



**Mitigating the underlying factors leading to gender
inequality in the design of construction projects in the UAE**

**تخفيف العوامل الأساسية المؤدية لعدم المساواة بين الجنسين في تصميم
المشاريع الإنشائية في الإمارات العربية المتحدة**

by

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Abstract

Understanding gender inequality is the first step of addressing the evident issue that resides within our society, workplace, and world. In this study, we are looking at gender inequality in the UAE's construction sector, and taking it a step further by looking at underlying factors that aid to gender inequality in the design of construction projects in the UAE. In this research we are using mixed method methodology using grounded theory for our research. The approach of this study begins with a literature review of gender inequality in different sectors such as construction and design of construction projects, faced by women around the world covered by research done by different scholars. The research was compared contrasted and analyzed. Then the conceptual framework was established which then allowed for the research questions to be put in place as well as the hypotheses. The next step was to go ahead with the quantitative research methodology and then with the qualitative research methodology. Once the research was conducted the findings were analyzed, compared and contrasted to the hypotheses, in which it was discovered that there is a connection with two of the independent factors which were the correlation of a company's bias towards men in relation to how women perform at the workplace and socio-cultural norms in the design of construction projects in the UAE. The results also discovered that there was no connection of a company's bias towards men when it came to the number of women that joined the construction sector or how a company's competencies are measured. The qualitative research came about four themes that influence gender inequality which were education, family, socio-cultural and the organization itself. The paper concludes with the take away from the research and mentions of some of the limitations the research faced as well as some recommendations on the research and how to further the study on gender inequality in the design of construction projects in the UAE.

ملخص

إن الفهم الجيد لظاهرة عدم المساواة بين الجنسين يعتبر الخطوة الأولى لمعالجة هذه الظاهرة المنتشرة التي توجد في المجتمعات وفي مكان العمل وعلى مستوى العالم. تبحث هذه الدراسة في ظاهرة عدم المساواة بين الجنسين في قطاع الإنشاءات في دولة الإمارات العربية المتحدة مع توسيع البحث أكثر ليشمل أيضا النظر إلى العوامل الرئيسية التي تساعد على عدم المساواة بين الجنسين في عمليات تصميم المشاريع الإنشائية في الدولة. وقد استخدمت في هذه الدراسة أسلوب المزج البحثي بواسطة استعمال النظرية الرئيسية في الأبحاث. حيث تتسم هذه الطريقة في البحث بداية بمراجعة الأدبيات المتعلقة بعدم المساواة بين الجنسين في قطاعات مختلفة كقطاع المقاولات وقطاع تصميم المشاريع الإنشائية و التمييز الذي تتعرض له المرأة حول العالم وتم مراجعة أبحاث من عدة دارسين. وقد تمت مقارنة هذا البحث ووضعه جنبا إلى جنب مقابل أبحاث مشابهة وتحليله، ثم بعد ذلك تم اعتماد الإطار الفكري للمفهوم مما سمح بوضع مسائل البحث في مكانها الصحيح بالإضافة للفرضية ذاتها. بعد ذلك كانت الخطوة التالية وهي المضي قدما في الطريقة الكمية للأبحاث ثم بعد ذلك طريقة البحث الكيفية أو النوعية. وبعد الإنتهاء من إنجاز البحث تم تحليل النتائج ومقارنتها ووضعها جنبا إلى جنب مع الفرضية مما أضاف للثام عن العلاقة بين عاملين مستقلين وهما العلاقة الطردية بين التمييز لصالح الرجال في العمل وكيفية أداء المرأة في مكان العمل والأعراف الاجتماعية الطبقية في عملية تصميم المشاريع الإنشائية في الإمارات العربية المتحدة. وقد أظهرت النتائج أيضا أنه ليس هناك أي علاقة بين تمييز الشركات لصالح الرجال وعدد النساء اللواتي ينضمون إلى قطاع الإنشاءات أو العملية الي تقاس فيها الكفاءات في الشركات. وقد تركز البحث النوعي حول أربعة محاور رئيسية تؤثر في التمييز بين الجنسين ألا وهي التعليم، العائلة، الطبقة الاجتماعية والمؤسسة نفسها. تختتم الورقة البحثية بالخلاصة التي توصلت إليها وتأتي على ذكر بعض المعوقات التي واجهت البحث بالإضافة إلى إقتراحها للتوصيات عن كيفية تطوير الأبحاث مستقبلا في قضية عدم المساواة بين الجنسين في تصميم المشاريع الإنشائية في الإمارات العربية المتحدة.

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1. Introduction

1.1 Background

Gender inequality since the beginning of time has been an issue globally whether it is in the society, workplace or in the household. In the past years, there has been research and studies conducted on women facing discrimination in their workplace. Some studies show that there has been a decrease in gender inequality due to the involvement of awareness organizations, companies participation, and even governments intervening to decrease the divide between men and women. There has been a focus on gender inequality in opportunities such as recruitment, workplace benefits, and career paths. Although there are many initiatives, unfortunately, gender inequality is still evident and there is much more that needs to be done.

Organizations have expressed the importance of women in the workforce and the value they add to their organizations regardless of the nature of the organization. Many companies are enforcing and pushing for the need to empower women and give them equal benefits as men in the same company. The first step to solving the issue is by addressing it and recognizing that there is an evident problem, therefore the next steps are to implement and work on the issue by raising awareness in society and the workplace itself. Adopting plans and strategies on how to resolve this issue and how to enforce policies through stronger forces such as the government and eventually reducing the gap between inequality until it is nonexistent.

1.2 Problem Statement

The importance of further understanding and looking at the underlying and deeper levels of gender inequality is very vital. Based on what is expressed by different scholars from around the world, women have become the minority gender in their workplace due to gender inequality. In the UAE there are very few women that are joining the construction sector in comparison to men, which as a result can contribute to negative outcomes in an organization which will be discussed in the study. This study is focusing on the design side of construction projects and gender inequality. Studies have shown that different countries in the world have gender inequality however each country differs in the amount of inequality. Studies have also proven

that developed countries have less of an issue with gender inequality than when it comes to underdeveloped countries. As stated by the United Nations Development Programme - Human Development Reports (2014). It states that the UAE lists 47 out of 188 countries in regards to gender equality, which when looking at it in a more optimistic manner may state a positive view in which the UAE is much higher than the other countries that rank lower than it. However, having a more pessimistic approach the UAE is still behind 46 other countries and needs to work towards going higher in that ranking.

The best approach to dealing with the problem of gender inequality is reaching the zero percent of gender inequality and having total equality for all – unfortunately no country has been able to reach total equality, according to the Economic Forum of the world (Abbas, 2011), there is not one country that has managed to eliminate discrimination and lessen the gender gap. Every change begins from the first step and research is the first step to raise awareness into a problem or issue that is happening in the UAE and the world as a whole, we must not give up and try to look at all aspects to help improve or even eliminate gender inequality.

1.3 Importance of Research

This research is important as it touches on a subject that has been well researched and spoken about around the world but very few and not enough research has been done on gender inequality in the UAE. This research is important as it looks at the different perspectives of gender inequality in the UAE by first furthering the initial research of gender inequality in the construction field and second having a new perspective of gender inequality in the design of construction projects in the UAE. The reason why these studies are important as it opens up the door for further research to be done on this topic and for there to be more awareness and talks in the field of gender inequality in the UAE. This study will be the first of its kind to state and measure and hopefully resolve underlying factors that cause gender inequality in the design of construction projects by a focus on women in the field and their experiences. According to the Ministry of Human Resources & Emiratization (2016), the total amount of labor force of starting from the age 15 and above in the UAE is; men 4,315,030 and women 429,594 – this is a ratio of approximately 10:1. A similar ration was expected to be found when looking at the construction sector in the UAE but a slightly larger ration was found. It was discovered by a study in Labor

Force Survey Results in 2014 (Dubai Statistics Center, 2015) that the ratio of men to women in the construction sector in UAE is an approximate of 13:1. This ration states the big gap between men and women in the construction field in all aspects, therefore, this proves there is a need to further understand the underlying factors for this gap and find a reasonable solution for it.

