

Women's Leadership and Career Motivation in the Construction Industry: Challenges and Barriers

Umi Aida Alias¹, Mimi Mohaffyza Mohammad^{1*}, Nofouz Mafarja², Fatin Najwa Mohd Nusa³

¹ Faculty of Technical and Vocational Education,
Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Johor, MALAYSIA

² Faculty of Education,
Universiti Malaya, 50603 Kuala Lumpur, MALAYSIA

³ Faculty of Civil Engineering,
Universiti Teknologi MARA (UiTM), 42300 Shah Alam, Selangor, MALAYSIA

*Corresponding Author: mimi@uthm.edu.my
DOI: <https://doi.org/10.30880/jtet.2025.17.03.017>

Article Info

Received: 14th March 2025
Accepted: 29th September 2025
Available online: 14th October 2025

Keywords

Challenges, barriers, women's leadership, construction industry, career, motivation

Abstract

The construction industry is one of the sectors with high employment risks and is closely associated with challenging careers. "Dirty, Difficult, and Dangerous" or 3D describes the work situation on construction sites, making these jobs both difficult and risky. This environment creates problems such as negative organizational culture, difficulty maintaining positions within organizations, hazardous workplace conditions, gender stereotypes, and the overall image of the construction industry, which often deters women from pursuing careers in this field. This study aims to examine the challenges and barriers faced by women in leadership roles in the construction industry and how these factors impact their career motivation. The study focuses on three main objectives: identifying the challenges women leaders face in enhancing career motivation, identifying the obstacles to women's leadership, and understanding the relationship between these challenges and obstacles in the construction industry. To achieve these objectives, this study employs a literature review and quantitative methods, involving female leaders working in Grade 7 (G7) construction companies who hold positions such as site supervisors, site engineers, architects, safety supervisors, and surveyors. Conducted in the construction area of Johor Bahru, the study surveyed 172 women leaders. Descriptive and inferential analyses were used to measure the variables set in the study. The findings indicate that the primary challenges for women in leadership are organizational culture, maintaining positions within organizations, and gender stereotypes. Additionally, significant barriers include career balance and skill competence. This study serves as a reference for understanding the obstacles and challenges that women leaders face in the construction industry, providing insight into how these barriers can be overcome to enhance women's leadership and career motivation in this demanding field.

1. Introduction

The construction industry plays a vital role in Malaysia's economy, contributing to economic growth through high-impact infrastructure projects under the 10th and 11th Malaysia Plans. Despite an average growth rate of 11.1% during the 10MP implementation, the industry faces significant challenges, particularly related to high job risks and male dominance in the sector. The construction industry is often referred to as "Dirty, Difficult, and Dangerous" (3D), making it more challenging for women. Statistics show that only 2% of women work in this industry, despite some choosing technical careers in site supervision, quantity surveying, construction management, site safety, and civil engineering. Women in this sector face various barriers, including discrimination, sexist attitudes, and inflexible work practices that make work-life balance difficult. Therefore, obstacles faced by women include difficulties in achieving a balance between career and personal life, and challenges in dangerous workplaces. This situation results in women feeling undervalued and disturbed at work, making it challenging for them to reach top positions in organizations. In the era of globalization, women's leadership in various sectors has increased, providing equal opportunities in holding important positions in both government and private sectors. Leadership is considered the ability of individuals to influence, motivate, and enable others to contribute to organizational success. In the construction industry, leadership is critical to project success and effective handling. However, women in construction leadership face many barriers and challenges that reduce their ability to reach their potential as leaders. This study aims to understand the extent of the challenges and obstacles faced by women in increasing their career motivation in the construction industry today.

1.1 Study Background

The construction industry, often perceived as a challenging 3D career (Dirty, Difficult, and Dangerous), remains male-dominated due to the nature of site work which involves exposure to hazardous environments and extreme weather conditions. This perception, as supported by the 2019 Statistics of Women, Family, and Community, indicates that only 2% of women are employed in the construction sector. Despite this, some women pursue technical careers within the industry, focusing on site supervision, surveying, construction management, safety, and civil engineering. This study aims to identify the challenges and obstacles faced by women in leadership roles to enhance their career motivation in the construction field. A significant challenge highlighted by Nathesan (2017) is the discriminatory organizational culture. Women, despite having similar qualifications as men, are treated unequally. Issues of promotion are particularly severe, as women with comparable performance scores to men still face difficulties advancing (Alias, 2017). Gender discrimination in recruitment, promotion, and salary increments is common, leading to women feeling less appreciated than their male counterparts. This discriminatory culture and persistent gender stereotypes hinder the career development of women in leadership roles (Subramaniam et al., 2019).

Kelly et al. (2022) emphasizes the difficulties women face in maintaining their positions within organizational hierarchies. Rios et al. (2017) report that many women leave the construction industry due to workplace issues such as the lack of privacy with shared toilets and insufficient guidance and training. These factors contribute to the lower involvement of women in construction, leading to feelings of disturbance and inadequacy compared to their male colleagues (Md Isa, 2020). Another significant challenge for women leaders is the hazardous work environment, which poses greater risks to women than men. Rios et al. (2017) note that construction work exposes all workers to extreme temperatures, dangerous conditions, and psychological pressure, with higher incidence rates of musculoskeletal disorders among women. These injuries, often resulting from heavy and overloaded work, can be mitigated with equipment designed specifically for women, considering their generally smaller body structures. Therefore, personal protective equipment (PPE) tailored for women is essential for their safety (Rios et al., 2017).

Gender stereotypes further complicate women's leadership in the construction field. According to Nayak et al. (2021), stereotypes about men and women's roles persist, making women appear suitable only for certain jobs. The misconception that men are more capable of performing tougher construction tasks (ManpowerGroup, 2020) perpetuates the stereotype, making it challenging for women to thrive in physically demanding industries. The construction industry's image also poses a challenge. Rostiyanti et al. (2021) highlight negative perceptions about the sector, including the lack of appropriate welfare facilities and the technical risk, boredom, and uncleanness associated with construction work. This discourages women from pursuing careers in construction. Data from the Department of Statistics Malaysia (2019) show a significant gender disparity in the workforce, with 9.47 million men compared to 6.06 million women, underscoring the impact of these perceptions on women's participation in the construction sector. Balancing career and personal or family life is another leadership obstacle for women. Oyewobi et al. (2023) point out that the gender role of women as primary family managers raises questions about their suitability for senior leadership positions. Women often struggle with work-life balance, especially when assigned tasks outside their expertise, leading to overtime work and insufficient family time (Ismail, 2017). Sule et al. (2017) and Beauregard et al. (2019) also note that female leaders with young children face significant challenges, including long work hours and high work burdens, which contribute to conflicts between work and

family responsibilities, affecting their performance. Lastly, skill competence is a barrier for women in the construction field. Marwa & Noof et al. (2021) indicate that women are underrepresented in construction craft programs due to masculine norms and perceived incompetence. Women are seen as less capable of using tools and handling physically demanding tasks, necessitating them to prove their competence to gain equal job opportunities and avoid exhausting responsibilities.

