APM

Association for Project Management

Developing Effective Interventions for Gender Equality in UK Construction Project Organisations

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Because when projects succeed, society benefits

Acknowledgements

About the authors

Sara Hajikazemi is an Associate Professor in Project Management at the School of Computing, Engineering and Physical Sciences at the University of the West of Scotland. She obtained her PhD and MSc in Project Management from the Norwegian University of Science and Technology. She has extensive experience in teaching, research, and enterprise in project management, and has performed research on various projects within different industries, including oil and gas, construction, manufacturing, and healthcare. Her research interests include early warning signs in projects, employee well-being, and gender equality in project-based organisations. Sara has published her research in peer-reviewed and well-recognised journals within the field of project management, and has presented her research at many academic conferences and business workshops in Europe and beyond.

Giorgio Locatelli is Professor of Complex Projects Business at Politecnico di Milano School of Management and Co-Editor-in-Chief of the *Project Management Journal*. Since 2006, Giorgio has researched large and complex infrastructure projects and programmes, particularly in the energy sector. Giorgio has attracted about €1,500,000 in research funds and was included in the Stanford-Elsevier list of the world's top 2% of scientists. He advises public and private organisations, and is a frequent speaker and trainer. He has authored over 130 international peer-reviewed Scopus-index publications, with over 3,300 citations.

Kate Lawrence is a Visiting Research Fellow at the University of Leeds. After 25 years working in construction and estates management, Kate completed her PhD in Project Management at the University of Manchester in 2019. Her research interests are in the fields of project management and innovation, in particular engagement between public and private sector organisations, and relational aspects in projects. Her research has been published in peer-reviewed publications for academic and industry, audiences, and presented at major international conferences.

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Executive summary

Gender equality is a key element of sustainability, representing one of the 17 United Nations Sustainable Development Goals. Sexism in the workplace conflicts with Sustainable Development Goal 5 which aims to "achieve gender equality and empower all women and girls" and Goal 8 which aims to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (United Nations, 2021). One of the sectors which is perceived as exposing women to sexism and gender bias is the construction sector. The consequences to women of gender bias and the experience of everyday sexism when working in construction project organisations are poor mental health and well-being, leading to lower performance and retention rates. The experiences of other sectors (such as healthcare and education) show that improving opportunities for women leads to a better-informed workforce, economic growth, improved health of both men and women, and higher productivity in the workplace (Grantham *et al.*, 2021; King *et al.*, 2020)

According to research by the Royal Institution of Chartered Surveyors (RICS), about 30% of women in construction believe sexism has held them back from pursuing senior roles (Alderson, 2018). This phenomenon is present at all organisational levels. More than half of the people working in the construction industry have witnessed or experienced sexism (Construction Manager, 2017) and, despite comprising over 50% of the UK population, women still make up only 11% of the UK construction workforce; this number drops to just 1% of operatives on site. Women in the UK construction industry experience sexism, including lower salaries, career delays, and sexual harassment (Building, 2018). All of this demonstrates that the existing gender-equality interventions (GEI) are not always effective.

Although different interventions (e.g., training, change of rules for hiring, etc.) are in place for addressing gender inequality and sexism in project organisations, particularly in construction, there is no systematic analysis of which intervention works and which does not. Anecdotal information is scattered across fields and journals. This pilot study fills the gap in understanding the effectiveness of existing GEIs applied by UK construction project organisations. The research was conducted in three phases. Firstly, a systematic review and synthesis of 17 articles published on GEIs in project organisations was completed. Secondly, 20 semi-structured interviews with UK construction professionals were completed. Thirdly, interview participants attended a one-day Delphi study. The results of the pilot study supported the development of clear guidelines and strategies on how barriers and challenges for women employees in UK construction project organisations can be addressed and overcome.

To the detriment of the performance of the sector, the findings of this research indicate that, despite improvements and efforts towards equality, diversity and inclusion (ED&I) in UK construction, women in this sector are still experiencing gender bias, sexism, and discrimination. Discrimination is experienced within the areas of rewards and resources, processes and procedures, and behaviours and interactions. Gender bias and sexist discrimination impact women's health and well-being, retention rates, and career growth.

There are six main categories of GEIs applied in UK construction project organisations:

1. Structural interventions

2. Training interventions

3. Mentorship and support programmes

4. Work–life balance programmes

5. Signalling intervention

6. Health and safety support programmes

While the effectiveness of interventions might vary based on individuals' perceptions, or the culture of an organisation, for example, there is a consensus that structural interventions are the most effective types of interventions if applied correctly. These interventions work by:

- enhancing project stakeholders' awareness of gender-equality issues
- enhancing transparency in developing and implementing GEIs
- incentivising women to join the UK construction sector
- overcoming perceptual barriers to joining (and remaining in) the UK construction sector

The effectiveness of interventions requires staff and senior management buy-in, a supportive organisational culture, and sufficient time and resources to establish a culture of gender equality. We conclude our report with practical and actionable recommendations to guide the profession, UK construction project organisations, and individuals towards actions supporting the development, and implementation, of effective GEIs.

It is important to mention the limitations of this research with regards to the number of articles which were systematically reviewed, and the number and location of our interviewees. We acknowledge that our findings may have been affected by self-selection bias, given the relatively small sample size of individuals we interviewed. However, we would like to establish this pilot study as the initial building block for a research journey towards enhancing gender equality within the project profession.

Introduction

2.1 Background and significance

Sexism is the "oppression of, or discrimination against, members of a group on the grounds of their sex" (Pepper, 2013, p.43). Although the definition of sexism includes both genders, the common understanding and application of sexism is in contexts where females are the subject. Researchers and scholars have defined sexism in different ways. According to Cudd (2005), sexism refers to a historically and globally pervasive form of oppression against women. The European Institute for Gender Equality (EIGE) defined sexism as "actions or attitudes that discriminate against people based solely on their gender" (EIGE, 2021).

Another term used for the unfair treatment of individuals based on their gender is gender bias. This term is particularly applied in a workplace context. As it appears in the definitions, "sexism" is an overarching definition in comparison to "gender bias", which is more specific, and particularly refers to gender-based perceptions of the inequality of men and women. Gender bias in the workplace can lead to different attitudes towards male and female co-workers, where one group might obtain advantages in career development and work engagement (Arroyo *et al.*, 2018). McLoughlin (2005) identifies three types of bias towards women: 1) singling out women with the intention to harm (overt sexism); 2) singling out women with neutral intentions (tacit sexism); and 3) singling out women with the intention to help them. This categorisation is in line with categorising sexism into hostile versus benevolent sexism (Glick *et al.*, 2020; Jones *et al.*, 2014; Williams and Polman, 2015; Taylor *et al.*, 2015).

These phenomena are particularly relevant in societies and environments where the distribution of benefits and burdens is justified based on individuals' gender (Pepper, 2013). A clear example of such an environment is the construction sector (Henderson *et al.*, 2013; Powell and Sang, 2015; Pritchard and Miles, 2018; Bridges *et al.*, 2020; Scott-Young *et al.*, 2020), which is a male-dominated industry in many developed societies (Loosemore *et al.*, 2003). The construction sector is often referred to as "project based". Characteristics of project-based organisations (PBOs), such as working in temporary locations (Dainty and Lingard, 2006) and in male-dominated environments (Pinto *et al.*, 2017) expose women to challenging working conditions, difficulties in achieving a work–life balance and incidents of harassment (Fielden *et al.*, 2000; Yates, 2001; Andrade *et al.*, 2020). Attracting women to work in PBOs is also hindered by a perceived bias towards recruiting men over women (Norton *et al.*, 2004; Hickey and Cui, 2020), wage inequality (Shrestha *et al.*, 2020), a lack of craft training (Perrenoud *et al.*, 2020), and a lack of opportunities (Hasan *et al.*, 2021) to enter the sector due to "glass walls", and advancing in the sector due to "glass ceilings" (Oakley, 2000). Women are predominantly assigned office-based positions in the construction sector (Loosemore and Waters, 2004), which limits their access to site and project management experience, and hence limits opportunities for advancing their career in the sector (Dainty *et al.*, 2000).

