which will end in 2024.

Unconscious gender bias, though often subtle and unintentional, permeates various aspects of society, influencing perceptions, attitudes, and behaviors towards individuals based on their gender. Unlike conscious forms of discrimination, unconscious bias operates at a subconscious level, shaping our thoughts and actions without our awareness. While progress has been made towards gender equality in recent decades, unconscious bias remains a pervasive and insidious barrier, perpetuating stereotypes, limiting opportunities, and contributing to systemic inequalities.

Understanding the nature and impact of unconscious gender bias is crucial for fostering a more inclusive and equitable society. By examining the underlying mechanisms and factors that contribute to unconscious bias, we can begin to dismantle its influence and work towards creating environments that value diversity and respect the inherent worth of every individual, regardless of gender. By shedding light on this often overlooked aspect of discrimination, we aspire to catalyze meaningful change and inspire collective action towards building a more just and inclusive world for future generations.

1.2 Objectives

In the literature, more research is needed designing and testing interventions that successfully mitigate or eliminate gender bias. Further, more research is needed to understand how the intersections of gender, race, class, and other characteristics affect the biases that different groups of women and men experience. While interventions may help certain groups of women, they may also exclude other groups on the basis of race, socioeconomic status, gender identity, disability, age, and other dimensions of inequality (Alison et al., 2018).

This study would propose the factors of unconscious gender bias and suggest three methods of intervention that mitigate or eliminate gender bias. To achieve the objectives of this research, the authors conducted an investigation on the factors of gender bias through a systematic literature review (SLR). This is an appropriate research method as the efforts in understanding unconscious bias are still in their infancy, and scholarly research in this area is still in the opening stage (Mihal Emberton, 2021). The SLR can be used to systematically summarise and investigate previous findings (Cao et al., 2015; Webster & Watson, 2002). The outcomes of SLR can further be used as a valued reference for future research (Kitchenham et al., 2011; Petersen et al., 2015, Parè et al., 2015). As Borges et al. (2021) observe, the analysis of articles selected through SLR yields a rich picture of various characteristics. Also, systematic reviews allow researchers to examine the scope and range of research activities in a given domain by focusing on the breadth of the literature covered (Parè et al., 2015).

Our study adopts the SLR approach introduced by Bandara et al. (2011) and Wolfswinkel et al. (2013). The approach enables researchers to conduct a conceptualized analysis of the literature and identify the key themes (Wolfswinkel et al., 2013).

1.3 Identifying Research Gaps

Identifying research gaps in the study of unconscious gender bias is crucial for advancing our understanding of this complex phenomenon and developing effective strategies for mitigation.

Contextual Factors: Limited attention has been given to the role of contextual factors in influencing unconscious gender bias. Future research could investigate how cultural norms, organizational practices, and situational cues interact with individual-level biases to produce differential outcomes in diverse settings.

Longitudinal Studies: Most research on unconscious gender bias relies on cross-sectional designs, providing snapshots of attitudes and behaviors at a single point in time. Longitudinal studies are needed to track changes in unconscious bias over time and assess the effectiveness of interventions aimed at reducing bias.

Implicit Measures: Existing measures of unconscious bias often rely on indirect or implicit measures, such as Implicit Association Tests (IATs). However, these measures have been criticized for their limited ecological validity and susceptibility to confounding factors. Research is needed to develop more robust and contextually relevant measures of unconscious bias.

Interventions and Mitigation Strategies: While several interventions have been proposed to reduce unconscious gender bias, their effectiveness and scalability remain uncertain. Future research could evaluate the impact of various intervention strategies across different contexts and populations, identifying best practices for promoting bias awareness and behavior change.

Impact on Decision-Making: Limited research has examined the impact of unconscious gender bias on decision-making processes in real-world settings. Studies investigating how bias influences hiring practices, performance evaluations, promotions, and resource allocation are needed to understand its implications for organizational outcomes and equity.

Cross-Cultural Perspectives: Much of the research on unconscious gender bias has been conducted in Western, industrialized countries, limiting our understanding of its cultural variability and universality. Comparative studies across diverse cultural contexts can provide insights into how cultural norms and values shape the expression and consequences of unconscious bias.

By addressing these research gaps, the authors can advance our understanding of unconscious gender bias and develop evidence-based interventions to promote gender equality and social justice in diverse contexts. Such efforts are essential for building more inclusive societies where all individuals have equal opportunities to thrive, regardless of their gender identity or expression.

1.4 Research Questions

1. How does unconscious gender bias manifest in various domains, such as the Maritime sector?

2. What are the underlying cognitive processes and neural mechanisms that contribute to the formation and perpetuation of unconscious gender bias?

3. To what extent do contextual factors, such as organizational culture, social norms, and situational cues, influence the expression and impact of unconscious gender bias?

4. How do intersecting identities, such as race, ethnicity, sexual orientation, and socioeconomic status, shape the experience and effects of unconscious gender bias?

5. How do individuals' awareness of unconscious gender bias and their motivation to mitigate bias influ-

ence their attitudes, behaviors, and interpersonal interactions?