1.2 Problem Statement

The researchers focus on the study's problem: the challenges and obstacles to the career development of women leaders in the construction field. An increasing number of women are entering leadership roles, particularly in construction. Preliminary observations reveal that women on construction sites experience discrimination and unequal treatment despite having the same qualifications as men. This often results in women being oppressed by male workers who perceive them as lacking the same physical capabilities. Furthermore, women on construction sites frequently face issues such as workplace harassment. For example, the shared use of toilets at construction sites, where female workers must share with male workers, disrupts women's privacy. These conditions cause many women leaders to face significant difficulties in pursuing their careers in technical fields, especially in construction. Hence, this research aim is to investigate the challenges and barriers among women leadership facing in construction industry towards their level of motivation

1.3 Research Objectives

- i. To identify the challenges of women's leadership in increasing career motivation in the construction field.
- ii. To identify the barriers to women's leadership in increasing career motivation in the construction field.
- iii. To determine the relationship between the challenges of women's leadership and the barriers often faced in increasing career motivation in the construction field.

1.4 Research Scope

The scope of this study involves mid-level and upper-level employees within the organizational hierarchy at construction sites around the Johor Bahru area. This is because Johor is the third-largest state contributing to the construction sector in Malaysia and is one of the fastest-growing and developing regions (Department of Urban and Rural Planning, Peninsular Malaysia, 2020). This study focuses on women leaders working with Grade G7 contractors. G7 contractor companies manage large-scale construction projects. This is since in 2021, women's participation in professional and technical fields was 41.5% compared to 58.5% for men (Ajos, 2023). According to the Department of Statistics (2020), the total income earned by women increased to RM 35,508 in 2019 compared to RM 33,264 in the previous year. This shows an increase in the labor market demand, especially for the recruitment of highly skilled women in various economic sectors. This study uses quantitative methods by distributing questionnaires. The analysis of the study's findings will be conducted using the Statistical Package for the Social Sciences (SPSS) software to obtain the results.

1.5 Conceptual Framework

Women in leadership positions in the construction field tend to face challenges and obstacles in the workplace (Awang & Abd Rahim, 2022). This has been evidenced by previous studies conducted by several researchers (Latiffi et al., 2020; Awang & Abd Rahim, 2022). Some of the obstacles and challenges faced by women leaders in increasing career motivation in the construction field can be seen in Figure 1. Challenges are elements or factors that test the ability of a person or organization. Disruptions or obstacles and problems refer to circumstances that make it difficult for women on construction sites to avoid dangerous workplace issues, resulting in higher challenges for women compared to their male colleagues (Rios et al., 2017). A barrier is something that causes the failure of a plan in the field of construction, such as balancing a career with personal or family life (Oyewobi et al., 2022). Women's leadership refers to the management and guidance style applied by female leaders. This includes leadership characteristics, approaches, and management styles typical of women in leadership roles. Women's leadership in construction influences the field from various perspectives, and there is discussion about the unique advantages it can offer an organization or society (Beden, 2020). According to Suparno (2019), motivation is a process that involves persistence, determination, and the strength of a person's desire to achieve a goal. There are two types of motivation: extrinsic and intrinsic (Hartini et al., 2021). A person motivated by external stimuli experiences extrinsic motivation. In general, internal elements lead to happiness at work, while external factors bring dissatisfaction. Intrinsic elements include work itself, achievement, progress, recognition, and accountability.

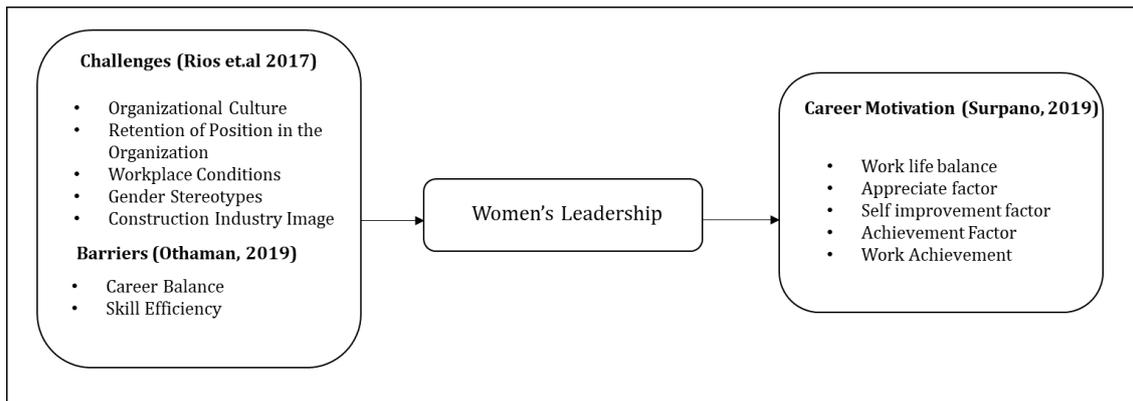


Fig. 1 The elements of challenges, barriers, and career motivation

1.6 Importance of the Study

The study on the obstacles and challenges of women's leadership in the construction industry needs to be emphasized to ensure equal opportunities for women to hold important positions, whether in the government or private sector. Although the construction field is still male-dominated, women can better enter this field if given equal opportunities, helping to create a more inclusive and fairer environment. Overcoming the obstacles and challenges faced by women in construction can maximize their talent potential. This provides access to more diverse talents, leading to better industry innovation and performance. Women's leadership also brings diversity in decision-making, benefiting organizations through different perspectives and creative thinking. Overall, this study is important for promoting gender equality, enhancing talent, creating diversity in decision-making, building role models, maintaining work-life balance, and contributing to the overall progress of the construction industry.