To address this issue, organisations implement GEIs, which are initiatives that aim to address the root causes and consequences of gender disparities, stereotypes, or oppression in various settings. They can be designed and implemented at different levels of analysis, including individual, interpersonal, organisational, or societal, and can target different dimensions of gender equality, such as awareness, attitudes, behaviours, policies, or outcomes (Benschop and Verloo, 2016).

Despite the importance of this topic, and the adverse effects on individuals and the industry as a whole, research focusing on sexism and gender bias within projects, and particularly in engineering and construction projects, is limited. Specifically, research on the effectiveness of GEIs in the context of projects is non-existent. This research will focus on the existing GEIs applied in UK construction project organisations and endeavours to evaluate their effectiveness.

2.2 Research questions

This research aims to identify and evaluate the effectiveness of different types of GEIs that are implemented by construction project organisations in the UK. The specific research questions are:

RQ1: What kinds of GEIs are employed in UK construction project organisations to deal with sexism and gender bias?

RQ2: What kinds of GEIs are effective, and which are not, in dealing with sexism and gender bias in UK construction project organisations?

2.3 Research methodology

Our research methodology has three main phases. The first phase conducted a systematic review and synthesis of articles published on GEIs in project organisations, particularly construction. We adopted a design-oriented research synthesis, implemented with CIMO (Context–Interventions–Mechanisms–Outcomes), in which empirical evidence concerning the study phenomenon is systematically synthesised from existing research (Briner and Deyner, 2012). A Scopus search identified papers for the CIMO analysis. We coded the resulting articles through the traffic-light coding approach (Tanskanen *et al.*, 2017). The filtered papers were fully reviewed to extract the interventions and categorise them based on their effectiveness and other relevant criteria.

In the second phase, we employed semi-structured interviews. The interview guide was built on the findings of the CIMO analysis. We investigated interventions, their effectiveness, and the enablers and barriers to applying them from the participant's perspective. The participants included the following groups in different UK-based construction project organisations:

1) Women at different stages of their careers, focusing on their experience of the effectiveness of GEIs.

2) Middle/project managers, testing their awareness of sexism and investigating the interventions that they are putting in place.

In the third phase, the findings were enhanced with a one-day Delphi study.

Research design and methodology

3.1 Data collection methods

3.1.1 Literature review

Since empirical evidence regarding gender-equality policies in PBO is published across different sectors and disciplines, this research applies a design-oriented research synthesis (Briner and Denyer, 2012). Figure 1 shows our research design.

The Scopus database was selected as a data source for this research due to its comprehensiveness and coverage of publications from diverse areas (Mariam *et al.*, 2021). We used the following query for our search: (TITLE-ABS-KEY ("gender bias" OR "gender equality" OR "sexism" AND "project based" OR "PBO" OR "project company" OR "energy sector" OR "construction") AND LANGUAGE (English)) AND (LIMIT-TO (DOCTYPE, "ar")). Ultimately, 17 relevant articles were selected. The initial search resulted in 586 articles. Using a traffic-light coding method to exclude irrelevant articles (Tanskanen *et al.*, 2017), 569 articles were excluded that (a) did not relate to project-based organisations or projects, (b) did not relate to interventions targeting gender equality, and (c) did not include verifiable empirical data on gender interventions. Eventually, 17 relevant articles were selected.

Systematic literature review

Reviewing and synthesising articles published on GEIs in PBOs

Semi-structured interviews

Investigating the existing interventions and their effectiveness, along with the enablers and barriers to applying them from the participant's perspective

Delphi seminar

Presenting the results and concluding the findings with research participants
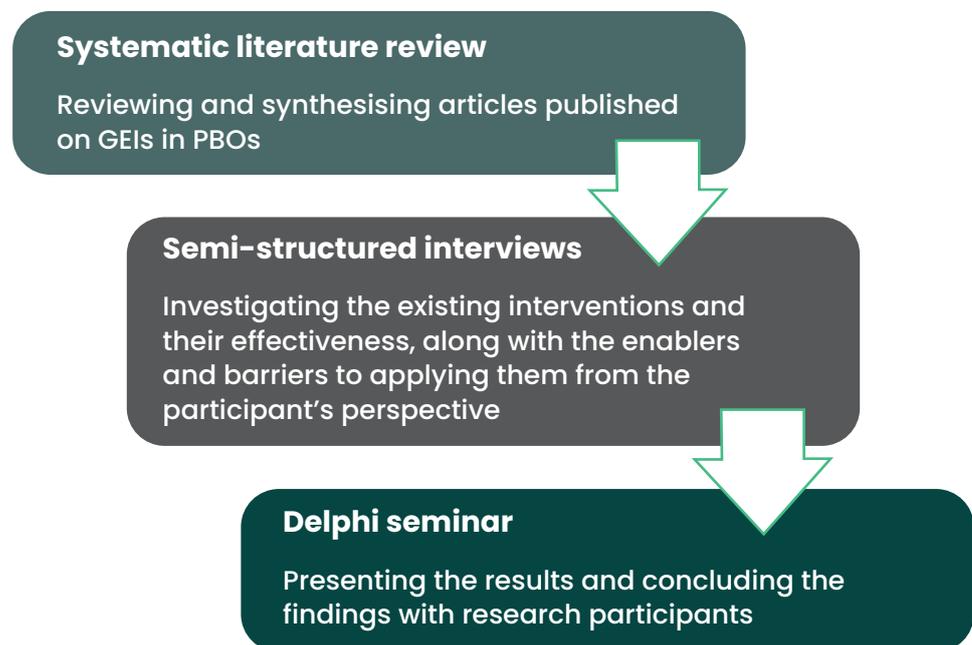
Figure 1 Research design

3.1.2 Interview data

We aimed to capture perceptions and experiences of gender inequality within construction project organisations in the UK. Therefore, an interpretivist approach was most suitable because it had the purpose of comprehending feelings, motivations, and experiences from an individual's perspective (Bell *et al.*, 2019). We used an exploratory qualitative research design to flexibly collect data through semi-structured interviews (Wengraf, 2001).

We conducted interviews between January and April 2023 with 20 project employees within the construction sector in the UK. Small-scale interview-based research is common in exploratory studies (e.g., Bardoel, 2016; Perera *et al.*, 2016) if research is intentionally conceptually generative (Crouch and McKenzie, 2006). The project employees undertook various professional specialisations in their organisations. We used purposive sampling (Campbell *et al.*, 2020) to recruit our research participants. 18 participants were women. Participants who were not British nationals, or who had worked outside the UK construction sector, were asked to focus their responses on their experiences in the UK construction sector. Figure 2 shows the distribution of the roles of the 20 research participants, and Figure 3 shows their years of experience of working in the construction sector.