6. What are the most effective strategies and interventions for reducing unconscious gender bias in various settings, and how do these interventions impact attitudes and behaviors over time?

7. How do cultural differences and societal norms influence the expression and perception of unconscious gender bias across different cultural contexts?

These research questions aim to deepen our understanding of unconscious gender bias, its antecedents and consequences, and potential avenues for intervention and mitigation. By addressing these questions, the authors can contribute to the development of evidence-based strategies for promoting gender equity and social justice in various spheres of life.

2 Methodology

2.1 Search Criteria

The primary source of data for this study is secondary data. Secondary data which had predominantly published journal articles and e-books, web sources, reports, and case studies were referred. A few conference articles were also used for the analysis.

Google Scholar, Scopus, and the online search engine of the library of the University of Kelaniya were used for the first iterative search. Central databases such as Emerald, Taylor Francis, and JSTOR databases were used to extract literature. The following keywords were used: "gender bias"," unconscious bias", "maritime" AND "Women Seafarers", 'Implicit Bias', "Stereotypes" AND "Sexism".

Secondly, reference lists were used to cross-refer relevant abstracts and extracted articles from journal e-databases through the University of Kelaniya Library. Thirdly, quality checked journal articles based on ABDC quality ranking and obtained the majority of B, and A ranks and very few articles from A* and Scopus-indexed high-rank journals.

2.2 Selection of Articles

A total of 11,420 articles were captured through the selected keywords. To filter further the relevant articles, the author applied inclusion criteria and source type. This process was followed by exclusion criteria and time frame; articles that were outside the time frame (i.e., 1972 – 2023) and that were not written in English were excluded from the final set of articles. Then the au-

thors started by reading the titles and abstracts of the identified articles. After selecting the articles on the basis of their titles and abstracts, the authors thoroughly read the full text of the articles.

Authors individually identified studies that met the following inclusion criteria: 1) qualitative or mixed methods methodology, 2) perspectives of unconscious gender bias; and 3) studies related to gender bias in the maritime field. Only original, peer-reviewed articles written in or translated into the English language were considered. Commentaries, letters to the editor, reviews, conference abstracts, and grey literature were excluded.

Hence, the authors excluded all papers that were outside the scope of this research, and ultimately 268 papers were selected that were relevant to our research scope.

2.3 Data Extraction

Data were extracted and sorted by the authors using ENDNOTE 20. The structured tables made from the software included the origin and year of publication, objective, methodology, demographics (occupation, sample size, gender, age) of participants, and primary findings from the included articles. Thematic synthesis was employed to review the data, using the Thomas and Harden framework which comprises three stages of detailed synthesis: line-by-line coding of the primary text, construction of descriptive themes, and the development of analytical themes. Repeated reading of primary data was conducted by the authors to identify recurrent ideas to form descriptive themes that were compiled, debated, and categorized until a consensus was reached. Analytical themes were distilled by forming a relational quality among descriptive themes to synthesize perspectives beyond primary data. Discussions were held among authors for clarification and comparison of primary findings and final synthesis.

2.4 Analysis of Selected Articles

The analysis of the final set of 268 papers was carried out by in-depth reading of the articles. The relevant concepts and themes were identified by open coding, axial coding, and comparative analysis, as suggested by Wolfswinkel et al., (2013), and through thematic analysis (Parè et al., 2015).

In the coding process, all codes with similar themes were integrated into one concept. Table 1 would show the concept matrix which shows the description of Unconscious bias used in literature.

Table 1 Concept Matrix Overlaps with Unconscious Bias.

Concept	Available Literature and Authors
Implicit Bias	Implicit bias is the unconscious association of traits with certain groups of people that may bias and negatively impact recruitment decisions concerning the disadvantaged groups (Bendick *et al.*, 2010; Bendick *et al.*, 1991). In developing our framework for *implicit* bias, we are guided by implicit social cognition theory (Graf and Schacter, 1989; Greenwald and Banaji, 1995), which highlights that "experience influence judgment in a fashion not introspectively known by the actor" (Greenwald and Banaji, 1995, p. 4, Bahar Ashnai, Sudha Mani, Prabakar Kothandaraman, Saeed Shekari, 2020).
	Implicit (unconscious or unperceived) negative judgment bias in the academic sphere is generally associated with social stereotypes of individuals who are stigmatized as intellectually limited or incapable (Calaza et al, 2021). Importantly, a social stereotype is a mental association of a social group or category with a characteristic or trait that may or may not be favorable (Greenwald and Krieger, 2006). In other words, stereotypes are socially constructed beliefs that do not necessarily reflect reality (Allport, 1954; Ashmore and DelBoca, 1981; Greenwald and Banaji, 1995). Such social constructions, which are determined by culture and the unequal distribution of resources and power in a community, have a substantial influence on the unconscious evaluations and judgments of individuals or groups (Staats et al., 2015; Storage et al., 2016).
Stereotypes	Three decades of research demonstrate that implicit biases influence many of our behaviors in ways that we cannot consciously identify or control. (Rhode, 2017, Banaji and Greenwald, 2013; Kahneman, 2011).
Sexism	Sexist statements are different: They provide clarity about people's beliefs and are strongly prescriptive, in that they communicate the conviction that men and women should comply with traditional gender roles (e.g., Ramos, 2015, Burgess & Borgida, 1999; Fiske & Stevens, 1993).
	The formation of implicit gender stereotypes, which associate characteristics of exceptional brilliance and intelligence to the male gender, seems to start early in life (Bian et al., 2017) and is reinforced by daily experiences in which members of a categorical group appear to be associated with economic precariousness and a lack of power (Tilly, 1998).