2. Literature Review

2.1 Challenges of Women's Leadership in Increasing Career Motivation in the Construction Field

i. Organizational Culture Challenges

A study by Nathesan (2017) shows that women in the construction industry face discrimination and unequal treatment in the workplace, despite having qualifications comparable to men. Promotion issues are serious, with many gender discrimination complaints reported to the Malaysian Trades Union Congress (MTUC) concerning recruitment, promotion, and salaries. Sexist attitudes and unfair stereotypes also contribute to these problems (Yeoh, 2017). This discriminatory and stereotypical organizational culture negatively impacts women's career development (Subramaniam et al., 2019), causing them to feel disturbed and uncomfortable working with men. A report by Rios et al. (2017) states that many women leave the construction industry due to harassment and workplace issues, such as sharing toilets with men, which invades their privacy. Additionally, they are not provided with adequate guidance and training, reducing women's involvement in the industry (Md Isa, 2020). This leads to women feeling unqualified to stand on equal footing with their male colleagues.

ii. Challenges in Maintaining Positions within the Organization

According to Kelly et al. (2022), a primary challenge for women leaders in the construction industry is the effort to maintain positions within the organizational hierarchy. Many women leave the industry due to harassment and workplace issues, such as sharing toilets with men, which invades their privacy (Rios et al., 2017). Additionally, the lack of sufficient guidance and training is also an issue. This discrimination leads to reduced involvement of women in construction areas, causing them to feel disturbed and unqualified to be on par with male workers of the same position (Md Isa, 2020).

iii. Challenges of Dangerous Working Conditions

According to Rios et al. (2017), dangerous working conditions in the construction industry pose greater challenges for women compared to men. The scope of work on construction sites brings high risks such as extreme temperatures, hazardous conditions, and psychological stress, with women experiencing higher rates of incidents due to heavy workloads. Musculoskeletal disorders are the primary injuries resulting from overwork. Many of these injuries can be avoided by using personal protective equipment (PPE) and clothing specially designed for

women, as women generally have smaller body structures than men. Inappropriate PPE and clothing also pose safety issues for women.

iv) Gender Stereotype Challenges

According to Nayak et al. (2021), gender stereotypes are associated with societal beliefs about the inherent characteristics and qualities of men and women. The existence of gender stereotypes in the workplace results in women being deemed suitable for only certain jobs. This is because jobs on construction sites, generally dominated by men, perpetuate the stereotype that the construction industry is not a place for women to thrive. ManpowerGroup (2020) states that one of the misconceptions around construction sites is that men are more macho and capable of performing more challenging construction tasks than women. Therefore, it can be said that these gender stereotypes make it difficult for women to work in industries that require physical strength and intensive labor, such as construction sites.

v) Challenges with the Image of the Construction Industry

The image of the construction industry is a challenge for women's leadership. Generally, this industry involves the construction and maintenance of buildings and engineering structures. According to Rostiyanti et al. (2021), there is a negative perception of this sector due to the lack of suitable welfare facilities, considering it risky, technical, boring, and unclean. This perception deters women from pursuing careers in construction. Data from the Department of Statistics Malaysia shows that there are 15.53 million laborers with 9.47 million men and only 6.06 million women, indicating the low participation of women in this sector. Women also face problems when job opportunities in engineering, arts, computer, and mathematics fields are more given to men. The percentage of women's involvement in STEM (science, technology, engineering, and mathematics) fields is low, and opportunities for women to become skilled and professional in digital technology are also limited. Therefore, women face challenges in their efforts to keep up with the latest developments in technology.

2.2 Obstacles to Women's Leadership in Increasing Career Motivation in the Construction Field

i) Work-Life Balance

According to Oyewobi et al. (2022), women in the construction industry often face significant challenges in balancing career and personal life. Traditional gender roles view women as the primary managers of the family, raising doubts about their ability to hold senior leadership positions while managing family responsibilities. In this context, women are often faced with situations where they must work overtime outside their expertise, disrupting the balance between career and family. Ismail (2017) states that when women are given additional tasks outside their field of expertise, they are forced to sacrifice family time to meet work demands. Sule et al. (2017) add that work-life balance becomes more difficult for women leaders with young children, as they need to prioritize parenting responsibilities alongside their professional duties. Beauregard et al. (2019) show that women managing families while performing leadership roles face high workloads, often damaging their work performance and leading to them being considered unsuitable for senior positions. Overall, the main challenge for women in leadership in the construction industry is managing the balance between career and personal life, where they must restrain themselves from professional responsibilities to meet their family duties as parents.

ii) Skill Competence

According to previous studies (Styhre et al., 2011; Bakar A.K., 2020), women are significantly underrepresented in construction craft programs because the industry is historically associated with masculine norms and competencies. They are considered incompetent, unable to use tools, extraordinarily knowledgeable about building, and not built to move large objects. Therefore, unlike men, female workers must demonstrate their competence when they first enter the workforce to be considered. Certain skills or talents can help women secure equal job opportunities and save themselves from some exhausting responsibilities (Bakar A.K., 2020). This situation causes women working in construction to require strong and stable physical endurance to make them resilient, active, and bold in interacting in a predominantly male environment (Zain, A., 2018)

3. Methodology

3.1 Research Design

This study employs a survey design with a descriptive quantitative approach to assess the challenges and obstacles faced by women in leadership roles within the construction industry. The study design involves data

collection using questionnaires, allowing for the analysis of mean and standard deviation to evaluate the level of challenges and barriers.

3.2 Population and Sampling of the Study

In this study, the population refers to women holding senior positions in the construction field in the Johor Bahru District. This includes site supervisors, site engineers, architects, safety supervisors, and other senior positions in the construction industry. Johor Bahru was selected as the study location because Johor is the third largest state in the construction sector in Malaysia and is experiencing rapid development (Department of Town and Country Planning, Peninsular Malaysia, 2020). According to CIDB data (2023), there are 562 registered construction companies with grade 7 (G7) in Johor Bahru. From this number, 460 respondents are estimated as the study population based on leadership characteristics in G7 company positions. To determine the sample size, this study refers to the Kerjie & Morgan table (Piaw, 2008), which stipulates that the required sample size is 210 respondents

3.3 Research Instrument

The research instrument plays a crucial role in data collection to answer the research questions. In this study, a questionnaire is used to obtain data tailored to the characteristics of the respondents. There are two main variables in this study: challenges, which include career balance, organizational culture, maintaining positions within the organization, workplace conditions, gender stereotypes, and the image of the construction industry; and obstacles, which include career balance and skill competence. This questionnaire is adapted from four previous studies, namely Srivishagan (2019), Bee Lan Oo et al. (2019), Lan & Feng (2019), and Awang & Abd Rahim (2022), which relate to the obstacles and challenges faced by women in the construction.

3.4 Reliability

The researcher conducted a pilot study with 30 respondents from G7 companies in Johor Bahru using Google Forms and WhatsApp to distribute the questionnaire. The purpose of the pilot study was to ensure the suitability of the instrument and identify any issues with the questions. The data were analyzed using SPSS 27 to find the significant value (p), with the results showing a p -value for the overall instrument of 0.950 and a p -value for each construct exceeding 0.6, indicating that the research instrument is suitable for use in the main research.