1.4 Research Aim & Objectives

The main aim of this research is to explore and understand gender inequality in the UAE specifically in the sector of design in construction projects. The measures that will be taken for gender inequality will be how the number of women in an organization will affect the success of an organization, the performance of an organization and socio-cultural norms. Throughout the research, a model will be presented that will demonstrate the solution to gender equality and how to implement it into the design of construction projects. There are a few questions that have been put together to clarify the aim of the research and simplify the approach to the solution. The research will aim to answer the following questions,

- Define gender inequality?
- What are some factors that cause gender inequality?
- Do females have an interest to work in construction related occupations? Yes/No, and why?
- Why are some females hesitant to work in construction related occupations?
- How wide is the gender inequality gap in the UAE specifically in the construction sector?
- How does gender inequality have an effect on the performance of female employees?
- Is the productivity and performance of employees affected as a result of gender inequality in an organization?
- What solutions are there to reach equality between men and women in the organization?

2. Literature Review

2.1 What is Gender Inequality?

Based on Reskin (2000) study she explained the main cause of gender inequality to her point of view are the segregation of gender roles and division of labor, male-dominated influences by some employees and male employees' response to a competitive threat by women. Reskin further explains gender inequality and puts some of the blame on the organization itself, and how the organization encourages that type of behavior and encourages male employees to continue behaving the way they do by not addressing the problem and having a blind eye.

Huffman another scholar has a different understanding as to why gender inequality is evident in the workplace and that is due to women not having a strong enough voice and not being authoritarian enough due to the organizational structure of influence in the workplace. He further explains in his research that the way authority is distributed in the workplace is as a result of allocation of material benefits, the attachment to work and its commitment and lastly the prestige it offers. He further states that "it has been long established that the notion of positional inequality is central to explaining wage disparities and is perhaps the most crucial factor intervening between a person's 'human capital' and various outcomes" (Huffman, 1995).

Moving on to scholars Dorius & Firebaugh they identify gender inequality to be evident when one gender has an unequal amount of a certain good, it ranging from anything from political power, education and economical advantage or even a long-life span. The scholars further explain their understanding that gender inequality is not only measured in the workplace but look at inequality from a different perspective which involves life span, economic advantage, political involvement and so forth (Dorius & Firebaugh, 2010). The point of view Dorius & Firebaugh's use are unique and gives research a different view of gender inequality and how it isn't just evident in the workplace but is used in different sectors of society and life.

Scholars Jha & Nagar (2015) have a similar approach to Dorius & Firebaugh in which they don't believe that gender inequality is only limited to the workplace but also is evident in different aspects such as political, economical, legal, cultural and social. Jha & Nagar also stated that gender inequality can be as simple as unjust treatment of an individual based on their gender. They further state that 'Gender Inequality' is not just referred for a specific gender it can

be addressed to the gender that is unfairly treated. Agreeing with the point of view of Jha & Nagar this research is focusing on gender inequality to regards to women in the design of construction projects in the UAE.

2.2 Why is gender inequality still present nowadays?

After going over how different scholars define and view gender inequality there is a need to understand why it is still prevalent in our present time and all around the world. Going back to the views of scholars Dorius & Firebaugh they state that through their studies they have come to the understanding that gender inequality is starting to decrease in certain aspects such as education, life span, political advancement and lastly economic activity. Although they are aware that gender equality is still a wide issue around the world they do believe in some aspects that the gap is decreased in oppose to how it was years before (Dorius & Firebaugh, 2010). What we can understand from Dorius & Firebaugh's study is that gender inequality is not measured by one factor but by many factors involved, depending on the perspective that it is looked at; and although the scholars view a decline in some aspects of gender inequality there still are other factors that come in place and have not yet been studied and addressed. Dorius & Firebaugh in their research look at how women in the past were treated and how they didn't have the same rights as men when it came to factors such as education, economic advancement and political representation and so forth; But once the movement of the women's right came in place and more people became aware of the inequality between men and women that started a conversation and awareness that led to change in approaching the truth regarding the importance of women being equal to men and women's rights. The scholars further explain that as there is a population growth as a result there are more women in the modern age that choose to pursue different careers and involve themselves in different sectors such as the political field, educational field or even economically field and as a result are well paid due to their professions they gradually slow down the gap of gender inequality. Dorius & Firebaugh state in their paper factual evidence one of the biggest success stories for gender equality for women was around tertiary education in which in the "year 2000 women had eliminated the gap in post-secondary educational enrollment" (Dorius & Firebaugh, 2010). Although the scholars look at the positive attributes

and changes that have happened in the recent years towards gender equality for women they still address that there still is a downfall and there are many areas in which gender equality for women is not represented. For instance when looking at economic activities they state that there still is a gap between women and men and gender inequality in that attribute is prevalent; They state that women have a huge disadvantage when it comes to economical advantage because there are many people that are not in support of women that get equal pay to men and in many cases these women are at the same work level as their men co-workers however still receive a lower pay and most of the time have poorer working conditions when compared to the men (Dorius & Firebaugh, 2010).

Another scholar known as Huffman states that the reason there is gender inequality in some organization is due to the factor that the organization itself has not defended the rights of the oppressed gender and has chosen to not speak out about it. Huffman further explains by staying quiet towards an important issue and not speaking against it means you are on the side of the oppressor and agree with what is going on. Huffman states in his study there are certain aspects and factors that cause gender inequality one of which is the size of an organization and another is the age of the organization. He states that when an organization or company is larger in size than others then that allows more discrimination and gender inequality to be practiced. His reason for that being that larger organizations are more likely to have way more men than women, which makes women the minority in the organization and an easy target to discriminated against. In Huffman's study, he makes a reference to works of Beilby & Baron (1986) who state that there is a larger gender separation in bigger organizations meaning that by increasing the size of an organization that devalues the importance of how women should and must be treated in the workplace. Huffman also speaks about the scholar Tolber (1986) and his thoughts which he states that when an organization is larger in size they can 'better afford' to go against and discriminate women. Also, based on Huffman's research he states that gender inequality is a result of unequal distribution of female and male workers in the workplace. In many cases, there are more men than women in an organization. He states that an employee or worker must not feel the need to have to fit in the company due to an over populating gender which in most cases its women trying to fit in an organization or company over dominated by men. He explains that there are rare cases in which women over populate the male gender in an organization, however even in these situations men adjust themselves well to that environment than women due.

Huffman states “Thus, while the zero-order relationship between occupational sex composition (percentage female) and the likelihood of enjoying work authority is predicted to be negative there is a good reason that this relationship may differ in gender” (Huffman, 1995).

Huffman also speaks on the importance of the age of an organization and the role it plays on gender inequality. He explains that when a company or organization is old it has been running for many years it builds and develops its own values and traditions through time; therefore, if an old organization has shown discrimination throughout the years then it is difficult from that organization to change its traditions and the way it has been throughout the many years it has been running. He also states it may take an older company to adapt and make a change when compared to a similar company of a younger age. Huffman also states that an organization that is younger is more advanced and is accepting of changes and new ways to deal with situations. Newer organizations focus on hiring new employees and focus more on their expertise rather than what gender they are. In an older organization, due to their older mentality they may have hired male employees in the past and have kept them throughout the many years and that adds to the inequality of genders in an older organization. He states that it is more likely to expect newer organizations to be open about change and not allow certain older stereotypes to affect their decision making when it comes to gender. (Huffman, 1995).