Affinity Bias	The unconscious tendency to get along with others who are like us, which can lead to favoritism towards seafarers from similar backgrounds or cultures.
Overconfidence Bias among seafarers when seafarers' confidence in their abilities exceeds their objective accuracy, potentially leading to mistakes or oversights.	"Fishermen who are overly optimistic about catch success, switch fishing sites more often than their less-optimistic counterparts." "Overoptimistic and miscalibrated skippers incur higher fishing costs." **Quinn Weninger 2014**
Gender-based bias among seafarers unconscious biases related to gender roles and suitability for certain jobs among seafarers.	"Second, male raters exhibited greater gender-role congruity bias than did female raters for male-dominated jobs." "Finally, for male-dominated jobs, experienced professionals showed smaller gender-role congruity bias than did undergraduates or working adults." **Amanda Koch 2015**
Experience bias For male-dominated jobs, experienced professionals showed smaller gender-role congruity bias than did undergraduates or working adults.	"Finally, for male-dominated jobs, experienced professionals showed smaller gender-role congruity bias than did undergraduates or working adults." "Fifth, decision makers who were motivated to make careful decisions tended to exhibit less gender-role congruity bias for male-dominated jobs." **Amanda Koch 2015**

Seafarer Bias Unconscious biases and prejudices affecting seafarers based on gender, culture, language, nationality, race, and other factors.	"Hodgins and Kalin (1985) examined sex-bias when rating the suitability of female and male applicants for stereotypically female or male jobs (sex bias was defined as the tendency to recommend female applicants for stereotypically female jobs and to recommend male applicants for stereotypically male jobs)." "Paying attention to formal qualifications, by rating applicants on them, should presumably reduce bias." **Jean-Christophe Rohner 2013** "There was a significant attractiveness by gender interaction on all the dependent variables with attractive males receiving the most favorable evaluations and attractive females receiving the least favorable evaluations.". "The authors found that decision makers are sometimes unaware that social category information has influenced their decisions." **Comila Shahani-Denning 2011** "A large representative sample (N = 848) of the population in England judged the interview performance and perceived hirability of "candidates" for a trainee solicitor position at a corporate law firm." "The results suggest persistent patterns of bias against certain accents in England, particularly Southern working-class varieties, though moderated by factors such as listener age, content of speech, and listeners' psychological predispositions." **E. Levon 2021** "Fifth, decision makers who were motivated to make careful decisions tended to exhibit less gender-role congruity bias for male-dominated jobs." "Fourth, gender-role congruity bias did not differ between decisions that required comparisons among ratees and decisions made about individual ratees." **Amanda Koch 2015** "In addition, as the avoidance of long-term seagoing service on the ships and the employment of foreign-seafarers are elements of threat on the jobs of Korean seafarers." "A survey was conducted preferences and perceptions according to the employment type." **김종관 2020** "They were prone to desertion, and their replacements from among Pacific Islanders and the flotsam of foreign anchorages soon diluted the American 'nationality' of crews." "Hawai'i is a central example." **B. Rouleau 2016** "'Our nationwide survey revealed that general maritime knowledge amongst the public at large is severely lacking, and "sea-blindness" is a huge problem,' he stated." "The representation of seafarers in a literary trend is seen to be an accurate indicator of the nation's attitude to maritime activities at any given time." **Marion Gibson 2015** "The research revealed that the occupational culture of seafaring often reflects masculine norms and values which could affect women seafarers' behaviour and attitudes." "A total of 36 female and 8 male seafarers from eight different countries participated in the project and shared their experiences of working on board ships." **Momoko Kitada 2013**
Negativity Bias	The tendency to pay more attention to negative events or attributes, which can lead to a distorted perception of a seafarer's performance or characteristics. Please note that this list is not exhaustive, and there are many more types of unconscious biases that can affect judgment and behavior. Additionally, the presence of these biases does not imply that all seafarers will exhibit them; rather, they are common patterns that can occur in any group of people.