Figure 2 Distribution of participants by role

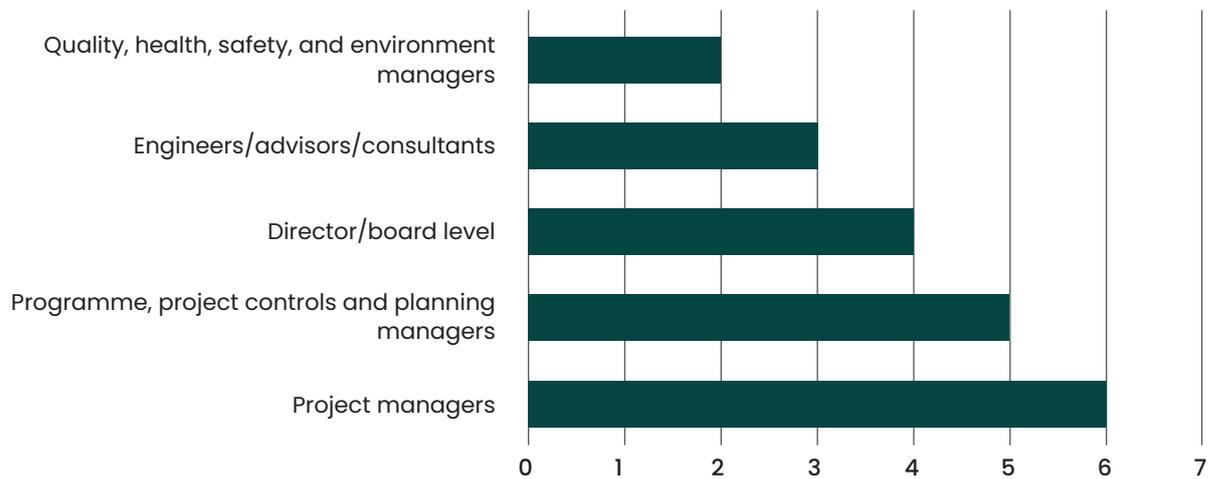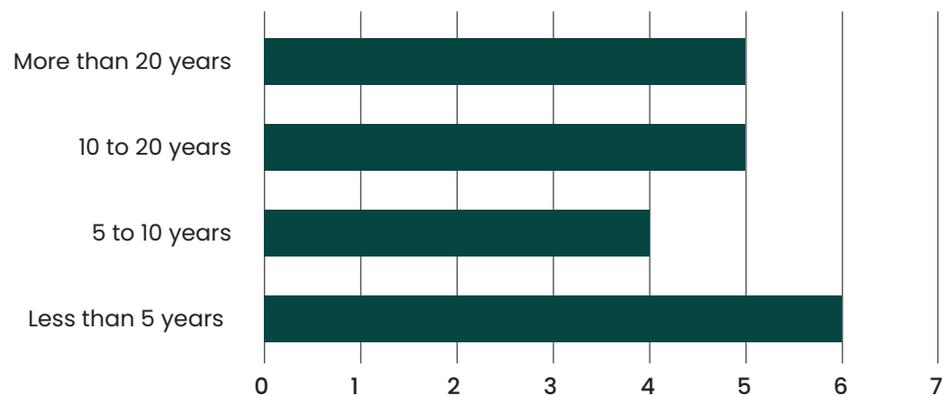**Figure 3** Distribution of participants by years of construction sector experience

The interviews lasted approximately one hour, conducted via Microsoft Teams and then transcribed. Each interview started with a brief description of the study and by assuring participants that all personal information would be kept anonymous and confidential. The interview questions were organised into three sections:

1. Participant/organisation background information (age, gender, current position/key responsibilities, length of service in the organisation, organisation's type of business).

2. Reflections on the employee's experience of gender inequality (their perceptions about areas within which women can be discriminated against, the consequences for women, and whether the nature of project work exposes women to more discrimination).

3. Reflections on existing GEIs in their organisations, their effectiveness, and areas for improvement.

3.2.2 Delphi study

The experts interviewed were all invited to a two-hour Delphi study, which took place after the interview data was analysed. 7 out of 20 participants attended the seminar and discussed the following questions:

1. The findings from the interviews and literature review reveal a list of GEIs. Are we missing anything?

2. Which interventions are most effective among those mentioned in the literature and by the interview participants?

3. Which interventions among those mentioned in the literature and by interview participants are least effective and why?

Given the sensitive nature of the phenomenon being studied, confidentiality issues for women in a vulnerable position as targets for discrimination, and the legal and ethical implications for employer organisations, eliciting explicit data about discrimination is challenging. We have endeavoured to achieve data credibility by designing clear and specific research questions to guide the study, using a systematic and transparent approach to identify and invite participants, providing clear instructions and information to the participants about the study purpose, process, and expectations, and, finally, by using open-ended questions in the first round to elicit a wide range of opinions and ideas, followed by closed questions in subsequent rounds to measure the degree of agreement or disagreement among the participants.

3.2 Data analysis techniques

3.2.1 CIMO-logic

The 17 relevant articles were analysed using CIMO-logic (Denyer *et al.*, 2008). Applying CIMO-logic to the pilot study, the analysis classified:

- Context (C) – country and sector (of the organisation/project)

- Intervention (I) – GEIs

- Mechanism (M) – how GEIs impact/change behaviours within the organisation/project

- Outcome (O) – intended impact of a GEI and the effective outcome, or result, of a GEI

By comparing the intended and actual result of a GEI, it was possible to judge its effectiveness.

3.2.2 Thematic analysis

We used thematic analysis to analyse the data gathered through the interviews and the Delphi study. This analysis method is often framed as a realist/experiential method (Roulston, 2018) that can identify, analyse, and report patterns (themes) within data. We followed a rigorous process of thematic analysis to ensure the analysis's trustworthiness (Nowell *et al.*, 2017).

Firstly, we engaged in an inductive process of developing and refining a coding scheme (Fereday and Muir-Cochrane, 2006). The themes identified were strongly linked to the data (Patton, 2015). Using an Excel template, transcripts were divided into sections and coded into subheadings relating to gender equality and inequality. Secondly, members of the research team reviewed the Excel template and checked for replication of themes to ensure inter-rater reliability, as is appropriate with semi-structured interviews (Belotto, 2018). Thirdly, the analysis moved from description to interpretation (Gilgun, 2015). At this stage, we focused on patterns, their meanings, and implications concerning previous literature. Examples of codes and themes are provided in Table 1.

Text	Subheading 1	Subheading 2	Subheading 3	Discussion themes
"In terms of turnover, I feel like there is a higher turnover of women just because it's hard and after a while you get tired and that's why I left as well."	Impacts of discrimination	On participant in particular	Detrimental impact on retention and turnover	Retention of women
"My mental health was deteriorating, I mean, it was failing by being exposed to situations like that..."	Impacts of discrimination	On participant in particular	Detrimental to health and well-being	Health and well-being of women
"And it also instils that fear in you to not want to proceed further, question, "oh, so if I go into that kind of next position, or next stage, will I have to face more of this?""	Impacts of discrimination	On participant in particular	Detrimental impact on promotion and career development	Recruitment and promotion of women
"Yes, I believe in terms of self-esteem, empowered by attending these webinars because you can hear other women speaking about the experience. So, you're not alone."	Intervention	Mentorship and support programme interventions	Networking and advocacy support groups	Effective intervention
"We have a pretty good maternity policy..."	Intervention	Structural interventions	Maternity policy	Effective intervention
"We have a pretty good maternity policy, but we have a really poor paternity policy and, as you know, a bad paternity policy hurts women just as much as a bad maternity policy."	Intervention	Work–life balance programme interventions	Parental leave	Ineffective intervention

Table 1 Thematic analysis examples

Findings and analysis

As presented in Figure 1, the research was conducted in three phases and findings from each phase fed into the following phase. Findings from the systematic literature review informed our interview guide and the interview results informed the Delphi study. This section presents the findings from the study method outlined in Section 3.

4.1 Systematic literature review and CIMO-logic

The CIMO-logic exercise identified 42 gender-equality policies implemented globally (for example, in Australia, Brazil, and Europe). The construction industry was associated with 34 of the policies (Tvorogova, 2022). Through the CIMO-logic exercise, six main categories of GEIs were identified (See Figure 4).