Other scholars such as Mitra & Sikkdar focused their research more on gender inequality in the middle east and looked at the factors of why there is a high rate of gender inequality in the UAE. Both scholars explain in their study that a major influence on gender inequality in the middle east is culture, values, and tradition. Mitra & Sikar discuss in their study that they have observed that there are many companies that base their work first on middle eastern culture, values, and tradition before the values of work ethics. Some organizations go further to the point that they look at the historical belief system that the workplace is not a place for women and that a woman’s job is to stay at home and raise a family and take care of house duties; Whereas it is the job of man to go out of the house and work to provide for the family. Mitra & Sikar further explain that although Islam is very prevalent in the middle east many organizations choose traditional values and culture over Islamic practices when trying to implement what must be done at work. As unfortunate as these practices are they have been around for many generations and have been passed on through time therefore, trying to erase or change an organization’s

mindset can't be done over a short period of time. Mitra & Sikdar explain that through time, modernization, integration and awareness of these traditions, values and cultural mindsets can be changed and there is hope of a smaller gap for gender inequality and discrimination against women. The scholars also explain with more Arab and middle eastern women getting an education and joining these type of organizations and eventually climbing the ladder and gaining leadership roles they will eventually get the respect of their organization and co-workers and play a big role in the shift of the older mindset, however Mitra & Sikdar state that women would have work twice as hard to be able to reach these leadership positions due to how the organizations have been structured (Mitra & Sikdar, 2012).

Yassen another scholar states that he believes gender inequality in the middle east is decreasing at a slower pace but surely is going down compared to the previous years. He explains that unfortunately there still is the notion that some jobs are culturally unacceptable for women and that women are not built to do certain types of jobs such as jobs that require 'manual labor' or work in heavy industry fields. As stated by Yassen "With Arab Society tradition and culture dictating the type of work women do, there is a clear case of gender difference, even discrimination, arising out of some form of socially constructed gender stereotyping where the dominant and self-interested nature of men and the mental and emotional traits of women idealize roles" (Yaseen,2010)

2.3 Why equality is important?

The importance of men and women in a society is very important as each gender in their own way contribute to the benefit and advancement of the society. Being able to look at a different issue from different points of view is a very valuable asset to have for any society or organization. The importance of having an organization that values its human resources by attaining qualified and talented male and females is something that must and should be celebrated.

Taking a look at the studies of scholar Gardner (2002), he states that in last few years there has been a gap incompetent people being part of an organization, there has been an increase in less qualified people joining organizations and that is due to a few reasons. One of the reasons being that organizations don't have the luxury of choosing from a large talent pool of people due to the

many jobs being created and new organizations emerging there isn't enough talented people to fill all the needed roles. Organizations are now facing a new dilemma on focusing on how to attain, attract and retain employees to join their organizations more than the past. Human resource departments now more than ever need to understand what will attract an employee to their organization, and what must be done to retain and keep these employees at that organization. Gender equality is a very important aspect that companies and organizations need to address and take seriously which will defiantly attract a larger amount of female competent employee to that organization. As stated by the Scholar Abbas (2011), he stresses that equality is a factor that women feel strongly about and influences some women's decision of joining, leaving or staying at an organization. Abbas states that regardless of the gender of the employee the main people that add value and productivity to an organization are the people that work for it (Abbas et al, 2011).

The scholar Carrick et al. (2015) states that when an organization is diverse it then contributes to being known as an innovative and attractive organization. He states that studies show that there is a connection between diversity and innovation in which many leaders around the world are aware of and know that it translates into the attractiveness and being competitive amongst other organizations. Carrick et al. emphasizes the influence diversity has on an organization's profits, he addresses a study conducted that found diverse organizations are more profitable than other organizations that have a lower diversity level. He states that companies with a larger percentage of women employees had over 30% higher profits than those companies with fewer women employees.

2.4 Why is diversity beneficial to the workplace?

Scholars Ely & Thomas (2012) state that throughout the years there has been an increase in diversity in the workplace based on the notion that organizations that are more diverse are more likely to be successful. Scholar Parcheta et al. (2013), states that women's management style is always more likely to be different and innovative than men's management style. Another scholar known as Carrick et al. (2015) argues that diversity aids to creativity and attractiveness in which he states there is a connection with the diversity in leadership and attractiveness which as a result is the first factor to determine the successfulness of a company. He further explains that diversity

also aids in the increase of profit for one's organization he makes a reference to a study he found by an organization which states, companies that are more diverse are more likely to make more profits than a company that has less diversity. Carrick et al. (2015) further explained that that study demonstrated that organization's with a high ratio of women had higher profits than those organizations with less women. He also states in his paper that in the manufacturing field in the United States women are the largest group of unused expertise.

2.5 Female employees facing different types of gender inequality in the workplace

Many scholars share various views as to different types of gender inequalities women face in the workforce. In the works of the scholars Kalapana and Kiran's they focus on women employees who work on the construction field in India and the challenges they face. Scholars Devi and Kiran further explain that women laborers in India have challenges when working in the construction field such as wage discriminations, gender discriminations, gender bias and sexual harassments (Devi & Kiran, 2013). Devi and Kiran also explain in their study that women's employment in the public sector has increased in the last three decades due to companies not having enough men to make up for the work that needs to be done and employing women to fill the void. On the contrary they have observed based on their study that women in the private sector have decreased in the last three decades. Their findings in the public and private sector contrast each other due to reasons being that in the private sector women were not getting promoted and progressing in their careers as they had expected. Those organizations had initially hired these women to fill up the gap in the workplace that men couldn't fill. Devi & Kiran also observed that although there were a few women in higher leadership positions in the private sectors their numbers too had started to decrease.

The scholars Devi & Kiran also focused on aspects of gender biases in the construction sector in India they studied that about half of the laborers there were women but were viewed as unskilled workers and were rarely promoted to ranks of a skilled laborer like most of the men were. The examples the scholars gave were that those women working in the construction sector and were viewed as half as good workers as men and were only given basic jobs such as moving bricks, carrying gravel, cleaning the site and so forth. Regardless of the number of year or experience in

the construction sector that these women had they were never promoted to more skilled jobs such as being masons or carpenters. (Jhabvala & Kanbur 2002; Baruah, 2008)” (Devi & Kiran, 2013). Devin and Kiran study another type of gender discrimination that is very well known in India’s construction sector which is wage discrimination. Skilled women that are competent enough to do the same job as men are not given the same job or wage, they are always downgraded to a lower post than what they are capable of doing. These women as a result get paid less than men even if they are hired for the same job of work. Scholars explain that studies show men are more likely to always negotiate their salaries while women don’t try as they feel there will not get a higher pay whether they negotiate or not. As stated in Devi and Kiran study “Women construction workers said there was discrimination in wages, with the contractors paying them Ps 80 per day while paying men Rs 100 per day (Mumbai). At the end of a day’s work, men get paid Rs 60-70 but women get only Rs 30-40 (Patna)”(Devi & Kiran, 2013). The scholars also explain that some contractors treat their workers unjustly by sometimes not paying the full wage and only paying for commuting expenses.

Another type of gender discrimination faced by women is sexual harassment which is widely practiced but rarely spoken about. Women working in the construction sector are almost harassed most of the time by their male coworkers verbally and sometimes physically. Other type of sexual harassments that Devi and Kiran express are that some contractors threaten women with their jobs if they don’t return sexual favors or in other cases contractors ask women for something in return if they want to be offered a job. As stated by Devin and Kiran they state that “Studies also revealed that insecure nature of employment, particularly for women, creates a vicious trap in which women are forced to please subcontractor in order to get work” (Devi & Kiran, 2013)

According to another scholar Koshal (1998) he states that discrimination is visible towards women that are hired for a position but once are in it they are rarely promoted or given the opportunity to advance in their career (Koshal et al., 1998, cited in Othman & Othman, 2015; Abbas et al., 2011). The scholar Muller found that this is due to organizations having the view that women make decisions based on their personal values, empathy and emotions and therefore don’t feel that women should be given leadership and higher roles to make executive and serious decisions. (Mueller, 2007, cited in Parcheta et al., 2013). Scholars Othman and Othman (2015) explain in a more recent study that gender discrimination is evident in all types of jobs and more

specifically in jobs that are more male dominated, they are very bias and unjust towards women. They further explain that there is a huge earning gap when comes to women and men in which women that are as competent or even fairly more educated than men are still given lower wages than men. Another scholar Abbas et al. (2011) further agrees with the arguments Othman and Othman (2015) put forth by emphasizing on the subject of wage gaps between men and women. Othman and Othman explain that even it comes to developing a women's skills many organizations are hesitating and rarely give opportunities for learning and development, women as a result struggle to find ways to help develop their skills and get an opportunity to get promoted (Othman & Othman, 2015).