Halo Effect a bias where the perception of one trait influences the perception of other traits among seafarers.	"This paper considers the existence of halo effects in individuals' evaluations of target communicators across different dimensions." "Halo effects result from raters' inability to discriminate among conceptually distinct and theoretically independent aspects of a target's behavior." **T. Feeley 2002**
Beauty Bias	The unconscious association of physical attractiveness with other positive traits, which can affect hiring and promotional decisions.
Justification-Suppression Bias when justifications for prejudice expression existed, prejudice was expressed in covert, interpersonal forms, such as discrimination against obese customers.	"The authors found evidence that when justifications for prejudice expression existed, prejudice was expressed toward obese shoppers in covert, interpersonal forms." "Similarly, King et al. (2006) used a justificationsuppression model of prejudice to study discrimination against obese costumers." **Comila Shahani-Denning 2011**
Ageism among seafarers discriminatory attitudes and behaviors based on age, affecting both older and younger workers in the maritime industry.	"Old employees are not the singular target of stereotypes and discrimination young people hired in an organization are also the victim of ageism." "However, the research on the topic as well as the literature on ageism clearly reveal the fact that the frequency older people are subject to ageism is greater than that of young employees." **Virginia Andrei 2019**
Anchoring Bias	The common human tendency to rely too heavily on the first piece of information offered (the "anchor") when making decisions, which can affect judgment in assessing situations or other seafarers.
Ethnocentrism the tendency of any cultural group to assume that its ways and values are inherently right, and to judge the practices of 'outsiders' as peculiar, unreasonable, inadequate, or inferior	"Using their own ways as a standard, people find it easy to adjudge the practices of "outsiders" as peculiar, unreasonable, inadequate or inferior." "Any cultural group tends to assume that its ways and values are inherently right." **B. D. Paul 1952**
Service Duration Bias some seafarers avoid long-term seagoing service on the ships	"There will be some voluntary non-regular workers due to insufficient information of employment types and avoidance of long-term seagoing service on the ships." "In addition, as the avoidance of long-term seagoing service on the ships and the employment of foreign-seafarers are elements of threat on the jobs of Korean seafarers." **김종관 2020**
Recency Bias The study found that fishermen's subjective catch expectations varied positively with recent catch success. Those whose expectations were most heavily influenced by recent catch realizations tended to exhibit the largest subjective bias.	"Fishermen whose expectations are most heavily influenced by recent catch realizations also tend to exhibit the largest subjective bias." "Subjective catch expectations vary positively with recent catch success, which I observe in my data." **Quinn Weninger 2014**
Bias towards overweight applicants in hiring unconscious bias affecting the evaluation and hiring of overweight job applicants.	"In another study, Kutcher and Bragger (2004) examined if prejudice towards overweight applicants could be reduced by using structured interviews." **Jean-Christophe Rohner 2013**

Confirmation Bias	The tendency to search for, interpret, favor, and recall information in a way that confirms one's preexisting beliefs or hypotheses, often overlooking contradictory evidence.
Employment Type Bias when the supply of seafarers is greater than the demand, differences according to employment type will occur	"But when the supply of seafarers is greater than the demand, differences according to employment type will occur." "There is no difference in employment type when the supply of seafarers and the demand of the carrier are the same or when the demand is large." **김종관 2020**
Status Quo Bias	The preference for the current state of affairs, which can lead to resistance to change and innovation, potentially disadvantaging those who advocate for new ideas or practices.
Physical Attractiveness Bias Bias favoring physically attractive individuals in job-related outcomes and social behaviors.	"Warnings were ineffective, however: Even warned participants evaluated attractive applicants more favorably than they evaluated unattractive applicants.", "However, this study did seem to have matched attractive and unattractive targets on personality and mental ability." **Jean-Christophe Rohner 2013** "We investigated the impact of physical attractiveness and gender on selection decisions when participants were given a business justification for hiring attractive candidates." "Business justification did not differentially impact selection decisions." **Comila Shahani-Denning 2011**
Violence Propensity Bias the author emphasizes the American seamen's propensity for violence, with each other and with locals in foreign ports, suggesting a bias in perceiving them as inherently violent.	"He is right, however, to emphasise American seamen's propensity for violence, with each other and with locals in foreign ports, and their fiercely misogynist attitude to women abroad." "There remains the author's contention that sailors had a hand in making an American maritime empire." **B. Rouleau 2016**
Horns Effect	The opposite of the Halo Effect, where one negative characteristic of a person dominates the way that person is viewed by others.

3 Analysis of the Systematic Literature Review

To reach an in-depth understanding of this area of research, we first identified and noted the type of published articles (i.e., conceptual research, literature review, design science, empirical, survey, or case-based research), their use of theory, and their focus as presented.