3.5 Data Analysis Methods

Based on this study, the data obtained from respondents were analyzed using SPSS. In line with the study objectives, the focus of the analysis is on the challenges and obstacles to career development for women in leadership roles in the construction field. Demographic data of respondents in Part A and Part B1 were analyzed descriptively, shown in the form of mean and standard deviation. For Part B2, the Crosstabs Analysis test is suitable for examining the relationship between the challenges faced by women in leadership roles and the obstacles they often encounter in increasing career motivation in the construction field. Table 3.6 shows the analysis method for each research question.

Table 1 Analysis based on research questions

No	Question	Analytical Methods
1	Women's leadership career challenges in increasing career motivation	Mean standard deviation
2	Barriers to women's leadership in increasing career	Mean standard deviation
3	The relationship between the challenges of women's leadership and the obstacles women leadership often face in increasing career motivation in the construction field	Crosstabs Analysis

4. Research Findings

This chapter describes the results of data analysis from a questionnaire distributed to 172 out of 460 Grade 7 female leaders in Johor Bahru, exceeding the 70% acceptable response rate (Babbie, 2010). These respondents are qualified because they have experience in the field of construction, and therefore, they are affected by the challenges and obstacles in increasing the career motivation of women in the field.

Respondent's Background

The researcher selected the study respondents at simple random consisting of female leadership workers in the field of construction according to the positions that have been set. The demographics of respondents required by the researcher are age, education level, work experience, position and distance from home to work. Each respondent's demographic analysis for this study will be explained in more detail. The researcher will record the results of the recorded data in the form of number (N) and percentage (%) as in the table.

Table 2 Analysis based on the respondent's background

Item	Background	Number	Percentage (%)
1	Age		
	20-30	85	49.4
	31-40	73	42.4
	41-50	13	7.6
2	Level of Education		
	Certificate	15	8.7
	Diploma	61	35.5
	Bachelor's degree	88	51.2
3	Working Experience		
	0-5 years	85	49.4
	6-10 years	57	33.1
	11-15 years	15	8.7
	16-20 years	9	5.2
	25 years above	6	3.4
4	Position		
	Supervisor	48	27.9
	Manager	7	4.0
	Safety Officer	50	29.1
	Quantity Surveyor	27	15.7
	Engineer	40	23.3
5	Distance to workplace		
	Below 5km	68	39.5
	6-km10km	94	54.7
	Above 10km	10	5.8

i. The Challenges of Women's Leadership in Increasing Career Motivation in the Construction Field

Table 3 shows a summary of the findings of the analysis of women's leadership challenges. The highest average item construct shows that organizational culture is at a "high" level with a mean value of 3.98. In addition, the lowest value is the state of the workplace, where the mean value is 3.97 with a "high" level and is at position 4. Meanwhile, the item of maintaining a position in the organization and gender stereotyping has a mean value of 3.97 with a "high" level. Followed by the construction industry image of 3.95.

Table 3 Summary of the analysis of women's leadership challenge findings

No	Challenge	Mean	Level	Ranking
1	Organizational Culture	3.98	High	1
2	Retention of Position in the Organization	3.97	High	2
3	Workplace Conditions	3.96	High	3
4	Gender Stereotypes	3.97	High	2
5	Construction Industry Image	3.95	High	4

ii. Barriers to Women's Leadership in Increasing Career Motivation in the Construction Field

Table 4 shows the summary of the findings of the women's leadership obstacle construct, the highest average item showing that the skill efficiency is at a "high" level with a mean value of 3.99. In addition, the lowest value is 3.98 at the high level, which is career balance.

Table 4 Summary of the analysis of women's leadership barriers findings

No	Barriers	Purata (mean)	Level	Ranking
1	Career Balance	3.98	High	2
2	Skill Efficiency	3.99	High	1

iii. Relationship between Women's Leadership Challenges and Women's Leadership Barriers that are often encountered in Increasing Career Motivation in the Construction Field

Table 5 Crosstabs analysis

Appr. Significant	Value	Detail
<0.05	<0.5	There is a relationship between the variables and the relationship is strong
>0.05	>0.5	There is no correlation between the variables and their relations weak

Table 6 (i) shows the relationships between variables related to career balance and organizational culture challenges in term of organizational structure, career balance and skill efficiency for unfair distribution of scope of work. It identifies several key variables that show strong bonds with each other. One notable variable is the unfair distribution of work scope, particularly in relation to uncertain working hours, which exhibits a strong relationship with a strength value of 0.206 and a correlation value of 0.001 ($p < 0.05$). This indicates a significant relationship, rejecting the null hypothesis (H_0) and accepting the alternative hypothesis (H_a). The findings suggest that uncertain work hours are influenced by organizational culture. Another key variable is the lack of management commitment due to an unfair work scope distribution, which shows a strong relationship with a strength value of 0.241 and a correlation value of 0.001. This highlights the challenges faced by women in leadership positions in organizational cultures that lack management support. Additionally, the unfair distribution of work scope with changing workplace areas also shows a significant relationship, with a strength value of 0.286. Lastly, there is a strong bond (0.294) between unfair work scope distribution and reduced time for children, suggesting that career balance is heavily influenced by these organizational factors. In all cases, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming relationships between these organizational challenges and career balance.

The analysis focuses on the relationship between skill efficiency and unfair work scope distribution in the construction sector. A strong bond (strength value of 0.201 and correlation value of 0.008) is identified between the lack of practical construction experience and unfairness in determining the scope of work. This indicates a

significant relationship, leading to the rejection of the null hypothesis (Ho) and the acceptance of the alternative hypothesis (Ha). Additionally, there is a strong relationship between the unfair determination of work scope and limited opportunities to develop practical skills, with a strength value of 0.260 and a correlation value of 0.001. This suggests that limited skill development is significantly impacted by challenges in defining work roles, once again supporting the rejection of Ho and acceptance of Ha. Furthermore, the study highlights a relationship between low competence in pursuing a construction career and weak physical stability due to unfair work scope. This bond is strong, with a strength value of 0.262 and a correlation value of 0.001, further affirming that these factors are interconnected. The findings consistently reject Ho and support Ha, confirming that unfairness in determining work scope strongly affects skill development and career continuation in construction.