2.6 Understanding the underrepresentation of women in the Construction sector

Many scholars have touched on the point of why many women are underrepresented in the work field in particular the construction sector. Carrick (2015) is one of the scholars that speak about this issue and expresses that in the workplace there is a bias when it comes to men in which they are favored over women. Carrick states that there are many companies that struggle to make the decision to hire women as they fear that women don't have the same capabilities as men when it comes to working in sectors of heavy industry and tolerating hard work in which men are able to do. Carrick further explains that hesitance also comes with the worry that women would be more absent than men as they would require longer leaves such as maternity which as a result would delay the timeline of a given project (Carrick et. al, 2015).

Other scholars such as Mitra and Sikdar (2012) put together a research that looks at the link between leadership perceptions and practices in relation to gender role stereotypes in the Middle East. Mitra and Sikdar perceive that gender inequality is when women are treated unfairly due to the bias of the person projecting their views due to the belief that women can't do a certain job or task due to their gender. For example, they explain that gender inequality is linked to gender role stereotypes in which there are certain stereotypes about genders and what that gender can or can't do. For example, women can't do certain types of jobs due to their gender such as being an engineer but could be a school teacher because it 'suits' their gender. Jobs that require a woman to be in the construction sector is not accepted because it doesn't fit into the gender role stereotype that some people believe in. Mitra and Sikdar explain the origins of where these

gender role stereotypes are from and they express that they come from the Middle East based on the history of what has been taught throughout generations, the culture of women being housewives and certain values that men should be the protector of the family and bring money and food to the table rather than a woman doing so (Mitra & Sikdar, 2012).

Yaseen (2010) another scholar that touches on reasons women are underrepresented in the construction sector, he explains that gender role stereotypes originate from the Arabic society, culture, values and tradition. He explains that Arabic societies influence people to have a certain type of thinking of what is right or wrong such as what type of job is right for a woman and what type of job is not suitable for a woman and that is based on the understanding that a woman's emotions, feelings and capabilities can influence how they get a job done. Due to some of its influence from the Middle East some women believe or are pressured to believe these stereotypes and as result choose to stay away from jobs that are in the construction sectors, they tend to look for jobs that would be easier for them in regards to being safe and has basic working hours (Parcheta et al., 2013). Another scholar known as Ogulana states that more than half of the women around the world don't believe that the construction sector brings equal opportunities therefore choose to stay away from it. Ogulana conducted a research in Thailand that looked at women choosing between two opportunities one was office work and one were site work. Majority of the women choose office work over site work as they believed that it will give them better opportunities to progress in career whereas site work would not give them the same opportunities. They stated that site work would give them less opportunities as it is hard work and requires many visits to the site which is mostly male dominated (Ogulana et al. ,1993) cited in (Enshassi et al., 2008)

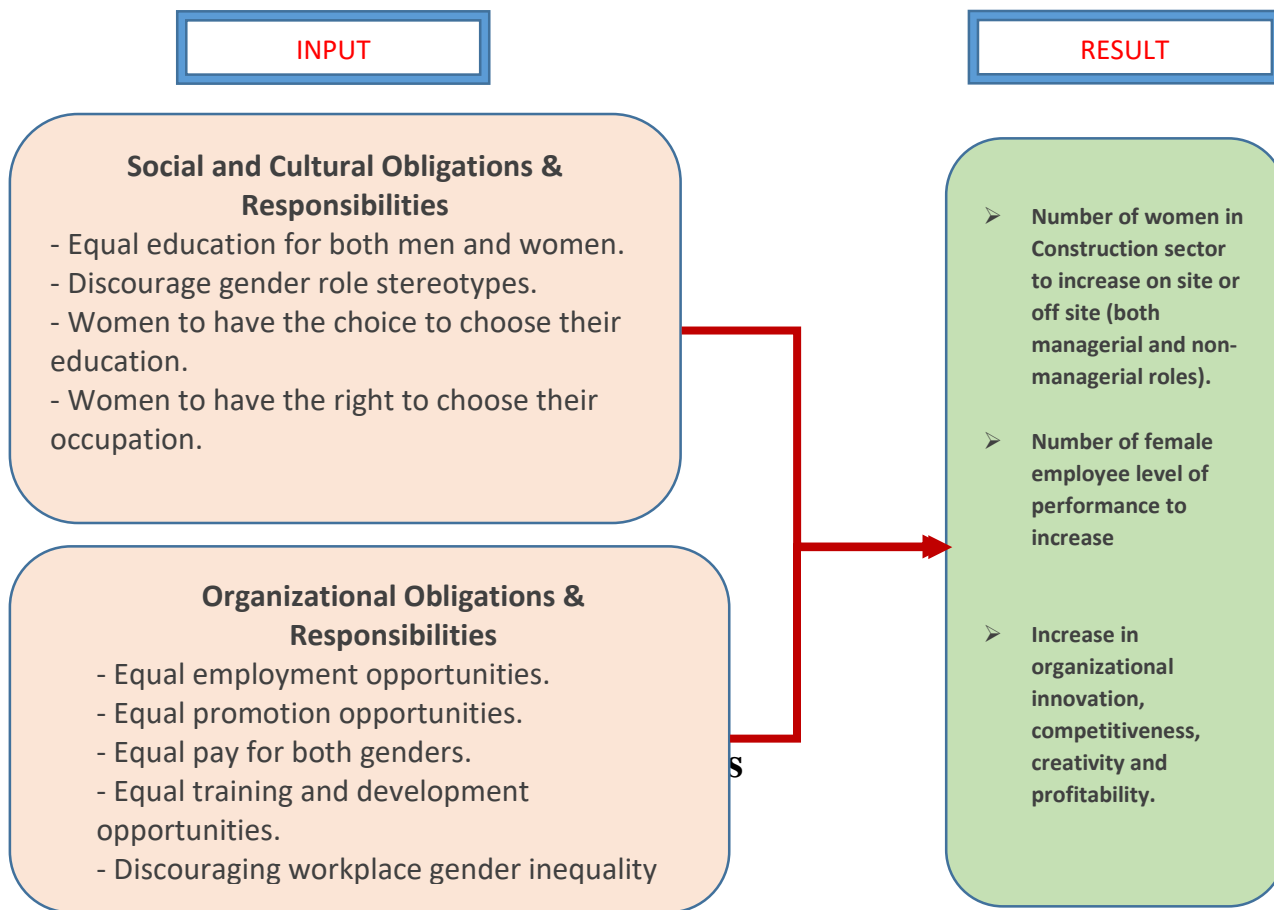
Moving on to another factor we understand that cultural influence plays a big role on gender inequality in the workplace; Mitra and Sikdar (2012) focus on how tradition and culture plays a huge factor on the bias towards gender inequality. They explain that in the Middle East there are some organizations and companies that base their values first on their culture and tradition and second on the culture of the actual organization. Mitra and Sikdar (2012) further explain that in the Middle East although the main religion that is practiced is Islam, few people in organizations are strongly influenced by culture than their own religion as culture plays a major role in the Middle East. Scholars Ozmuba and Ozumba (2012) state that based on the past everything that

was cultural was viewed as the right way to make decisions in which mostly in the Middle east the culture has notion of having a certain type of bias towards men. The culture in the past had that concept that women need to be in the home and take care of the household and children while men are the ones that go out to work and support the family. According to another scholar Parcheta (2013) she states that past cultural teachings have the notion that if women were study they should study arts and social science rather than engineering and medicine that is more costumed for men.