Figure 4 GEI categories (based on the findings of Tvorogova, 2022)

Furthermore, by comparing the intended and actual result of a GEI, it was possible to judge the effectiveness of the interventions.
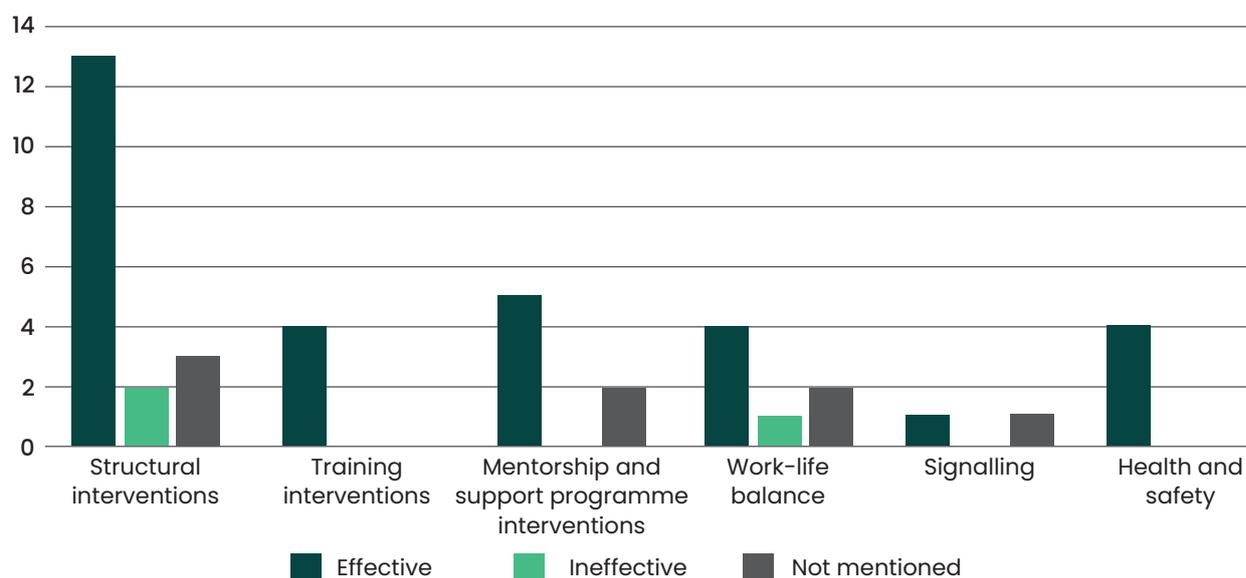
Figure 5 Effective versus ineffective interventions by category (based on the findings of Tvorogova, 2022)

4.1.1 Effectiveness of structural interventions

Structural interventions include administrative actions that proactively manage organisational structures and processes to reduce gender bias.

- **Hiring women in the initial stages of the project**

The hiring of women usually occurs in the finishing stages of construction projects, exposing a "sexual division of labour". Hiring women in the initial stages of a project results in women being accepted more respectfully by co-workers. Increasing the number of women's positions in general will facilitate integration between co-workers (Regis *et al.*, 2019, p. 2542).

- **Creating a critical mass of women in organisations**

Strategies that aim to create a "critical mass" of women in a company – "more than 10% or five women" – support women entering male-dominated professions (Simon and Clarke, 2016, p. 582). Increasing board diversity is an effective intervention for improving the implementation of gender-equality policies in a company, a finding not replicated by increasing top management team diversity (Baker *et al.*, 2021).

- **Facilitation of a women-only labour pool by professional bodies**

Professional bodies' facilitation of a women-only labour pool for recruiting females into the construction sector, containing comprehensive data on female resources in construction disciplines, could be a strategy to increase the contribution of women to the sector (Adeyemi *et al.*, 2006).

- **Allocating gender-equality facilities and equipment budgets**

An unplanned introduction of women into sites that are set up for men-only has potential cost implications associated with the requirements for additional gender-specific facilities. An effective intervention to avoid unplanned additional costs would be to allocate gender-inclusive facilities budgets at the initial stage of the project (Regis *et al.*, 2019). Differences in the physical capabilities of men and women relating to strength can be reduced through the introduction of new technologies and equipment (Wang *et al.*, 2021).

- **The use of social procurement to support gender equality**

In addition to achieving social benefits, social or "responsible" procurement which supports behavioural change also helps to achieve gender equality (Lulham, 2011), as shown by the increased representation of women in the UK construction sector in response to the use of public procurement contracts during the London Olympic Park project (Wright and Conley, 2020).

- **Implementing quota systems to increase the representation of women**

Introducing quotas to increase the representation of women has both positive and negative effects (Francis, 2017). Quotas reduce the under-representation of women in male-dominated environments, improving career advancement and helping women avoid feelings of isolation and unwarranted harassment and resistance (Simon and Clarke, 2016). However, quotas might be perceived as contradicting the concept of recruiting the "best candidate" (Galea *et al.*, 2020, p. 1224), and have been perceived by some women as a "confirmation of the biased perception of men being more qualified and desirable employees, and therefore a woman can only get a job or position thanks to the quota" (Shatilova *et al.*, 2021).

- **Implementation of transparent pay-scales**

Gender wage gaps are narrowed through organisations disclosing disparities in gender pay. Furthermore, transparency on employee's salaries leads to an increase in the number of women being recruited and to higher rates of promotions for women (Shatilova *et al.*, 2021).

4.1.2 Effectiveness of training interventions

Training interventions include actions aimed at improving awareness of all genders to equality-related issues, focusing on educating employees on appropriate ways to behave and communicate.

- **Apprenticeship programmes**

Governmental and private sector apprenticeship programmes raise the awareness of prospective craftswoman of the realities of working in the profession, including the physical and mental demands of working in the sector (Adeyemi *et al.*, 2006).

- **Training programme and workshops**

In addition to increasing overall job satisfaction, self-esteem workshops provide the opportunity for women to learn to manage conflicts and become less sensitive to discrimination, and male dominance, in male-dominated work environments (Wang *et al.*, 2021). Training programmes (such as programme to promote women's employment) are proven to increase female participation in male-dominated

sectors (Peñalvo-López and Cárcel-Carrasco, 2019). Meetings to encourage respect between genders (such as talking about the subject during daily security dialogues) have proven effective. Preventive equality training activities are effective interventions for improving cooperation and agreement between genders, reducing limitations in the workplace and increasing workforce participation and engagement (Regis *et al.*, 2019).

4.1.3 Effectiveness of mentorship and support programmes

Mentorship and support programme interventions aim to support women, on a professional and emotional level, to enter, develop, and excel in a male-dominated environment, learning to handle frustrations and challenges, and ultimately remain in the sector.

- **Mentorship programmes**

Mentorship programmes are less effective than participation in support networks for improving women's career advancement (Francis, 2017). There is a lack of supporting evidence that participation in mentoring programmes supports the retention of women in the construction sector (Morello *et al.*, 2018).

- **Support networks**

Support networks, particularly workplace-based communities and industry associations, have proven effective at facilitating access to role models who help with the exchange of information and can advise on ways to adapt to "workplace culture", career growth and promotional opportunities (Simon and Clarke, 2016).

- **Providing an open communication channel**

Effective interventions at an organisational level requires open communication channels between workers of all genders and management where issues concerning safety, harassment, and respect in the workplace can be reported and resolved (Regis *et al.*, 2019).

4.1.4 Effectiveness of work–life balance programmes

Effective work–life balance programme interventions improve the balance between working life and personal life.