Table 6 (i) Relationship between women's leadership challenges and women's leadership barriers (Unfair distribution of scope of work; career balance & skill efficiency)

Women's leadership challenges	Women leadership's barriers	Appr. Significant	Value	Ranking
Organizational Culture: Unfair distribution of scope of work	Career Balance			
	Work overtime	0.001	0.371	6
	Uncertain working hours	0.007	0.206	1
	High financial commitment	0.001	0.382	7
	Less time allocated for children	0.001	0.294	4
	Lack of work management commitment	0.001	0.241	2
	The workplace area is variable	0.001	0.286	3
	Family pressure	0.001	0.319	5
	Skill Efficiency			
	Performance appraisal expectations are too high in work	0.001	0.305	4
	Limited opportunities to develop practical skills	0.001	0.260	2
	Competence that Low in continuing a career in construction	0.001	0.262	3
	Weak and unstable physical endurance stabil	0.001	0.262	3
No experience practical related to construction	0.008	0.201	1	

Table 6 (ii) shows the analysis explores various relationships between workplace inequality and other factors such as workplace area, family stress, and working hours. The study finds a significant connection between workplace inequality and changes in the workplace area, with a strength value of 0.291 and a correlation value of 0.001, indicating a rejection of the null hypothesis (Ho) in favour of the alternative hypothesis (Ha). This suggests that workplace inequality influences changes in the workplace environment. Further, the relationship between workplace inequality and family stress is also significant, with a strength value of 0.297 and a correlation value of 0.001, showing that workplace inequality contributes to family stress. Similarly, workplace inequality is closely related to uncertain working hours, with a strength value of 0.402 and a correlation value of 0.001, reaffirming

the acceptance of hypothesis. The analysis also explores the impact of workplace inequality on skill efficiency. A significant relationship is found between workplace inequality and high-performance expectations, with a strength value of 0.239 and a correlation value of 0.001, indicating that high expectations for performance evaluations are influenced by workplace inequality. Additionally, there is a relationship between workplace inequality and a lack of practical experience in construction, with a strength value of 0.267 and a correlation value of 0.001, showing that inequality negatively affects practical skill development. Finally, workplace inequality is linked to weak and unstable physical endurance, with a strong bond (strength value of 0.353 and correlation value of 0.001). Across all relationships, the null hypothesis is rejected, and Ha is accepted, confirming the significant impact of workplace inequality on various organizational factors.

Table 6 (ii) Relationship between women's leadership challenges and women's leadership barriers (Workplace inequality; career balance & skill efficiency)

Women's leadership challenges	Women leadership's barriers	Appr. Significant	Value	Ranking
Organizational Culture: Workplace inequality	Career Balance			
	Work overtime	0.001	0.446	6
	Uncertain working hours	0.001	0.373	3
	High financial commitment	0.001	0.458	7
	Less time allocated for children	0.001	0.412	4
	Lack of work management commitment	0.001	0.415	5
	The workplace area is variable	0.001	0.291	1
	Family pressure	0.001	0.297	2
	Skill Efficiency			
	Performance appraisal expectations are too high in achievement work	0.002	0.239	1
	Limited opportunities to develop practical skills	0.001	0.379	4
	Competence that Low in Continuing a career in construction	0.001	0.398	5
	Weak and unstable physical endurance	0.001	0.353	3
	No experience practical related to construction	0.001	0.267	2

The study explores the relationship between career balance, particularly in maintaining a position within an organization, and various factors such as lack of guidance in the industry, family stress, and skill development. Table 6 (iii) shows a significant relationship is identified between the lack of guidance in the industry and family stress, with a strength value of 0.336 and a correlation value of 0.001. This suggests that family pressure contributes to the challenge of retaining a position in the organization, leading to the rejection of the null hypothesis (Ho) and acceptance of the alternative hypothesis (Ha). Additionally, the lack of guidance in the industry is closely related to changes in workplace areas, with a strength value of 0.348 and a correlation value of 0.001, indicating that workplace area changes affect the availability of guidance. There is also a strong relationship between the lack of guidance and uncertain working hours, with a strength value of 0.42 and a correlation value of 0.001, further affirming the acceptance of Ha. The lack of guidance in the industry also impacts the development

of practical skills, with a significant relationship found (strength value of 0.239, correlation value of 0.001), suggesting that limited guidance reduces opportunities for skill-building. Furthermore, the lack of guidance is linked to weak physical endurance, with a strength value of 0.426 and a correlation value of 0.001, indicating a strong connection between these factors. Finally, the study highlights a significant relationship between the lack of guidance in the industry and no practical construction experience, with a strength value of 0.435 and a correlation value of 0.001, confirming that inadequate industry guidance hampers practical experience acquisition. In all cases, the null hypothesis is rejected, and H_a is accepted, demonstrating the importance of industry guidance across various career challenges.

Table 6 (iii) Relationship between women's leadership challenges and women's leadership barriers (Lack of guidance in the industry; career balance & skill efficiency)

Women's leadership challenges	Women leadership's barriers	Appr. Significant	Value	Ranking
Retention of Position in the Organization: Lack of guidance in the industry	Career Balance			
	Work overtime	0.001	0.577	7
	Uncertain working hours	0.001	0.402	3
	High financial commitment	0.001	0.492	5
	Less time allocated for children	0.001	0.437	6
	Lack of work management commitment	0.001	0.451	4
	The workplace area is variable	0.001	0.348	1
	Family pressure	0.001	0.336	2
	Skill Efficiency			
	Performance appraisal expectations are too high in achievement work	0.001	0.397	2
	Limited opportunities to develop practical skills	0.001	0.239	1
	Competence that low in continuing a career in construction	0.001	0.439	5
	Weak and unstable physical endurance	0.001	0.426	2
	No experience practical related to construction	0.001	0.435	3

Table 6 (iv) shows the relationship between the career balance variable of maintaining a position in the organization and various factors, including changing workplace areas, family pressure, and working hours. A significant relationship is found between the lack of models in the industry and changing workplace areas, with a strength value of 0.282 and a correlation value of 0.001. This indicates that changes in workplace areas challenge the ability to maintain a position in the organization, leading to the acceptance of the alternative hypothesis (H_a). Additionally, the lack of models in the industry is strongly related to family pressure, with a strength value of 0.297 and a correlation value of 0.001. This relationship suggests that family pressure influences the challenges posed by the absence of role models in the industry. Furthermore, there is a strong connection between the lack of models in the industry and uncertain working hours, with a strength value of 0.447 and a correlation value of 0.001. This highlights how workplace instability further complicates career retention, once again supporting the

rejection of the null hypothesis (Ho) and the acceptance of Ha. In terms of skill efficiency, the lack of practical construction experience is closely related to the absence of models in the industry, with a strength value of 0.423 and a correlation value of 0.001. This lack of experience significantly impacts career development. Lastly, a strong relationship (strength value of 0.445) exists between the lack of models in the industry and overly high-performance appraisal expectations, suggesting that unrealistic expectations in the construction field are closely tied to the absence of adequate role models. All these relationships confirm that the null hypothesis is consistently rejected, validating the significance of the identified challenges.