Enshassi (2008) another known scholar states that due to cultural and social norms, many families raise their daughters differently than how they would raise their sons. Some families that have a type of mentality encourage their daughters to choose a specific major in university than then influences where they can work in the future. Enshassi states that parents from the Middle East some parts of Asia and even in Africa are from different cultures but all share a common view that professions such as engineering is made for men rather than women and don't encourage and allow their daughters to choose engineering or anything similar as a profession. Enhassi states that although many Middle Eastern families have that type of view there are still countries in the Middle East such as Palestine that view professions such as engineering a successful profession one that allows an individual to support their families therefore they would encourage both their daughters and sons to following that profession. (Enshassi, et al., 2008)

2.7 Conceptual Framework

The conceptual framework is built around the literature review and the research that has been conducted on gender inequality in the constructor sector and gender inequality in the designs of construction projects; all of which are based strictly on what other scholars have expressed in their paper's and research. The model below looks at what are the main factors that play a role in women's underrepresentation in the construction field and their professional development and what the potential solution is. Also, roles that the organization plays in order to prevent gender inequality and lastly when combining these two main points what the positive outcomes will be.



- Can a relationship between gender male bias and female employment in Construction be found?
- Is there a relationship between Middle Eastern cultural and number of female employment in Construction?
- Can a relationship be found between women's professional performance and number of female employment in construction?
- Can a relationship be found with number of women in the construction field and the level of advancement in an organization?
- Can a relationship be found between number of women in construction and the organization's success?

The questions above helped formulate the hypothesis questions found below:

Hypothesis 1: The social and cultural bias towards men in an organization, has a negative effect on the number of women joining the construction sector in the UAE.

Hypothesis 2: The social and cultural bias towards men in an organization, has a negative effect on the performance of women who work in the construction sector in the UAE.

Hypothesis 3: The social and cultural bias towards men in an organization, has a negative effect on the organization's success, performance and innovation in the construction sector in the UAE.

Independent Variables: Organizational bias towards men in regards to social and cultural norms.

Dependent Variables: Number of women in the Construction sector, performance of women in the construction sector and the level of performance, success and innovation in an organization in the construction sector in the UAE.

4. Research Methodology

The research method that was used was a mixed method methodology. The mixed method methodology integrated grounded theory in which the first research was quantitative research that resulted with a further research of qualitative research. The quantitative research methodology was done by a survey (see Appendix A), which was sent out to participants through Google Forms. Once all the data was collected for the survey it was then tested through SPSS software to further reject or confirm the hypothesis. The survey had a total of 37 questions that were separated into three sections; the first section was on biography and general information; the second section was focusing on the independent variable and the third section focused on the dependent variable. Random probability sampling was used as the sampling method for the survey where all participants had the same chance to be including in the sample size. The method of survey distribution was done online via email and sharing a link, the survey was sent to over 100 participants with a return rate of 40 participants completed the survey. Nominal/unordered and ordinal/ordered were scales that were used in the survey in form of scale of 1-5 and ranges from 'strongly agree to strongly disagree'.

The second research methodology was an extension of the first research methodology however qualitative data was more emphasized. The second research methodology was based on the research question and hypothesis that was used for the first research methodology. However,

after the results that were obtained there was a need to have a deeper and further understanding of why that specific outcome was obtained. There was decision to use a different type of research method by having one on one interviews with 15 women working in or with the design of construction projects in UAE, these women were randomly selected based on availability and criteria. The women that were interviewed were engineers, research analysts and design engineers. The interview was voice recorded and transcribed, the identity of the interviewees and their organization was not recorded due to privacy matters. All interviews went through a series of standard questions that were based around the hypothesis and research questions above however based on the answers that were given, further questions were asked or avoided. The interviews were done face to face to look for body language, tone of voice and emphasis on points that the interviewee may have felt more passionate about. All of these points were taken into account during the interview. Over all most of the interview questions were open ended and allowed the interviewees to speak as freely as possible, some questions were probe questions to get some of the less talkative interviewees to express their views more. On an average, each interview was about 30-45 minutes.

5. Data Analysis & Results

5.1 Participants' Demographics

Below demonstrate the demographics of the participants in the survey:

Characteristics	Frequency	Percent %
Gender		
Male	29	72.5
Female	11	27.5
Age		
18-25	6	15
26-32	23	57.5
33-40	7	17.5
41 and above	4	10
Job Status		
Entry Level	11	27.5
Middle Level	18	45
Managerial Level	11	27.5
Education		
Below High School	0	0
High School	1	2.5
Bachelor Degree	29	72.5
Master Degree	10	25
PhD/Doctorate	0	0
Number of years worked in Construction		
One year or less	5	12.5
2-5	19	47.5
6-10	6	15
11-15	7	17.5
16 and above	3	7.5
Type of Work		
Site job	17	42.5
Office job	23	57.5

Table 1: Demographics of the Respondents

5.2 Reliability Test

Reliability of the independent and dependent factors were tested through the Reliability Test. There were two separate tests that were used for each independent and dependent item. The

results were 0.845 and 0.929 for the Cronbach's alpha as demonstrated in the table below. The figures below demonstrate that the scales and their elements are reliable meaning the inter-consistency (homogeneity) of the elements and their scales. As a result, there is no necessity to remove any items in order to improve the value of the Cronbach's alpha.

Reliability Statistics	
Cronbach's Alpha	N of Items
.845	20

Table 2: Cronbach's alpha for Independent items

Reliability Statistics	
Cronbach's Alpha	N of Items
.929	11

Table 3: Cronbach's alpha for Dependent items

5.3 Hypotheses Acceptance/Rejection

The Multiple linear regression used ANOVA to look into the correlation between the dependent and independent variables in the hypothesis. This modeling technique was used due to the reason of first that the dependent response variable is constant and secondly the reason that the independent variable is higher than one.

5.3.1 First Hypothesis- Regression Test

For the first hypothesis, the multiple linear regression was used and the results that came out of it were (see Appendix B): $R_Square = .304$ and $Adjusted_R_Square = .267$, these results demonstrate the positive outcome of the regression model because the two values observed are less than 10 percent. Observing the F-ration it is 8.089 which indicates that it is at $p < 0.001$ therefore demonstrating that it is less than 0.05. The following results prove that the independent variables predict what the outcome variable will be. To understand the contribution of each individual predictor to the model, the unstandardized coefficient B is looked at. When there is a positive value to the coefficient B then that indicates that there is a positive relationship between

the outcome and the predictor. Based on the results the independent variable organizational bias's B value is (Indep_Val1_OrgBias) is 0.204 which means that $p < 0.001$ as a result meaning that it is less than 0.05; this indicates that there is a positive contribution of the variable for the regression equation.

When looking at the independent variable's socio-cultural norms the B value is 0.042 (Indep_Val2_SocioCulNorm) which as a result shows that $p < 0.574$ meaning it is more than 0.05, and that indicates the impact to the regression equation is insignificant. The reason for the contribution to the regression equation not having a significant P value could be due to a couple of reasons; firstly, the sample size being low and secondly could be due to the wording in the questionnaires being weak and not giving the results that were expected. As a result, that indicates that since the B values are obtained then that demonstrates that the null hypothesis is accepted whereas the alternative hypothesis results is inconclusive.

5.3.2 Second Hypothesis- Regression Test

For the second hypothesis, the multiple linear regression was conducted and the results were obtained (See Appendix B). The R_Square was 0.335 and Adjusted_R_Square was 0.299, the results indicate that there was a successful fit in the regression model because the difference between the two values that were found was less than 10 percent. Also as a result the F-ratio is 9.086 which demonstrates that at $p < 0.001$ and that also indicates that it is less than 0.05. The following results show that the independent variables are predictable and predict the output variable.