The publication trend, as depicted by Figure 1, indicates that the number of relevant publications started to grow in 1999 and then increased quite considerably in 2015, which confirms that this is a fast-growing research area. Further, our analysis discovers that although the topics of fairness and unconscious gender bias have been discussed in the broader literature, and is yet to pay more attention to this important topic. Our findings also indicate that the research on unconscious gender bias is not yet well established, which highlights a great potential for future research and beyond.
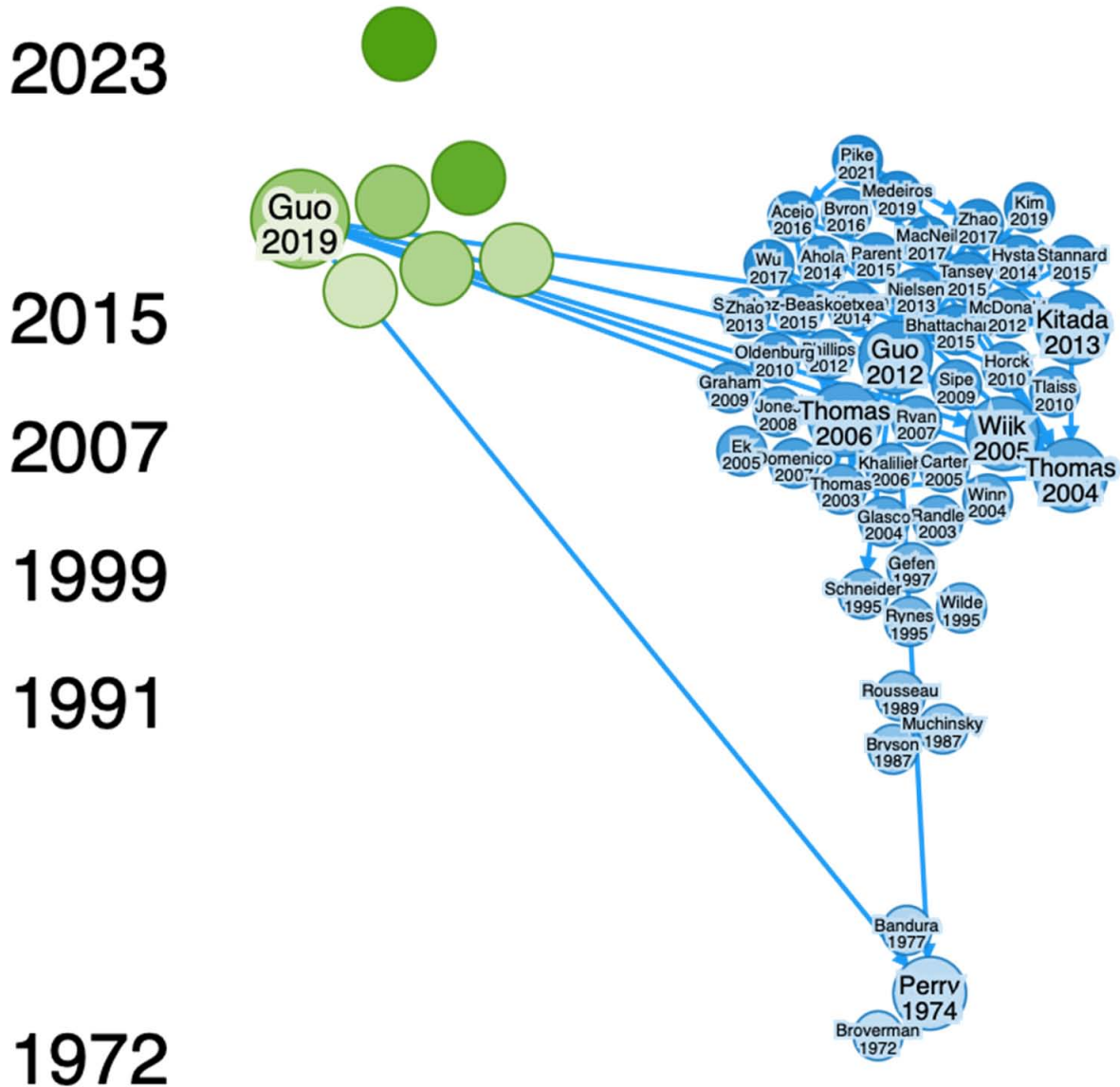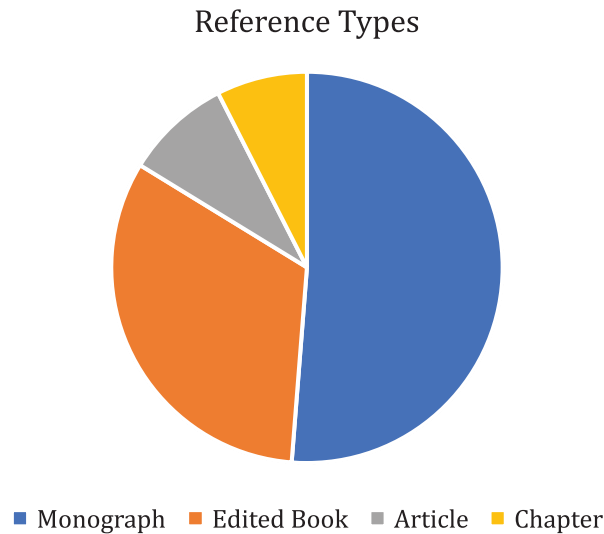

Figure 1 Publication Trends

Source: Analysed using Research Rabbit

Reference Types

■ Monograph   ■ Edited Book   ■ Article   ■ Chapter

Figure 2 Reference Types

Source: Analysed by Author

Our analysis shows that the majority of the reviewed articles have been conceptual papers.

There is a lack of empirical and detailed literature review papers on this topic of unconscious gender bias.