Table 6 (iv) Relationship between women's leadership challenges and women's leadership barriers (Lack of models in the industry; career balance & skill efficiency)

Women's leadership challenges	Women leadership's barriers	Appr. Significant	Value	Ranking
Career Balance				
Retention of Position in the Organization: Lack of models in the industry and changing workplace areas	Overtime	0.001	0.523	7
	Uncertain working hours	0.001	0.447	3
	High financial commitment	0.001	0.489	5
	Lack of time with children	0.001	0.509	6
	Work management instability	0.001	0.484	4
	Workplace instability	0.001	0,282	1
	Family pressure	0.001	0.297	2
Skill Efficiency				
	Unrealistic expectations	0.001	0,445	3
	Limited opportunity of practical skills	0.001	0.468	4
	Lack of competency	0.001	0.543	5
	Instability phisycal	0.001	0.426	2
	No practical working experience	0.001	0.4231	1

Table 6 (v) shows the relationship between career balance, gender stereotypes, and challenges in accepting ideas or decisions from women, particularly under family pressure. The findings reveal a strong relationship between these factors, with a strength value of 0.297 and a correlation value of 0.001, indicating that family pressure significantly affects the acceptance of women's decisions in the workplace, leading to the rejection of the null hypothesis (Ho) and acceptance of the alternative hypothesis (Ha). Additionally, there is a strong connection between the challenge of accepting ideas from women and changes in the workplace area, with a strength value of 0.375 and a correlation value of 0.001. This suggests that changing workplace dynamics influence the acceptance of women's ideas. Similarly, the relationship between accepting women's decisions and high financial commitment is also strong, with a strength value of 0.382, showing that financial pressures affect this dynamic. The study also explores gender stereotypes in relation to skill competence, particularly the challenge of accepting women's decisions and weak physical endurance, with a strength value of 0.283 and a correlation value of 0.001. Furthermore, the lack of practical experience in construction is linked to the challenge of accepting women's ideas, with a strength value of 0.319. Finally, the challenge of accepting women's decisions is strongly related to unrealistic performance expectations, with a strength value of 0.404 and a correlation value of 0.001. This demonstrates that high performance expectations further complicate the acceptance of women's ideas in the

workplace. In all cases, the null hypothesis is rejected, confirming significant relationships between these variables and gender-related workplace challenges.

Table 6 (vi) analysis finds a significant relationship between the challenge of accepting women's ideas and the level of men's acceptance of women, with a strength value of 0.309 and a correlation value of 0.001. This suggests that men's acceptance of women is impacted by the difficulties in accepting women's decisions, leading to the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a). Additionally, the challenge of accepting women's ideas is strongly related to uncertain working hours, with a strength value of 0.372 and a correlation value of 0.001, further indicating a significant correlation. The relationship between accepting women's ideas and family pressure is also strong, with a strength value of 0.381 and a correlation value of 0.001, showing that family dynamics influence this challenge. In terms of career competence, the study finds a strong relationship between the challenge of accepting women's decisions and the lack of practical experience in construction, with a strength value of 0.325 and a correlation value of 0.001. Similarly, there is a strong connection between accepting women's ideas and weak physical endurance, with a strength value of 0.495. Lastly, the relationship between accepting women's ideas and limited opportunities to develop practical skills is significant but weaker, with a strength value of 0.506 and a correlation value of 0.001. Overall, the null hypothesis is consistently rejected, confirming strong correlations between gender stereotypes and various career-related challenges women face in the workplace.

Table 6 (v) Relationship between women's leadership challenges and women's leadership barriers (Ideas from women; career balance & skill efficiency)

Women's leadership challenges	Women leadership's barriers	Appr. Significant	Value	Ranking
Gender Stereotypes: The challenge of accepting ideas or decisions from women	Career Balance			
	Work overtime	0.001	0.437	5
	Uncertain working hours	0.001	0.417	4
	High financial commitment	0.001	0.382	3
	Less time allocated for children	0.001	0.464	7
	Lack of work management commitment	0.001	0.441	6
	The workplace area is variable	0.001	0.375	2
	Family pressure	0.001	0.297	1
	Skill Efficiency			
	Performance appraisal expectations are too high in achievement work	0.001	0.410	3
	Limited opportunities to develop practical skills	0.001	0.442	5
	Competence that low in continuing a career in construction	0.001	0.412	4
	Weak and unstable physical endurance	0.001	0.283	1
	No experience practical related to construction	0.001	0.319	2

Table 6 (vi) Relationship between women's leadership challenges and women's leadership barriers (Men-women acceptance; career balance & skill efficiency)

Women's leadership challenges	Women leadership's barriers	Appr. Significant	Value	Ranking
Gender Stereotypes: The level of men's acceptance of women	Career Balance			
	Work overtime	0.001	0.425	5
	Uncertain working hours	0.001	0.372	2
	High financial commitment	0.001		
	Less time allocated for children	0.001	0.415	4
	Lack of work management commitment	0.001	0.477	7
	The workplace area is variable	0.001	0.309	1
	Family pressure	0.001	0.381	3
	Skill Efficiency			
	Performance appraisal expectations are too high in achievement work	0.001	0.404	3
	Limited opportunities to develop practical skills	0.001	0.375	2
	Weak and unstable physical endurance	0.001	0.442	5
	No experience practical related to construction	0.001	0.345	1
	Assessment expectations performance is too high in achievement work	0.001	0.510	4

The research has achieved the third objective, which is to assess the strength of the relationship between the challenges and obstacles of women's leadership in increasing career motivation in the field of construction, because no study has done so. Therefore, Figure 2 shows that the main challenges of women's leadership and barriers to women's leadership are interrelated with each other, which causes women to face problems in construction sites. The researcher can conclude that all the challenge items have a relationship with women's leadership obstacles in increasing career motivation in the field of mentoring.

5. Discussion, Conclusion, and Recommendations

This study successfully achieved all three objectives by analyzing data indicating that female leadership in G7 companies in Johor Bahru faces significant tendencies towards challenges and obstacles in enhancing career motivation in the construction field. This suggests that the challenges and obstacles experienced by women are often perceived as incompetence and unsuitability for roles in the male-dominated construction industry. This situation can limit opportunities for promotion and leadership responsibilities. Furthermore, unfair opportunities can lead to women not being given the same chances as men to manage mega projects or critical roles due to traditional perceptions of their abilities. This situation may cause women to struggle to adapt in a male-dominated work environment, which can affect their motivation and sense of acceptance within the organization. Moreover, the study also found that all relationships between challenges and obstacles of female leadership have strong associations between the two variables, and there is strong and complementary significance between each other. Therefore, the relationship of the third objective achieved by the study is to assess the strength of the relationship between challenges and obstacles to female leadership in enhancing career motivation in the construction field, because no study has been done. Indirectly, women's leadership knows their gaps through the relationship

between leadership challenges and obstacles faced. The results of the study are based on figure 3, which shows the relationship between leadership challenges and obstacles that women face in improving career motivation in the field of construction.