When looking at the unstandardized coefficient B values it explains the contribution of each individual predictor present in the model. When B has a positive value, it demonstrates the positive relationship between what is predicted and the outcome. The results that was obtained demonstrated that the independent variable organizational bias (Indep_Val1_OrgBias) for the B value was 0.128, the value indicates that $p < 0.034$ and as a result is less than 0.05. The independent variable for social-cultural norms (Indep_Val2_SocioCulNorm) B value was 0.210 which results to be $p < 0.009$ and as a result is less than 0.05. In conclusion observing the B values it demonstrated that the alternate hypothesis is accepted when as a result the null hypothesis is not.

5.3.3 Third Hypothesis- Regression Test

The third Hypothesis multiple linear regression was observed and results were obtained (See Appendix B). The following were the results that were obtained $R_Square = 0.142$ and $Adjusted_R_Square = 0.096$, the difference between these two results is less than 10 percent which indicates a positive fit for the regression in the model. When looking at the result of the F-ratio it is 3.074 which as a result is $p < .058$, P is greater than 0.05 which indicates that the null hypothesis is the alternate hypothesis is not. As a result, it demonstrates that the organizational bias predicted towards men and socio-cultural norms was unable to used as predictors for the dependent output variable which was organizational performance.

5.4 Interview questions for Qualitative research

The interview began with a few demographic questions and then dived into main themes of gender inequality that were derived from the literature review and influenced by the results from the quantitative research. Some of the questions were reworded or rephrased based on the answers that were given some additional probe questions were added based on the interviewee's answers. The standard questions that were asked were the following:

- 1. What is your Job Title?*
- 2. Please share your nationality?*
- 3. Which sector do you work in (private or public)?*
- 4. How old are you?*
- 5. What is your educational background (bachelors, masters, PhD)?*
- 6. How many year of working experience have you had overall?*

7. *What made you choose the field that you are in?*
8. *Have your family been supportive of your decision to choose the field you were studying in university?*
9. *Have your family been supportive of your decision to choose the field you are working in?*
10. *During your time in university have you ever experience gender bias being a woman by your peers or professors?*
11. *Does your culture, religion or society have an influence on your job and what you can and can't do?*
12. *Studies have shown that there are less women worldwide in the heavy industry workplace such as the construction field? Based on your opinion why is that so?*
13. *Do you believe men and women at your workplace are treated equally (benefits, salary, promotions ect)? Why or Why not?*
14. *Have you ever experienced Gender inequality at your work place can be a comment, action or something done unjustly against you (example: A male that has the same expertise as you but has been given a higher salary or more opportunities to grow)?*
15. *Do you believe in the Middle East there is a cultural norm that men should be given a higher salary than women as "they are the main provider of the family"? why or why not?*
16. *Are there any steps your organization is taking to give women more opportunities?*
17. *In your point of view what can be done to shorten the gap of gender inequality in the workplace specifically in the construction sector?*

18. Any additional thoughts, comments, stories you would like to share that you were unable to cover throughout the interview?

5.5 Participants' Demographics for Quantitative research

All the participants that were interviewed were females working in or with design of construction projects. The job titles of the participants that were interviewed varied, some of the job titles were petroleum engineer, lab researcher, mechanical engineer, design/manufacturing specialist, interface engineer, strategy specialist, sustainability specialist and so forth. The participant's roles and responsibilities varied which gave the research more of the scale of what their views were working in different areas and if they all shared or did not share the same opinions and thoughts.

Majority of the participants were Emirati females with the exception of a few that were not. The participants were chosen at random and there was no intention to have only Emirati participants or vice versa as having a range of different backgrounds helped get an idea on whether some of the inequality experienced was due to religion, culture and society or not. If we had chosen only one nationality then there might have been a bias in the answers. What we are trying to understand is gender inequality in the design of construction projects within the UAE regardless of where the participant is from.

When asked about the sector the participants worked in, the average was divided between public and private which helped us get a better understanding if there was those that had positive views working in private than those in the public sector and vice versa. The age group of the participants ranged from those in mid-twenties to early thirties, this also was done at random and was useful as this generation had more open minded views and honest views.. Also, the age group helped with having a decent number of years of experience which on an average was 5 years.

Overall when the interviews were reviewed and transcribed they were divided between those that had a positive opinion on gender inequality in their work place and those who had a negative opinion about gender inequality in their workplace. Our results demonstrated that there was an

equal number of positive views to the negative views in which we will discuss in the next section.

Participant	Job Title	Nationality	Organisation Sector
1	Enterprise Asset Management Specialist	UAE	Public
2	Operations & petroleum engineer	UAE	Public
3	Lab researcher	UAE	Public
4	Mechanical Engineer	UAE	Public
5	Assistant director of research visualization, design & manufacturing	UAE	Private
6	HSE engineer	UAE	Public
7	Strategy & business development consultant	UAE	Private
8	Design Architect	Sudan	Private
9	Interface engineer	Palestine	Private
10	Strategy Specialist	UAE	Public
11	Sustainability Specialist	Yemen	Public
12	Civil Engineer	Jordan	Private
13	Structural design engineer	UAE	Private
14	Lab researcher	UAE	Public
15	Operation engineer	UAE	Private

Table 4: Interviewee's profile demographics

5.6 Participants' Responses for Qualitative research

5.6.1 Participant's Educational Background

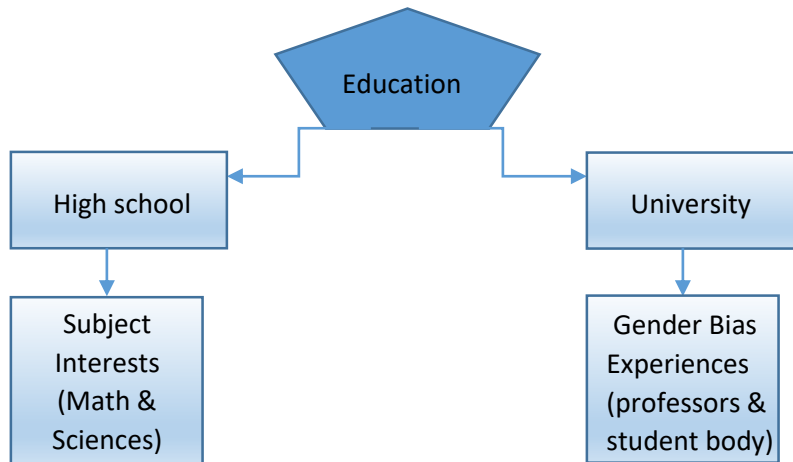


Figure 1: Education's Influence

All the participants were asked as to why they choose the field they are in and the majority answered that it was a field that they enjoyed and were good at during high school in which they choose to pursue in their higher education. Participant 1 stated in her interview “I studied engineering and started working in the oil and gas industry (particularly in a gas processing company), because I enjoy analytics and solving problems, I enjoy studying plant systems such as gas turbines, compressors and different machines, never liked routine. In oil and gas field, especially for engineers, sufficient amount of time is given to us (no rushing) in order to analyze chronic equipment issues, understanding its dynamics, fundamentals, and root causes. What I enjoy the most is that we get to communicate with international and top leading companies to benchmark, enhance, and upgrade our systems as well as improve our business processes. I don’t like customer service or human resources related jobs as I prefer quiet environment to work. Although my job is critical and holds high risk at times when mistakes are made, I still love challenges and it gives me great satisfaction to complete difficult task equal to men. So basically, I like challenges and every problem has a solution!” Similarly, participant 3 stated “I first got into engineering because I have an affinity towards science and mathematics and I was interested

in pursuing a career in the technical field. Once I graduated with a bachelor in Chemical Engineering I preferred the hands-on lab work, therefore I started working as a Senior. Lab Technician in a polymer research center. I enjoy the innovative side of working in R&D as well as the challenges it comes with.” Participant 4 stated as well “I enjoyed math and science subjects in high school, as well as fixing things and machines so engineering seemed like the right fit.” Majority of the answers were very positive showing that majority of the participants were in the field because they choose to be and enjoyed it.