Table 2 Country/Author and Number of Publications

Polona Šprajc, University of Maribor, Slovenia	59
Yvonne Ziegler, Frankfurt University	30
Olja Arsenijević, Serbia	30
Iztok Podbregar, University of Maribor, Slovenia	28
Dragan Trivan, Southestern Europe	28
Dorian Q Fuller, University College London, United Kingdom	20
Tim Paul Denham, Australian National University, Australia	10
Momoko Kitada, World Maritime University, Sweden	9
Kum Fai Yuen, Nanyang Technological University, Singapore	9
Charles C Kolb, National Endowment for the Humanities, United States	9
Alison Ruth Weisskopf, University College London, United Kingdom	6
Niccolò Cusano University	5
Olaf Chresten Jensen, University of Southern Denmark, Denmark	5
Ece Birçek, Turkey	5
Lauri Dieter Frank, University of Jyväskylä, Finland	5
Yuri E Demidenko, Ferenc Rákóczi II Transcarpathian Hungarian Institute, Ukraine	5
Marios Savvides, Carnegie Mellon University, United States	5

Source: Adapted by Author from Dimentions.ai

As we can derive from table 2 the majority of the publications had been carried out in Europe regarding this subject.
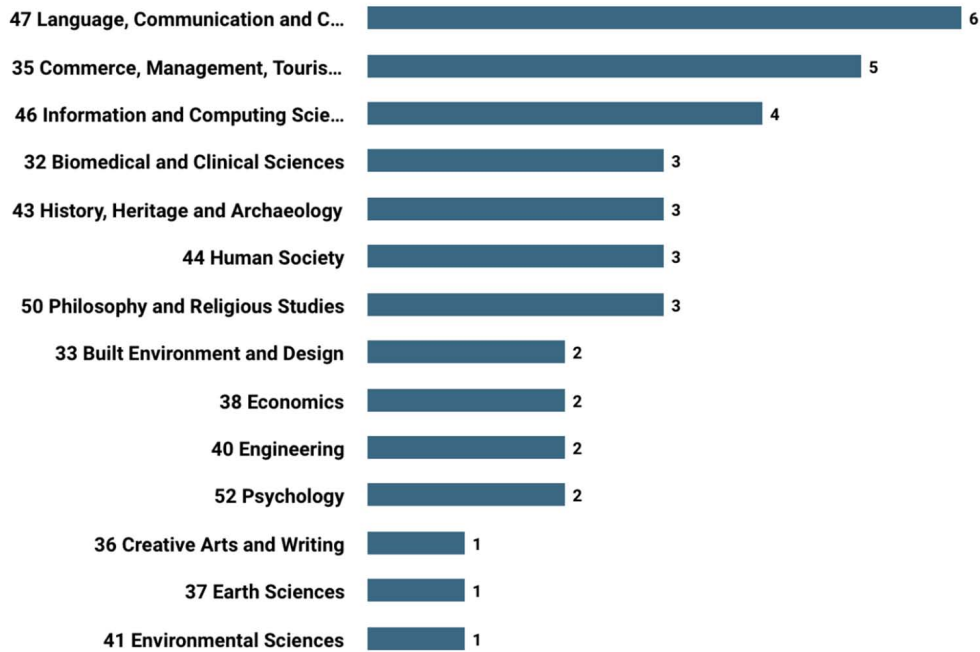
Table 3 Summary of Articles by Method

Qualitative	210
Quantitate	58

Source: Adapted by Author from Dimentions.ai

The table 3 shows that the method of data analysis had been namely done by qualitative data analysis methods.
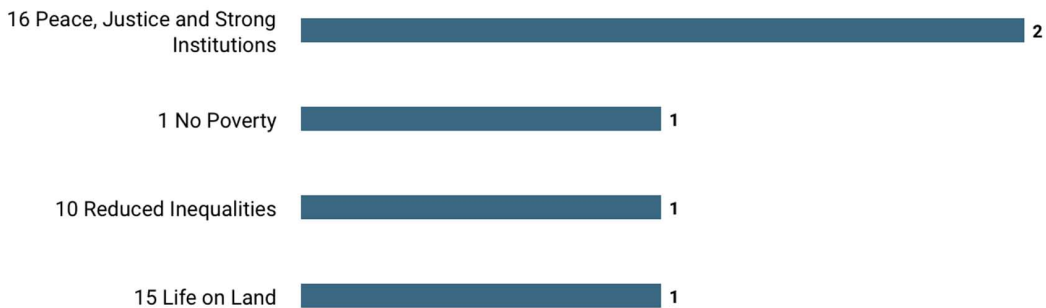
Publications had been done under several topics, namely to note the publications under the sustainability goals have been higher in this topic.

The bars show the number of publications in each research category.

The bars show the number of publications in each research category.

Figure 3 Summary of Articles by Journal/Discipline

Source: Adapted by Author from dementions.ai

4   Factors of Unconscious Gender Bias

Unconscious gender bias can be influenced by various factors, both internal and external, which shape individuals' perceptions, attitudes, and behaviors towards others based on gender.