- **Flexible working hours**

While increasing the flexibility of working hours helps employees to plan their workload around their personal life schedule, it can also be met with strong resistance from individuals who are habituated to traditional working practices and who do not want to change their ways of working and customs (Galea *et al.*, 2020).

- **Job rotation and job crafting**

Job rotation encourages a gender-balanced working environment, as it exposes employees of all genders to different roles and wider work experiences, leading to improved promotion prospects for higher managerial positions. Job crafting, which is not widely employed in the construction sector, provides an opportunity for jobs to be proactively designed to reduce stress and burnout (Riva *et al.*, 2019).

- **Paid parental leave and childcare support**

It is rather surprising that providing paid parental leave is perceived as an ineffective intervention for improving a parent's work–life balance or for reaching equality between the genders (Galea *et al.*, 2020). A change in terminology from "paid maternity leave" to "paid parental leave" does little to dispel traditional views of women as "carers" and "housewives" and men as "breadwinners" and "leaders". Furthermore, paid parental leave appears to carry a stigma that and is seen as an "additional cost" to the project rather than the organisation as a whole. In practice, the introduction of a paid parental leave policy increases an employer's resistance to hiring women (Galea *et al.*, 2020).

4.1.5 Effectiveness of signalling interventions

Signalling interventions promote an equal opportunities organisation to women applicants and existing employees, signalling an organisation's appreciation of the contribution of women employees and the organisation's active support for women's career development and progression.

- **Gender-based human resources (HR) recruitment initiatives**

For recruitment campaigns to attract women into male-dominated industries, organisations need to increase the number of women employed by setting targets and implementing changes that reduce gender-related stereotyping and bias (Riva *et al.*, 2019). Gender-focused HR recruitment, promotion, and retention initiatives signal to women applicants that the employer monitors equality in recruitment and promotion decisions. Evidence of gender-equality initiatives attracts more women applicants for job roles, and increases the likelihood of women accepting job offers, ultimately increasing the representation of women (Casper and Harris, 2008).

- **Gender-based human resources (HR) work–life balance initiatives**

Employers who signal the availability of work–life interventions (such as flexible working, paid parental leave, and assistance with caring responsibilities) are perceived as supportive organisations (Casper and Harris, 2008).

4.1.6 Effectiveness of health and safety support programmes

In the construction sector, discriminatory barriers to a woman's financial and career advancement are linked to physical and psychological problems (Lakhani, 2004). Effective health and safety interventions not only protect the health and safety of women in the workplace, but also target specific women's health-related issues and raise awareness of women's health topics (for example, via programmes for women's health).

- **'Women's safety' supervision**

An effective intervention for ensuring the physical and psychological safety of women on site (in respect to accidents and sexual harassment) is the availability of safety technician supervisors. It is important that women know who to contact to report any security concerns or harassment in the workplace, and that reported harassment incidents will be investigated. This intervention signals to employees that their employer protects the women in its workforce (Regis *et al.*, 2019).

- **Suitable equipment and facilities**

It is important that women are provided with workwear designed for their body shape and size. Appropriately fitting uniforms can reduce the stigma and discrimination that women employees face on construction sites. They can help them avoid unwanted attention, harassment, or bias from their colleagues or clients (Regis *et al.*, 2019).

4.2 Findings from the interviews

Sexism, gender bias, and discrimination terminology was used interchangeably by participants, so for clarity this report will use the term "discrimination against women" when reporting the findings.

The findings are structured into three themes (Figure 6):

1. Discrimination against women in the UK construction sector.

2. Impacts of discrimination against women in the UK construction sector.

3. GEIs in the UK construction sector.

Discrimination against women in the UK construction sector

- Intent: positive, unconscious, and negative discrimination

- Forms of experienced and observed discrimination

- Widely held perceptions about discrimination

Impact of discrimination against women in the UK construction sector

- Health, well-being, and behaviours of women

- Retention of women

- Recruitment, promotion, and career development opportunities for women

Gender equality interventions in the UK construction sector

- GEI successes (what has worked?)

- Gender equality and GEI challenges (what are the problems?)

- GEI improvement opportunities and responsibility for change (what could be done differently?)

Figure 6 Thematic categories identified through interviews

4.2.1 Discrimination against women in the UK construction sector

During their careers in the UK construction sector, all of the women participants experienced some form of discrimination. Over half of the women participants had observed discrimination against other women. Seven of the women participants highlighted that the discrimination they had experienced could have been influenced by factors such as nationality or ethnicity, or the participants being "too young", or "too educated", or a combination of these factors. Participants viewed discrimination as disproportionately affecting women, while acknowledging that men can be discriminated against because of gender stereotypes, or by not conforming to gender stereotypes. Discrimination against women was described in respect to the intent, forms (experienced and observed), and widely held perceptions about discrimination.

4.2.1.1 Intent: positive, unconscious, and negative discrimination

Participants described how discrimination ranged from positive discrimination and potentially unconscious discrimination to very definite and overtly negative discrimination. Positive discrimination often related to gender-based access to education and networking opportunities. Unconscious discrimination generally related to interactions between people, such as a thoughtless comment or the voicing of ill-informed, or stereotypical, assumptions about women. Overtly negative discrimination related to interactions between people, with the source of the discrimination deliberately acting in an insulting or offensive manner towards women. Negative discrimination also related to discriminatory treatment, resulting in women failing to be promoted or their constructive dismissal.

4.2.1.2 Forms of experienced, and observed discrimination

Participants discussed how progress in respect to equal pay, opportunities, and behaviours (on and off site) has been made for women working in the UK construction sector over the last 30 years. However, we found that discriminatory behaviour towards women continued to be experienced and observed, in respect to the distribution of rewards and resources, the implementation (or failure to implement) processes and procedures, and inappropriate behaviour and interactions between people (Figure 7).

Rewards and resources	Processes and procedures	Behaviour and interactions
Pay	Promotion	Behaviour
Acknowledgement	Recruitment	Comments
Resource requests	Redundancy	Assumptions

Figure 7 Categories of discrimination against women in the UK construction sector

Women with equal levels of experience in their role to male colleagues are usually paid less than the male colleagues. In meetings, women had been marginalised, and their contribution not appropriately acknowledged. Furthermore, requests for additional resources from women had been ignored, but subsequently approved when requested by men. The implementation (or failure to implement) processes and procedures resulted in women being overlooked for promotion when male friends of the recruiters were appointed. Concerns were raised on the use of "bombastic" and "aggressive" wording in job descriptions that reinforced outdated and stereotypical views of construction. Participants also viewed the redundancy of women-only inititaives, in their organisation, following Covid disruption, as discriminatory. Inappropriate behaviours and sexist comments had left women feeling "scared" and "disrespected". Assumptions that women in meetings were there to make the tea, or that women in project teams should shoulder the burden of administrative duties, are further examples cited by participants of discriminatory interactions.

4.2.1.3 Widely held perceptions about discrimination

While not directly experienced or observed, participants discussed their perceptions of discrimination in the UK construction sector. Although most of the women participants did not discuss unequal pay at a personal level, a gender pay gap in the sector was raised by many, and challenges in comparing salaries between genders was regarded as an issue. Participants described their perceptions that construction sector processes and procedures do not fully accommodate the needs of women, whether in terms of women's health (for example, taking into account periods, endometriosis, and menopause) or their welfare (for example, a lack of appropriate facilities on and around sites and safety issues with walking home alone from sites at night). Maternity absence can leave women facing challenges in gaining the same levels of experiences as male peers. Having less experience than equally qualified men was raised as a concern in respect to recruitment and promotion, especially given the widely held perception that men were promoted more quickly, and to higher positions, than women. Stereotypes of the construction sector were also cited as unhelpful in attracting women to, and retaining women in, the sector (for example, perceptions of "*muddy boots and hard hats*" on working site environments, and macho/"boys' club" behaviours).