One main question was if the participant ever experienced gender bias during their time in university from a peer or a professor. Majority of the participants went to an all-female university so experienced rarely any gender bias. But there were some that went to co-ed university in which they felt that they were discriminated against. Participant 1 although she had attended an all-female university she stated that she experienced discrimination in an indirect way stating in her interview “Yes, in the mechanical workshop where we used to use lathe and grinding machines for our senior projects, instructors used to worry too much about how we use the machines and offer help unnecessarily. They often omit certain assignments from the tasks assuming we’re unable to perform it well and then remove it from the grading system. This is unfair for the male peers who used to perform all jobs.” Participant 3 similar to participant 1 experienced something similar stating “In university I only heard one remark from a petroleum engineering professor whom we were interviewing for a course project that was related to women’s rights in the UAE. He did mention casually at the end of the interview that he thinks we as women should not pursue a career in engineering as the industrial plants are not a good environment for us.” Both of these participants expressed that although being in an all-female university their professors would indirectly change their workload or try to give them something ‘easier’ and less handy because they felt due to them being females they were unable to perform. This statement is expressed by a few of our participant shows that they all felt some type of discrimination as they felt they were able to do what the men did but were not allowed to due to gender bias and their professor’s perception. When interviewing participants that went to co-ed universities they expressed different types of dissemination experienced one example states by participant 12 was “Yes I did experience gender bias. I decided to run for the role of the president of the student council and seemed like it was likely to happen, due to my seniority and other experience and activities on campus. However, I was told that I could be the vice president

or other positions on the council as they would prefer a guy to be heading it. On the other hand, the engineering major that I was in consisted of mainly females. Our colleagues from other majors used to actually call us the female major and joked with my male classmates to move to male dominated majors such as ‘aerospace or mechanical engineering’.” Participant 5 went to a university in the west, many perceive the west to be more forward thinking and have already surpassed the phase of gender inequality. Unfortunately, for participant 5 that wasn’t the case and in her interview, she expressed that there was a 1 to 10 ratio of females to males in her major and in one of her classes she experienced gender discrimination from her professor in front of the entire class. She stated “my professor from an engineering background said to me in front of the whole class that I am too well dressed to be in the workshop and If I was sure I wanted to be in the workshop. He would point me out in class and ask how many pairs of shoes I owned and make fun of me. There was not much diversity in my university and most of my class mates were Caucasian and not ethnically diverse. The gender inequality attacks and being singled out was so much that I wanted to go to the dean and report it but never did. I was 17 in another country and was unaware of what gender inequality was.” Throughout the responses from the different participants about experiencing gender inequality at university it was observed that everyone at some point experienced it, either on an indirect way or direct way and there was no differentiation on those that went to an all-female university or those that went to co-ed universities; all universities that were in the UAE or those that were in the west. Gender inequality was present in any of the cases which further proved our hypothesis of the presence of gender inequality.

5.6.2 Participant’s Family influence

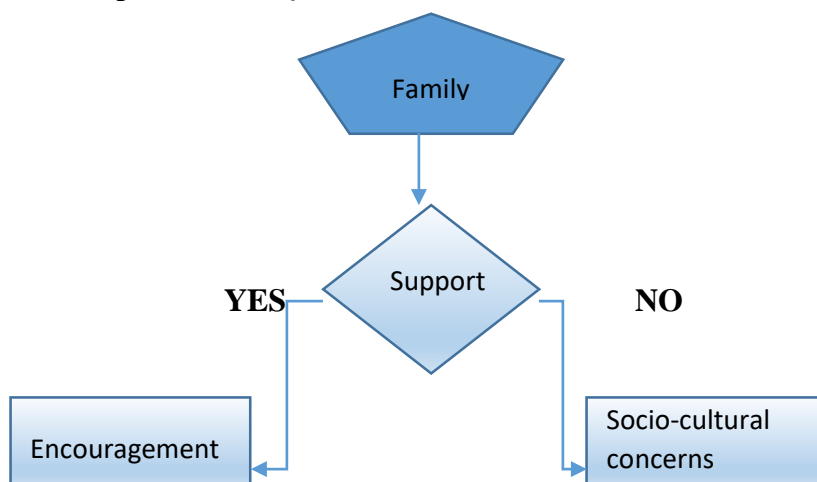


Figure 2: Family's Influence

The next question that was asked was about the support of the participant's family members towards the field they were in and if they supported the decision for the participants to follow their interests. There were a few mixed responses to this particular question as most participants stated that their families supported them throughout everything and there were those participants that stated that their families did not support their decision and they struggled at the start as their families voiced that this line of field was dangerous and was more suitable for men than women. Our hypothesis about this question based on our earlier research was that majority of the families would be unsupportive however we were surprised to see that most families did support the decision of the participants. Participant 13 stated "Yes my family has been very supportive in my choice. My mother gave me the advice to choose a field I loved, but at the same time had a viable future with career choices that I would enjoy working in. The majority of my family majors in business, economics, or accounting therefore there were some speculations from other relatives who said that engineering is too hard of a field because of all the mathematics and science." Participant 7 further also stated "Yes, my family saw my enthusiasm and love for science in general and guided me to study engineering. They also were supportive when I decided to change my major twice and in one case transfer to a new university. However, when it came to reflecting on my major selection on the long-term career path, they did not support a job remotely on sites. The argument was that I will have a family at some point and children and the lifestyle won't be as easy as I imagine it to be." But participant also stated although her family were supportive of her field they were not supportive of her work environment of working on sites and fields due to eventually having her own family and being away; therefore, this response gave a mixed review of how the family felt about her field. Participant 1 stated "Yes, my family is very supportive and always respected my decision regarding engineering. E.g. allowing me to study in a university 150 km far from home, paying my accommodation fees during studies, and now living by my own close to work. They have also let me work for 1-year abroad. I come from a very conservative family, where all the above seemed impossible for a woman. But I thank my mother who is truly an angel, facilitating my way to success and pursuing my passion." This statement was very powerful as a strong female figure such as the participant's mother played a major role in helping her pursue her passion and career although she came from a conservative

family that in another case may have not supported her field. However participant 4 stated that she did not get the support she wanted and stated “My family have not been supportive, they would have preferred if I studied something that would be ‘easier’ in a more relaxed environment and would be less demanding similar to business or finance”

5.6.3 Participant’s Socio-Cultural Influence

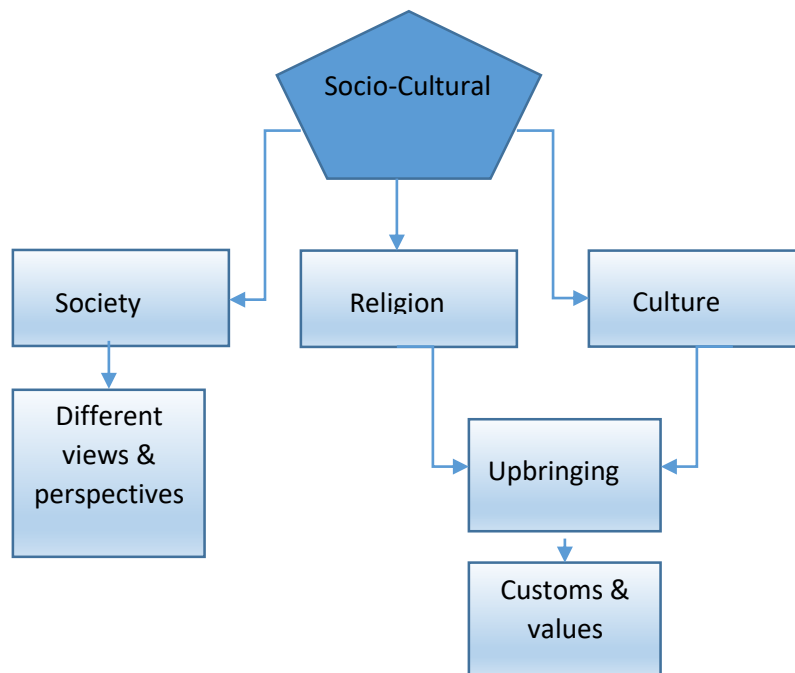


Figure 3: Socio-cultural Influence

The next area that was focused on was society, culture or religion and if they have an influence on what the participants could or could not do in their workplace. This specific question was very powerful as all participants unanimously agreed that society, culture or religion had to some extent some type of influence over what the participants could or could not do in the workplace. This was also powerful as it went back to one of our hypothesis earlier that stated *‘The social and cultural bias towards men in an organization, has a negative effect on the performance of women who work in the construction sector in the UAE’*. The responses we received didn’t specify that the participants were not performing at work however a few of them did state that this influence did have a negative effect on women being able to learn certain things at work that men easily had the privilege to do so as they didn’t have the same restrictions. As participant 1