4.1   Relationships Among Social Norms

According to Hannah Aba Aggrey, 2000, gender bias can be grouped under two main divisions. There is one, which will be termed the 'hidden bias', and the other the 'open bias'.

The 'hidden' is where women are not given normal tasks as their male counterparts, with the idea to keep them from dirty or dangerous work. This is typical onboard ship, when female cadets are asked to clean the navigating bridge whilst the men will be cleaning the cargo holds after discharging dirty cargo, for example, coal.

The side effects of this form of discrimination against women prevent women from gaining experience on the job. The revised STCW 95 is particular about qualifications and experience; where then will women stand? Men get the experience at the expense of women thus denying them an argument for having the experience. It could be a way of keeping women out of the industry.

Then comes 'open bias' where women are challenged to prove their capability, by having to work harder. Kitada states (2021) that recruitment of seafarers, and recruitment companies still favor the recruitment of men over women. Because of this mentality, women are seen putting in about 50% more than men.

4.2   Culture and Traditions

Traditionally, the maritime sector was a 'boy's only club' fuelled by the widely documented superstition that it was bad luck to have women on board ships at sea (Volo, D. D. and Volo, J. M., 2002). Often the only women found at sea were figureheads protruding from the bows of the ships (de Pauw, 1998). This folklore was deeply rooted and not limited to the lower class and uneducated sailors. In 1808, British Admiral Cuthbert Collingwood wrote 'I never knew a woman brought the sea in a ship that some mischief did not befall the vessel' (Hughes, 1957). These legends, customs and superstitions were often used to explain mysterious weather phenomena, and sailors would grasp at any belief that may ensure their safe passage during their unpredictable and perilous pursuits (Volo, D. D. and Volo, J. M., 2002). The superstition that it is bad luck to have women on board ships greatly decreased the seafaring opportunities for women over the centuries. In this the role perception is the process of confirming one's own role by observing the roles adopted by others. It refers to observations and inquiries toward various environments present in a workplace. Therefore, role perception can be said to be a part of social perception (Sarbin, 1975). According to MacNeil and Ghosh (2017), women who are successful in completing the required training to become seafarers, may find difficulty in being hired or, once hired, are met with further challenges once joining a crew. Women often adopt coping mechanisms including changes to their behavior, how they dress or when they socialise when working with all male crews in order to alleviate gender stereotypes and to 'fit in' (Kitada, 2013).

4.3   Implicit Association Test (IAT) and Social Cognitive Theories

The Implicit Association Test (IAT) and social cognitive theories play significant roles in understanding and addressing gender bias. These concepts provide insights into how implicit biases can shape attitudes, perceptions, and behaviors related to gender.

The IAT is a psychological tool designed to measure implicit biases by assessing the strength of associations between concepts. In the context of gender bias, the IAT aims to uncover unconscious attitudes and stereotypes individuals may hold regarding gender. Participants are asked to quickly associate words or images related to gender and other attributes. The test measures response times to assess implicit associations between concepts, revealing potential biases that individuals may not be consciously aware of.

Research using the IAT has demonstrated the prevalence of implicit gender biases across various domains, including the workplace, education, and social interactions. It has been instrumental in highlighting the subconscious nature of certain biases and their impact on decision-making.

Social cognitive theories, such as the Social Cognitive Theory proposed by Albert Bandura, emphasize the role of observational learning, imitation, and modeling in shaping behavior. In the context of gender bias, these theories suggest that individuals learn gender-related behaviors and biases through observation and interaction with others. Bandura's concept of "social learning" posits that individuals acquire attitudes and behaviors by observing and imitating role models, including those portrayed in media, family, and society. Stereotypes and gender roles can be perpetuated through these observational processes.

Additionally, social cognitive theories highlight the influence of cognitive processes, such as attention, memory, and motivation, in shaping and maintaining gender biases. Individuals may selectively attend to information that aligns with existing biases, reinforcing and perpetuating gender stereotypes.

Together, the IAT and social cognitive theories contribute to our understanding of gender bias by revealing implicit associations and exploring the cognitive processes involved in the acquisition and maintenance of biased beliefs. These frameworks are valuable in designing interventions, training programs, and educational initiatives aimed at reducing gender bias and fostering more inclusive and equitable environments.

5 Approaches to Mitigation of Unconscious Gender Bias

The approaches suggested for the mitigation of Unconscious Gender bias have been taken from research on other industries, and these could be utilized for the maritime industry.

Self-awareness of Unconscious gender bias: Project Implicit was released in 1998 as an international collaboration (hosted by Harvard University), with the goal to educate the public about hidden biases. Since its release, more than 20 million people have taken the Implicit Association Test (IAT), exposing the public to theories about how explicit stereotypes shape attitudes. Broadly understood, implicit bias conveys how people can act based on prejudice and stereotypes about social groups without intending to do so. Industry leaders and practitioners capitalized on and bolstered the popularity of the concept, spurring a training industry devoted to raising awareness about implicit bias in order to promote equity in organizations. Implicit bias thus exemplifies how social scientific theory can influence discourse and practice on a large scale (Nelson et al., 2021).