4.2.2 Impacts of discrimination against women in the UK construction sector on women

We found that discrimination impacted women in three areas: health and well-being, retention in the sector, and career advancement opportunities (Figure 8).

Impact of discrimination on women

- Health, well-being, and behaviours of women
- Retention of women in the workforce
- Recruitment, promotion, and career development opportunities for women

Figure 8 Impacts of discrimination against women in the UK construction sector

4.2.2.1 Health, well-being, and behaviours of women

Women react differently to discrimination: some "bluff through it", some "laugh it off", and some are "really devastated". Women participants discussed how discrimination could be mentally draining, leaving them feeling uncomfortable, stressed, and exhausted. Discrimination detrimentally impacts on confidence levels and self-esteem, leading to self-doubt and feeling the need to act out of character and change behaviour to prove their worth and to fit in (for example, by demonstrating perceived masculine traits, such as being more vocal and confrontational). Discriminatory treatment results in women becoming defensive, lacking enthusiasm, and feeling demotivated. These impacts are felt beyond the individual, to their family, to their project (detrimentally impacting on project performance), and souring the relationship between a woman and their employer (organisation).

4.2.2.2 Retention of women in the workforce

Some of the women participants had been compelled to resign because of discriminatory treatment, while other participants had observed how other women had left their jobs because of discriminatory behaviours and inequality in salary, incentives, and treatment. Participants were relatively positive about the sector's ability to recruit women; however, as a participant described: "It's creating a leaky bucket effect – keep pouring women in the bucket and women keep leaving the industry". The sector struggles to retain women, whether because of unpleasant or unfair treatment that results in women dropping out of the workforce, or because of women with childcare responsibilities looking for an industry which better fits their lifestyle. The impact of experienced and skilled women leaving the sector is felt beyond the individual disruption and unhappiness to the wider capabilities of the sector, which has lost women who are able to impact decision-making and performance.

4.2.2.3 Recruitment, promotion, and career development opportunities for women

Positive discrimination in respect of access to women-only networks and training has supported the recruitment and career development of women participants. However, participants were vocal about their frustration when discriminatory treatment resulted in women not reaching their full potential, or not fully contributing to their project or organisation. Women filter out of the upper hierarchy of construction organisations. As discussed previously, discriminatory treatment destroys self-confidence and self-esteem, leading women to question their self-worth and capabilities. Combined with examples of women being overlooked or discriminated against during recruitment, a lack of self-belief or feelings of not being good enough have resulted in women participants questioning the value of attempts towards career advancement. If this continues, women will remain in a minority at senior and board level in the UK construction sector.

4.2.3 GEIs experienced and observed in the UK construction sector

Through the interviews, we identified a range of interventions that have been applied in different organisations and categorised them based on the areas revealed through the literature review. The interventions identified under each category are presented in Table 2.

We found that, while progress has been made, sexism and gender bias is still present in the UK construction sector. Interventions are in place for addressing discrimination against women but the fact that this phenomenon still persists demonstrates that the existing interventions are not always effective. We discuss reasons for challenges and potential improvement opportunities in the next section.

Categories	Interventions
Structural	50/50 male-female recruitment policy
	All-woman senior management teams
	Gender pay gap statutory reporting
	Gender pay equality ethos and strategy
	Effective job description/interview/recruitment stages
	Effective promotion and career development support and measures to retain women
	Menopause and maternity policy
	Clear and transparent equality, diversity, and inclusion (ED&I) policies
Training	Continuing professional development (and funded academic qualifications)
	Further education/apprenticeships/technical training
	ED&I training
	Bias training
Mentorship and support programmes	Reverse mentoring
	Exemplar role models
	Mentors and mentorship
	Women-only programmes
	Internal (women-only) informal networking opportunities
	External (women-only) networking activities
	Women allies (senior/leaders)
	Male allies
Work–life balance programmes	Flexible working/reduced hours (working around family)
	Paternity leave (enhanced paternity leave)
	Accommodation of family/caring needs
	Family-related facilities/allowances
Signalling	Senior managers to set a non-discriminatory culture/lead by example
	Organisation as a role model for good practice
	Non-discriminatory/equitable business culture
	Promotion of society initiatives to recruit more girls and women to science, technology, engineering, and maths (STEM) sectors
	Raise awareness of equality and promotion of women/women's achievements
	Quicker response to instances of discrimination and action taken
Health and safety support programmes	Escalation HR process
	Personal protective equipment (PPE)/workwear appropriate for women

Table 2 Different types of interventions identified through interviews

4.3 Findings from Delphi study

The Delphi study started with the introduction of participants to a presentation of the findings from both literature review and interviews (Table 2). We then asked the participants to think about and answer the following three questions:

1. **Among the interventions that we have identified, are there any interventions which are missing?**

The participants confirmed the list and added the following interventions in each category:

- Structural interventions: Parental policy (as opposed to maternity policy), which covers a wider range of employees, rather than only mothers.

- Training interventions: Dealing with menopause, anti-bullying, and anti-harassment training.

- Work–life balance programmes: Flexible working with regard to difficulties resulting from menopause (e.g., reduced working hours).

- Health and safety support programmes: Free female products available to employees, healthcare programmes which cover female-specific conditions, female-specific PPE.

2. **Which interventions are effective?**

Gender pay gap statuary reporting is one of the most effective interventions. This transparency increases accountability and drives action to advance gender equality in the workplace. Using inclusive language when designing job descriptions is also an effective intervention as particularly in the construction industry, some job adverts have traditionally seemed to have been written for a male audience, without specifically saying so.

Sessions arranged at work (often called discussion series), where participants discuss different topics including gender bias, have proven to be extremely helpful. The sessions tend to raise awareness about issues which are not normally discussed, including comments or behaviours from men which can unintentionally come across as sexist.

Having a structured mentorship process, where women are put in contact with somebody who they might otherwise not meet, is beneficial, as women can easily discuss matters and challenges with their mentors without being concerned that it will affect their day-to-day work and professional relationships.

The participants made an important point that sometimes the intervention itself is intended to bring about positive outcomes but it is not effective if managers do not buy into it, or if it is not accepted within the organisation. So, the culture of the organisation, education, and internal buy-in are important determinants for the effectiveness of interventions.

3. Which interventions are not effective and why?

Due to the nature of project work, there is a high turnover of employees in the construction sector. This prevents organisations from establishing a solid company culture which will lead to such interventions becoming fully effective. Another factor is the high number of project stakeholders from different companies and even countries, which makes it difficult to embed a culture that represents a specific value.

Having women in senior management roles does not necessarily reduce gender inequality. In fact, it depends on individuals and, in some instances, men in senior roles, can be more understanding and supportive towards women.

The 50% women/50% men policy is not always effective because it is important that the right person gets the job based on their competencies and not only based on their gender. Promoting STEM subjects to schools is also not effective if only men are representing the company, as the organisation needs to set an example by showing it places women in such roles.

Positive discrimination against women was perceived as both negative and positive by the participants. While positive discrimination can compensate for the time women lose due to maternity leave and caring responsibilities, it can be counterproductive as women's success and career growth is seen to be due to the quota rather than their own hard work and accomplishments.

Online gender-bias training, which is mandated by many organisations, is not always effective as it is more of a check-the-box training exercise. Such training, however, can be useful if it is in-person and includes time for discussions among staff.

Women-only networks promoted by organisations are perceived as a "finger-pointing exercise". It reinforces the idea that women need to change their behaviour and what they do to fit in, rather than changing structures, policies, and procedures to accommodate women. They also shut out 50% of women's potential allies (men).