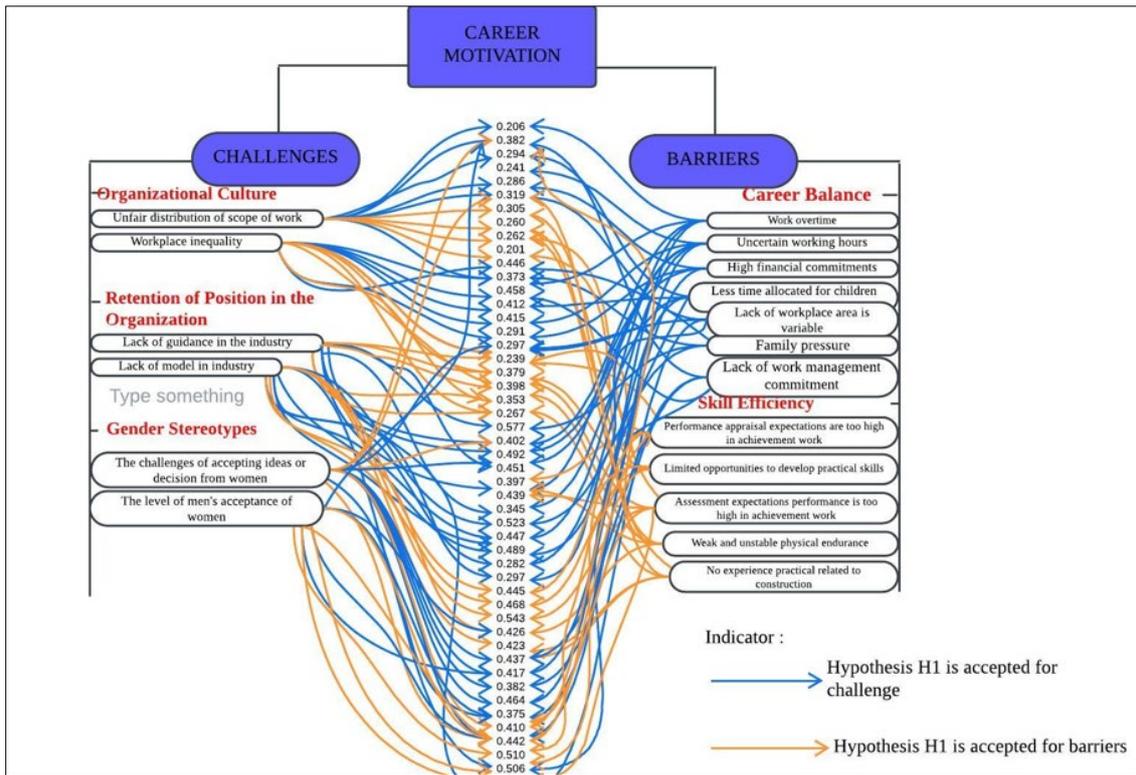


Fig. 2 Relationship between the main challenges and obstacles of women's leadership in increasing career motivation in the construction field

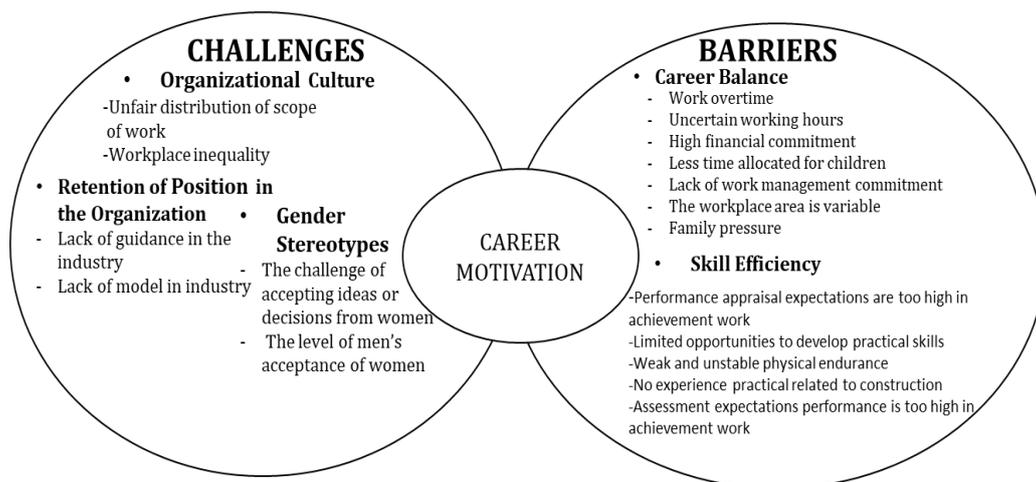


Fig. 3 Leadership challenges and barriers of women's leadership that are often faced in increasing career motivation in the construction field

5.1 Implications of the Study

This study has outlined the challenges and obstacles faced by female leadership in enhancing career motivation in the construction industry. Regarding challenges, these include organizational culture, organizational position retention, workplace conditions, gender stereotypes, and the image of the construction industry. Meanwhile,

obstacles encompass career balance and skills competency. Therefore, the study has shown a significant relationship between these variables influencing the enhancement of career motivation in the construction field. Furthermore, this research can contribute to women by highlighting the potential, opportunities, and career space available for women in the construction industry, aiming to provide an approach that construction site careers are suitable for building a career. The contribution of this study to the construction industry is to raise awareness within the industry to instill confidence, opportunities, and space for women's careers to engage in the construction industry, thereby expanding women's involvement in the construction industry. This study contributes to the body of knowledge by assisting researchers, scientists, academics, and the discovery of new and current research related to the role of female leadership on construction sites.

5.2 Conclusion

Overall, this study can serve as a reference for female leadership in the construction industry through research information by providing insights into the obstacles and challenges that may need to be faced due to gender competition. At the same time, this study aims to provide a clearer understanding of the challenges and obstacles affecting women in leaving the construction industry. Therefore, through this study, it is hoped that stakeholders can address the challenges and obstacles faced by female leadership, especially on construction sites, so that women can compete fairly without discrimination among them. Consequently, it is hoped that the recommendations proposed by the researchers can assist future researchers in considering current conditions in the construction industry.