Mitigation from decision-making training programs: Digital games are effective training tools for mitigating bias and improving professional decision-making because of their ability to simulate real-world problems while providing tailored, individual feedback to players (Yu Hau lee et al., 2021; Dunbar et al., 2018; Dunbar et al., 2014; Lee et al., 2016; Bessarabova et al., 2016).

Mitigation from a policy perspective: change witness reporting and description practices and conflict framing (Clingendael Report, December, 2017). Increasing transparency of consistency, and objectivity, and critically appraising the evidence as necessary (N.R Hadaway et al., 2015).

The proposed framework shows the pull-push effect of the independent variables on the dependant variables.
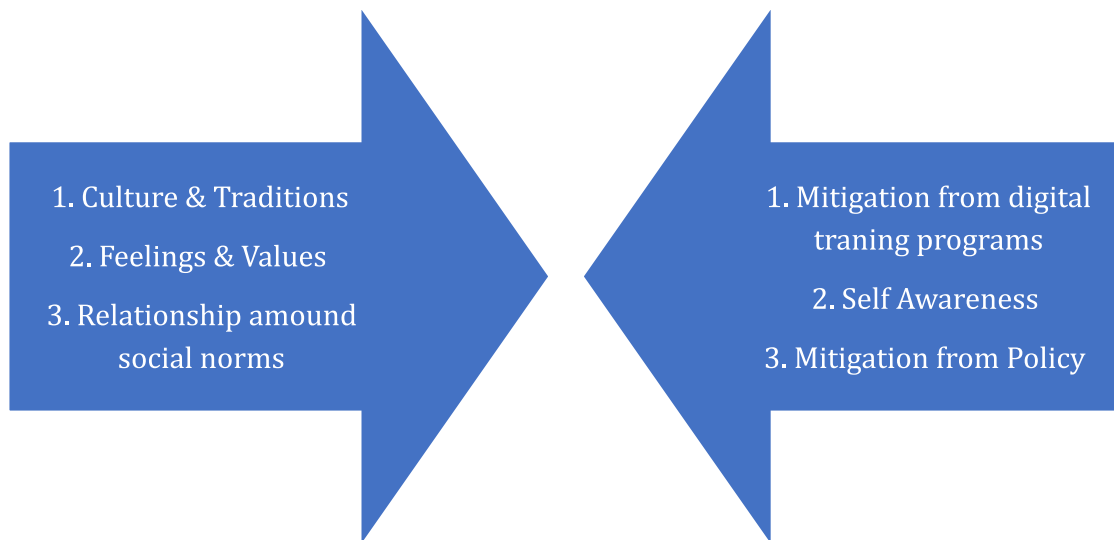
Figure 4 Proposed Framework for the Mitigation of Unconscious Gender Bias

Source: Adapted by Author

6 Conclusion and Future Research

The offered propositions in this document are not exhaustive. Therefore, further research is needed to develop more propositions which along with the ones we have proposed and which must be refined and empirically tested

The authors recognize that the study has several limitations. First, different keywords are likely to result in a different pool of related research work. Moreover, a systematic literature review of a wider group with unconscious bias and in other journals, along with more databases such as the web of science could be used to obtain more detailed results.

In conclusion, this research has shed light on the prevalence and impact of unconscious bias among seafarers, revealing significant implications for gender equality and diversity within the maritime industry. Through a comprehensive exploration of seafarers' perceptions, attitudes, and behaviors, this study has identified several key findings:

Firstly, unconscious biases exist within the seafaring community, influencing decision-making processes, interactions with colleagues, and perceptions of gender roles onboard. These biases often manifest in subtle ways, such as assumptions about competence, leadership capabilities, and suitability for certain roles based on gender.

Secondly, unconscious bias contributes to a perpetuation of gender stereotypes and inequalities within the maritime sector. Women continue to face barriers to entry, advancement, and retention in seafaring careers, driven in part by ingrained biases that favor male colleagues and undervalue the contributions of female maritime professionals.

Thirdly, addressing unconscious bias requires proactive measures at both individual and organizational levels. Awareness-raising initiatives, unconscious bias training programs, and diversity and inclusion policies can help seafarers recognize and mitigate their biases, fostering a more inclusive and equitable work environment onboard ships and within maritime organizations.

Overall, this research underscores the importance of acknowledging and confronting unconscious bias as a critical step towards promoting gender equality and diversity in the seafaring profession. By challenging stereotypes, fostering cultural change, and fostering a culture of inclusion, the maritime industry can harness the full potential of its workforce and create opportunities for all seafarers to thrive.

However, it's essential to note that addressing unconscious bias is an ongoing process that requires commitment, collaboration, and continuous evaluation. Future research should explore the effectiveness of interventions aimed at mitigating bias in the maritime context and examine the long-term impact on workforce diversity, organizational culture, and performance within the industry.

In conclusion, by confronting unconscious bias head-on, the maritime industry can move towards a more inclusive and equitable future, where all seafarers have the opportunity to succeed regardless of gender, race, or background.

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