Flexible working policies are seen as mainly effective for younger staff as it appears they are more normalised and accepted among younger employees than among senior staff.

Discussion

Participants gave mixed responses to the effectiveness of GEI across the diverse sectors. Organisation type (consultant/contractor), roles (on/off site), and the size of organisations all influenced the effectiveness of GEIs. Participants described how it was potentially easier for larger organisations to resource GEI than smaller organisations (because of a lack of HR provision, smaller sites (lack of facilities), and smaller/fewer projects –offering fewer opportunities), although smaller organisations could be more dynamic and responsive. Furthermore, there could be variable compliance across a large organisation. How effectively interventions were combined was also raised as an issue: whether policies, training, monitoring, or women in senior positions – "you need all of it; it needs to all come together".

Our findings show how effective GEIs require staff and senior management buy-in, a supportive organisational culture, and sufficient time and resources to establish a culture of gender equality. Moreover, individuals and organisations should actively aim to implement mechanisms that:

- enhance project stakeholders' awareness of gender-related issues
- enhance transparency in developing and implementing gender-related initiatives
- incentivise women to join the UK construction sector
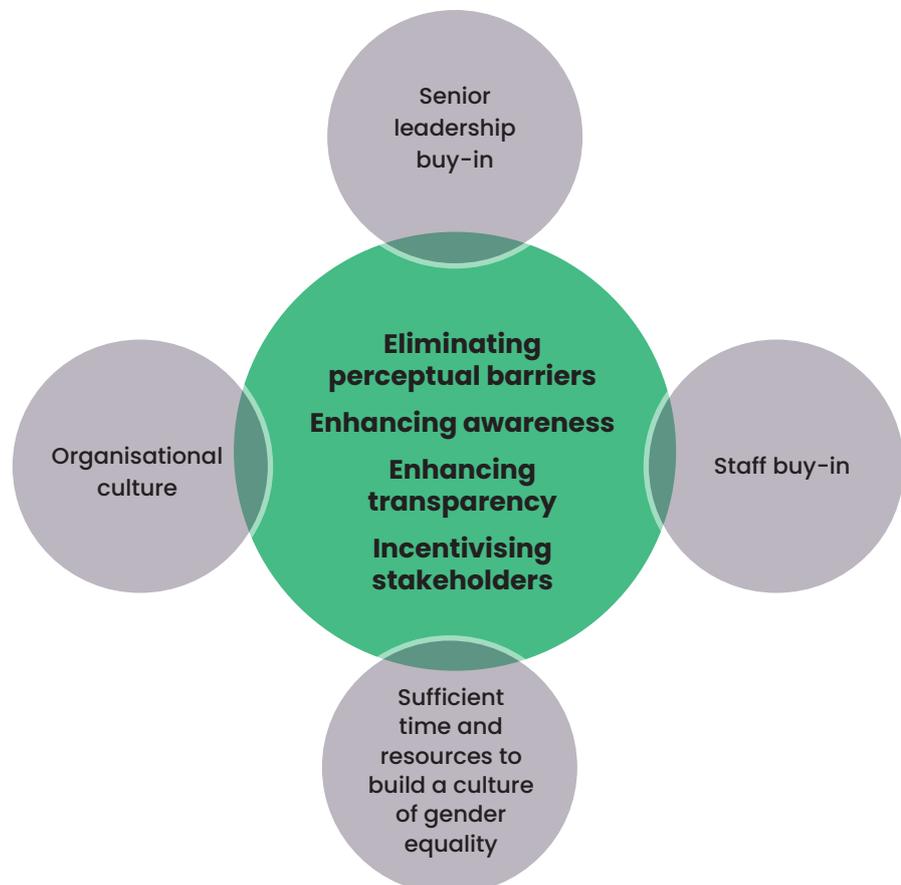- eliminate perceptual barriers to women joining the UK construction sector

Figure 9 Mechanisms to achieve effective GEI

5.1 Enhancing awareness of project stakeholders to gender-related issues

We found that gender equality in the UK construction sector was hampered by the failure at an individual level to correctly implement existing policies (e.g., recruitment, promotion), and hampered at an organisational level by ineffective policies (e.g., regarding job descriptions, menopause, maternity, training), and issues with reporting (e.g., skewed gender pay gap reports, lack of comparative data on pay). Enhancing awareness of gender-related initiatives will support compliance and the development of more robust policies, helping to avoid acts of bias, whether intentional or unconscious.

Participants discussed the importance of the role of senior managers in setting a non-discriminatory culture and being seen to lead by example on diversity and inclusion issues. It is also important that organisations act as role models for good practice in gender equality. They should develop non-discriminatory and equitable business cultures by supporting social initiatives to recruit more girls and women to STEM sectors, promoting measures to recruit and advance women in the sector, raising awareness of equality interventions, promoting women's achievements in the sector, and responding quickly to instances of discrimination against women.

5.2 Enhancing transparency in developing and implementing gender-related initiatives

Organisations supporting transparency, publishing pay/grade policies, being open to discuss pay gaps, and complying with gender pay gap statutory reporting requirements ensure that information on gender pay gaps is available. This highlights pay inequality issues, which is particularly helpful where data is split at a divisional level. The openness of organisations to discuss a lack of female representation and ways of helping women thrive was welcomed by participants, as were having effective processes in place to recruit, promote and retain women in the workforce (such as taking due care when wording job descriptions, and ensuring recruitment and promotion procedures are correctly implemented).

A further supportive GEI raised by participants is an effective inspection of the process or system for dealing with harassment and the escalation of incidents, so that women feel confident enough to raise a problem and know that it will be dealt with in a timely and appropriate manner by their employer. It was also seen as important to ensure that diversity and inclusion and bias training for all genders is mandatory (and monitored), rather than just a tick-box-exercise. Participants also raised questions about whether positive discrimination and women-only networks/training were potentially siloing or alienating other genders and therefore counterproductive, or whether they were necessary to achieve equity in the sector. Transparency in developing and implementing GEIs signals to women that an organisation is fully engaged in enforcing gender equality (such as equal pay, unbiased recruitment, and effective incident escalation processes), ultimately increasing trust between women employees and their employer, and promoting cooperative working relationships between all genders.

5.3 Incentivising women to join the sector

Recruitment, promotion, and retention are key areas for the sector to focus on in terms of GEI improvements. Increasing the number of women entering the sector, and making structural and signalling intervention improvements, should target the dispelling of "construction myths", for example by using appropriate language in job descriptions, and ensuring recruitment processes are correctly implemented. Women could be motivated to apply for promotion by implementing interventions that build their self-confidence, self-esteem, and self-worth. Initiatives to support this could include increasing the number of women in senior and board roles and raising their visibility, facilitating access to allies, mentors, and sponsors, and increasing training and mentorship and support programme interventions.

Equal access to training and career development opportunities supports equality across genders. However, there is an appreciation that equity will best be achieved by accessing academic and professional development measures that target women across their careers (for example, funding women apprentices, technicians, undergraduates, and postgraduates). Women-only training activities can build women's confidence to advocate for themselves and know their true worth, and can help them to develop coping mechanisms through learning from the experiences of others.

Policies to encourage the retention of women in the sector include those that support the health and well-being of women of all ages. Examples include measures relating to periods, endometriosis, and menopause, end-to-end maternity policies (including 'keeping in touch' and phased returns), and policies relating to fairness and honesty in the workplace, such as ensuring that equality, diversity, and inclusion (ED&I) measures are resourced appropriately.