Acknowledgement

This article presented in 2024 WoCTVET sponsored by Faculty of Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia.

Conflict of Interest

Authors declare that there is no conflict of interest regarding the publication of the paper.

Author Contribution

*The authors confirm contribution to the paper as follows: **preparing the article, data collection and data analysis:** Author 1; **preparing the article, refine the content, presenting the data in conference WoCTVET 2024, final revision of the article:** Author 2; **analysis and interpretation of results:** Author 3; **refine in the context of construction field:** Author 4. All authors reviewed the results and approved the final version of the manuscript.*

References

- Abdel-Wahab, M. S., Dainty, A. R., Ison, S. G., Bowen, P. A., & Hazlehurst, G. (2008). Trends of skills and productivity in the UK construction industry. *Engineering, Construction and Architectural Management*, 15(4), 372-382.
- Ajos (2023). Babitkan Lebih Ramai Golongan Wanita Muda dalam TVET. Retrieved by <https://www.bharian.com.my/berita/nasional/2023/02/1069575/babitkan-lebih-ramai-golongan-wanita-muda-dalam-tvet>
- Awang, R. A., & Abd Rahim, M. H. I. (2022). *Cabaran-Cabaran Kerjaya Wanita Masa Kini dalam Sektor Industri Pembinaan di Tapak Pembinaan*. *Research in Management of Technology and Business*, 3(2), 423-440
- Beauregard, T. A., & Henry, L. C. (2019). *Making the link between Work-Life Balance Practices and Organizational Performance*. *Human Resource Management Review*, 19(1), 22. <https://doi.org/10.1016/j.hrmr.2008.09.001> CIOB (2008).
- Bakar, B. K (2020). *Gaya Komunikasi Kepimpinan Pentadbir Akademik: Satu Kajian Gender dan Wacana*. *Academic Leadership and Communication Style: A Study of Gender in Discourse* 182-198
- Bee Lan Oo, (2019), *Early Career Women in Construction: Career Choic and Barriers*. *IOP Conference Series: Materials Science and Engineering Sci. Eng.* 601 012021
- Dainty, A. R., Bagilhole, B. M., & Neale, R. H. (2000). A grounded theory of women's career under-achievement in large UK construction companies. *Construction Management and Economics*, 18(2), 239-250
- Fielden, S. L., Davidson, M. J., Gale, A. W., & Davey, C. L. (2000). Women in construction: The untapped resource. *Construction Management and Economics*, 18(1), 113-121.

- Gale, A. W. (1994). Women in non-traditional occupations: The construction industry. *Women in Management Review*, 9(2), 3-14.
- Latiffi, A. A. Nawil, S. S. M. dan Bilal, K (2020). *Personel Wanita Dalam Industri Pembinaan: Bentuk Dan Kesan Gangguan Seksual Dari Aspek Fizikal, Mental Dan Psikologi. Research in Management of Technology and Business*, Vol. 1 No. 1, pp 635–646
- Ismail, S (2017). *Mengurus Antara Keluarga dan Kerjaya Organisasi: Analisis Melalui Pendekatan al-Tadayyun, al-Maqasid dan al-Wasatiyyah. Akademika- Journal of Southeast Asia Social Sciences and Humanities*, Vol.87,No.3 (pp.195-206).
- Kelly, M., Wilkinson, L., Eyo-Idahor, A., Williams, L.S. (2022). *Improving the Recruitment and Retention of Construction Apprentices through Oregon's Highway Construction Workforce 51 Development Program. Journal of Applied Social Science* 16(2),459-481.
- Md Isa (2020) Hubungan Antara Diskriminasi Jantina Dengan Niat Pekerja Wanita Untuk Kekal Bekerja [file:///C:/Users/Aspire/Downloads/395-Article%20Text-923-931-10-20201230%20\(1\).pdf](file:///C:/Users/Aspire/Downloads/395-Article%20Text-923-931-10-20201230%20(1).pdf)
- ManpowerGroup, (2020). 5 major Challenges in The Construction Industry.
- ManpowerGroup. Retrieved February 26, 2022, from <https://www.manpowergroup.co.uk/the-word-on-work/manpower-tech-expertise-5-major-challenges-construction-industry/>
- Nathesan,S (2017). End GendeR Inequality. Retrieved by <https://www1.nst.com.my/news/2017/03/219599/end-gender-inequality>
- Nayak, B. (2021) Gender Stereotypes and Their Impact on Women's Career Progressions from a Managerial Perspective. *IIM Kozhikode Society & Management Review* 10(2) 192–208, 202.
- Oyewobi, L. O., Oke, A. E., Adeneye, T. D., Jimoh, R. A., & Windapo, A. O. (2022). *Impact of Work–Life Policies on Organizational Commitment of Construction Professionals: Role of Work–life Balance. International Journal of Construction Management*, 22(10), 1795–180 <https://doi.org/10.1080/15623599.2020.1742632>
- Othman, N., Had, Ghazali, N. H. C. M., Zabit, M. N. M. & Abdul, N. 2020. Penerokaan Dan Pengesahan Instrumen Kompetensi Matematik Dalam Kalangan Guru Matematik Sekolah Menengah. *Jurnal Penyelidikan Dedikasi* 18(2): 14–29
- Rios, F.C., Chong, W.K., and Grau, D.C., (2017). *The need for Detailed Gender-Specific Occupational Safety Analysis. Journal of Safety Research* 62(2017), 53-62. <https://doi.org/10.1016/j.jsr.2017.06.002>.
- Rostiyanti, S. F., Hansen, S., & Harison, S. (2021). Understanding The Barriers to Women's Career in Construction Industry: Indonesia Perspective. ResearchGate. Retrieved February 25, 2022, from <https://www.researchgate.net/profile/SengHansen/publication/351303457>
- Subramaniam, Indra Devi, and Tanusia Arumugam (2019) "What is preventing Malaysian Women Managers' Career Progression?" *Journal of Basic and Applied Scientific Research* 3, 286-296.
- Sule, A., Seda, E., Elif, K., & Gyongyi, L. (2017). *Understanding Gender Differences In Leadership*. Research Gate. <http://dx.doi.org/10.13140/RG.2.2.20342>
- Srivishagan Vijayaragunathan (2019). *An Insight to Women in Construction for Fostering Female Careers in Sri Lankan Construction Industry. Journal of International Women's Studies* 20(3), 168-173.
- Tabassi, A. A., Roufechaei, Suparno. (2019). *Pengaruh Motivasi Terhadap Prestasi Kerja Karyawan. Parameter*, 4(1), 1–11. <https://doi.org/10.37751/parameter.v4i1.33>