The retention of women in the sector will be also supported by family-friendly interventions that mean women do not have to choose either work or home. Commitments will change over time, perhaps initially relating to childcare needs but then, as families grow up or as a woman progresses in her career, later accommodating caring needs for older relatives. Measures supporting family-friendly working, including strong parental policies and flexible working and reduced hours for employees, are perceived as enabling women to structure their work around family commitments.

5.4 Eliminating perceptual barriers to women joining the sector

Eliminating perceptual barriers to women joining the UK construction sector will involve promoting a more balanced view of women's roles and the classic representation of women as carers. This requires promoting an understanding that gender equality is not the responsibility of a single gender. Woman participants were keen to stress that some of their biggest opportunities had come from male allies and that men had mentored, championed, and supported them throughout their careers. It is therefore important to include all genders in the dialogue for change.

Women should not feel as if they must change to "fit in" and should be supportive of, and non-judgemental to, women peers. Accountability and acceptance of family-friendly working will be important at an individual and organisational level. Furthermore, being open to discussing gender inequalities, raising awareness of women's challenges in the workplace, supporting managers to have challenging conversions, and establishing effective incident escalation processes should be important for organisations and their HR divisions to deliver.

Internal and external women-only networking and advocacy groups create a safe space for women to "open up" and share their experiences. These forums enable women to discuss important topics such as equal pay and career progression, creating opportunities to hear other women speaking about their experiences of similar issues. The forums also enable women from senior management roles talk about their journey and the obstacles they faced and conquered. Networking provides access to exemplary woman allies in senior/leadership roles, role models, sponsors, and mentors (both internal and external to the organisation). Women participants in senior roles believed it was their duty to help other women progress in the sector.

Conclusions and limitations

Our aim is to contribute to research addressing the gender-equality issue in UK construction project organisations by discussing the existing effective GEIs. This is important because, although progress on gender equality in the UK construction sector has improved over time, women in the UK construction sector are still experiencing gender bias and sexism, in respect to 1) rewards and resources, 2) processes and procedures, and 3) behaviours and interactions. The impacts of discrimination affect women's health and well-being, career advancement, and retention in the sector. Ultimately, a lack of female representation detrimentally impacts the capacity and capability of the sector to reach its full potential.

We found that six categories of GEIs are employed in UK construction project organisations to deal with sexism and gender bias:

1) Structural interventions that reduce gender inequality through proactive administrative activities which manage internal structures and related actions and organisational processes.
2) Training interventions that tackle inappropriate and sexist behaviour and communications, and enhance awareness of gender-related issues.
3) Mentorship and support programme interventions that support women, on a professional and emotional level, to enter, develop, and excel in male-dominated environments.
4) Work–life balance initiatives that improve the balance of a woman's working and personal life.
5) Signalling interventions that promote an equal opportunities organisation to women applicants and existing employees.
6) Health and safety interventions that protect the health and safety of women and target specific women's-health issues.

The findings of the three-stage research methodology (CIMO-logic literature review, interviews, and Delphi study) identify which GEIs are effective, and which are not, in dealing with sexism and gender bias in UK construction project organisations. A mechanism to achieve effective GEIs is shown in Figure 8. Effective GEIs require buy-in from employees and senior management, a gender-equality supportive organisational culture, and sufficient time and resources to establish a culture of gender equality. Moreover, the effectiveness GEIs will be facilitated through the following:

1) Enhancing the awareness of gender-related initiatives, thereby supporting compliance and the development of more robust policies to help avoid acts of bias, whether intended or unconscious.
2) Transparency in developing and implementing GEIs, thereby signalling to women that an organisation is fully engaged in enforcing gender equality in its policies and processes.
3) Incentivising women to join the sector through unbiased recruitment and promotion, and providing equal opportunities to training and career advancement opportunities, supportive health and well-being approaches, and flexible and family-friendly working policies.
4) Eliminating perceptual barriers to women joining the UK construction sector through including all genders in the dialogue for change and accepting the help of male and female allies.

The primary limitation of this research pertains to the restricted scope of data collection, which exclusively focuses on the construction sector within the United Kingdom. Attempting to extrapolate findings to other countries, including Organization for Economic Cooperation and Development (OECD) nations, would be insufficient due to the unique socioeconomic characteristics and legislative frameworks of each country. These factors inevitably influence the manifestation of sexism and the effectiveness of gender intervention measures. It is noteworthy that the construction industry remains predominantly male dominated, displaying a more pronounced gender imbalance than other project-based sectors such as consultancy or ICT, making the generalisation to other project-based sectors not fully applicable. Methodologically, upon the classification of the interventions into six macro-categories, the analysis was broadly made on the macro-category and not on the single intervention. We also classified the outcomes into four qualitative categories without quantifying them. Furthermore, our understanding of the implementation process was limited, as we lacked information about the duration, effort, and operational aspects of the interventions. It is important to acknowledge that our findings may have been affected by self-selection bias, given the relatively small sample size of the individuals we interviewed.

Future research could benefit from interviewing a wider range of actors in the construction sector, comparing the different GEIs applied in different organisations. It would also be of interest to investigate how these interventions vary across various geographical locations. Finally, we would like to expand our research by investigating existing anti-discriminatory measures based on other characteristics such as age, race, ethnicity, nationality, disability, mental illness or ability, religion, or individual political ideas.

Recommendations

To support the project management community in achieving effective GEIs, practical and actionable recommendations are outlined below.

Construction project organisations are advised to plan for the hiring of women at the initial stages of projects, and to plan safety supervision, facilities, workwear, and equipment budgets that accommodate the needs of all genders. Gender-based recruitment and work–life balance initiatives (including flexible working hours, job rotation and crafting, paid parental leave, and childcare support) should be integrated with initiatives that demonstrate transparency in respect to pay equality, career advancement, and open communication channels, to deal with harassment and gender bias issues. Collectively, interventions should incentivise an increasing number of women to join and remain in the sector.

Integration is recommended between **policymakers and construction project organisations** on GEIs that promote behavioural change. At an individual level, examples include programmes and publicity of gender-related topics to promote the "buy-in" of workers and managers to gender equality in the workplace, and wider society. Across the supply chain, an example is promoting the use of social/responsible procurement. Education includes via training and apprenticeship programmes. These measures can raise project stakeholders' awareness of gender-related issues and support the elimination of perceptual barriers to women joining the sector.

Professional associations, in collaboration with **policymakers and construction project organisations**, also have a role in eliminating perceptual barriers to women joining the sector. Examples include maintaining data on women-only resources/labour pools, and providing vibrant support networks and mentorship programmes, connecting women with allies and role models of all genders to support career advancement and health and well-being.

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Appendix

Interview guide

Category	Description
Demographic questions	Please introduce yourself: • Current role • Age (range) • Gender • Education level • Number of years of experience • Industry you're working in
Introduction question	What do the word "sexism" and "gender bias" mean to you?
RQ 1: What are the dimensions of sexism in project organisation? (Salary, sexual harassment, career growth, etc.)	Which areas do you think women can be discriminated against in your organisation/sector? (Here is a list just to prompt discussion: Salary, treatment of individuals, career growth, and promotion prospects, etc.) What do you think are the consequences of sexism on women (e.g., employee turnover, health and well-being, etc.)? Do you think the nature of project work exposes women to more discrimination?
RQ 2: What kinds of GEIs are utilised in project organisations to deal with sexism?	What are the GEIs that your organisation undertakes? (Here is a list just to prompt discussion). o Training o Family-friendly company policies o Creating organisational culture and practices to support career growth for women o Developmental programmes for women o Other
RQ 3: What kinds of GEIs are effective and which are not in dealing with sexism in project organisations?	Okay, so in your company, you identified interventions X, Y, Z,… Let's start with X. How effective was it? Why? (Repeat for all the other interventions).