expressed in her interview “Valuable knowledge is gained during on-call duty, where an employee (especially technical ones) are called for plant emergency, examine a problem and then solve it immediately, or else escalate it to relevant parties. Most of these on-call duties occur after 7:00 pm. Female engineers are not allowed to stay after 7:00 pm at site due to cultural, religion or society reasons you name it. We don’t gain enough experience compared to our male peers. Also, during the selection of nominees for work attachments abroad, management approval for male attachment is faster than when females are nominated”. Participant 2 also expressed “It’s a male dominated workplace the idea of have us (women) with them is unsettling”. Participant 3 also agreed on the effect of influence and gave a different example in her interview stating “I do come from a reserved and slightly conservative culture and it may have influenced some of my decisions but overall it doesn’t greatly affect my career choices. As for religion, I adhere to wearing the hijab so I choose for the more conservative technical uniforms. I would say society has the biggest influence on what I can’t do, such as people’s negative views to women working as engineers in a male dominated field”. Participant 4 also gave an answer on how religion has an influence on her and stated “Yes, because there are a lot of men in the work place and a lot of traveling is required, so interaction is prohibited and travel is not always easy due to the need of a “mahram”. Even in smaller things, like I still don’t like having my picture taken and spread publically because that was the culture I was raised in, but in the workplace, there are lots of occasions where pictures are taken like conferences for the Company magazine, or even in the emails next to our names so people can recognize us. Due to this, they only have the men’s pictures and not the women’s. It is things like this that increases the gender gap.” Participant 6 and 7 had very similar points when asked about the influence they had on their workplace through society, culture or religion and they spoke about how they try to not allow factors around them influence their work however there are many people around them that have certain views and try to impose that on them. For example, participant 6 stated “Yes, as an Emirati Engineer who requires to do some site visits, some close-minded people do not understand the importance of visiting the field to actually see and learn things in real life instead of images and reading documents. Our community and society unfortunately judge female engineers for going to the field. I have met many young talented engineers who are not allowed to go for site visits because of their families or are afraid from being judged by the society”. Participant 7 explains her personal experience with this issue stating “Personally, nothing is

influencing my job at the moment besides what I decide regarding it. However, the people who come from the same culture / religion / society tried to interfere by saying that specific sites or factories won't be pleasant for me as a female, although I knew that this would benefit expand my knowledge and see the implementation of technologies. Also, as an Emirati, people would make assumptions that I'm 'not allowed' to travel alone or participate in certain events". Throughout almost all the interviews there was similar responses and tones the participants felt very strongly about this subject and spoke enthusiastically about it when analyzing their body language as well.

5.6.4 Participant's Personal Views

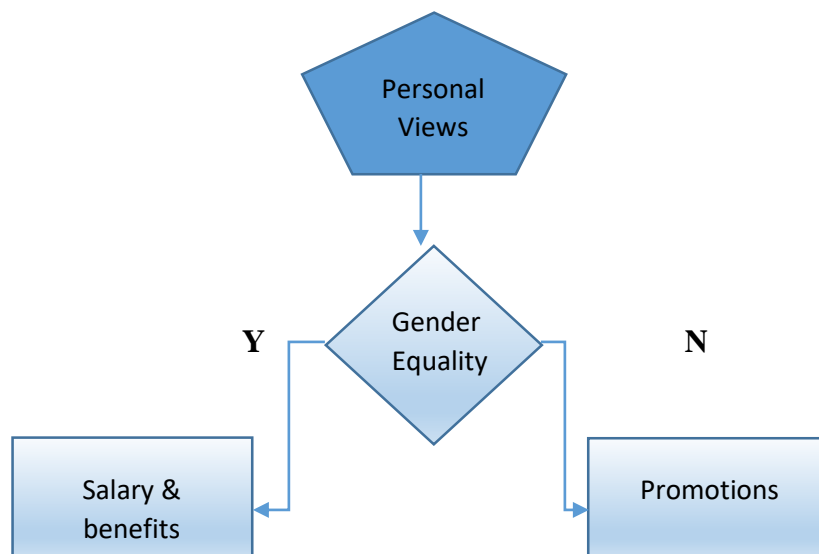


Figure 4: Personal views on gender equality at the workplace

In the next section of the interview the questions were structured around the views and perspectives of the participants towards gender inequality and the gender gap. The responses were different some shared positive views while other shared negative views. The responses reflected that although gender inequality is an issue in the UAE it may seem minor when compared to other places in the world. One question asked was that many studies show that there are less women that are entering heavy industries and the construction field to find work, and why the participants think that is happening. Some of the answers were similar in which some participants stated that culture and society had an influence on this issue. Others spoke about working conditions and it not being suitable for women in which they choose to stay away from it. There were also explanations that jobs in heavy industries and the construction sector are very

physically demanding and women may not be able to do them. The second question that asked the participants opinion was whether they feel that men and women are treated equally at their workplace and whether or not men are given better opportunities such as (salaries, benefits, promotions ect) when compared to women of equal competencies at their workplace. The responses between the participants were divided some agreed that men were given better opportunities and the existence of the gender gap at their work place was prevalent. One participant stated “No. I think in terms of salary there is a gender pay gap as it is not regulated to be equal at the time being. However, this may be a one-off case as I knew an applicant with similar qualifications as me who got a better salary offer as a male, and when I negotiated my salary, I was told that just because I am Emirati, doesn’t mean that I am different from everyone else in terms of salary. I know of cases where managers did not prefer to hire females especially married ones as there will be a potential maternity leave at some point of time. This is perceived as an obstacle and the ‘unavailability’ of the woman would slow down the work flow. In some cases, managers offered working from home solutions, paid part-time working hours until the woman was ready to be back full time.” There were the other half of the participant that had other views stating that they felt both men and women are given similar opportunities and treated equally at the work place. As stated by one participant “I do believe they are treated equally. I have the same benefits, salary and probably I am more prone to get a promotion before the males. Currently I am the only female engineer in the organization. That is where the beauty of it starts, all males realize you are worth something and they start keeping an eye out for you, from that point as a female you will only be spoiled at the work place”. And lastly there a few participants that although they stated that men and women are given the same salaries men are more likely to get promoted than females. One participant stated “In matters regarding salary and benefits they are treated equally. In promotions, I believe men are usually favored in the technical fields”. Similarly, another participant stated “Men and women are treated equally in terms of benefits and salary because those are the government and company rules; everyone gets the same salary based on job grade regardless of gender. We are not treated equally however, in terms of promotions, as men get promoted more easily. And it is rare to find women in top managerial positions”. The question of equality had mixed responses and based on our prediction could be due to the individual themselves and how they perceive and identify with equality or inequality happening in the workplace. However all responses were valuable in the research and

demonstrated that although some may feel there is no gender gap in terms of salaries and benefits there are those that do believe it is still a problem.

5.6.5 Participant's Organizations involvement

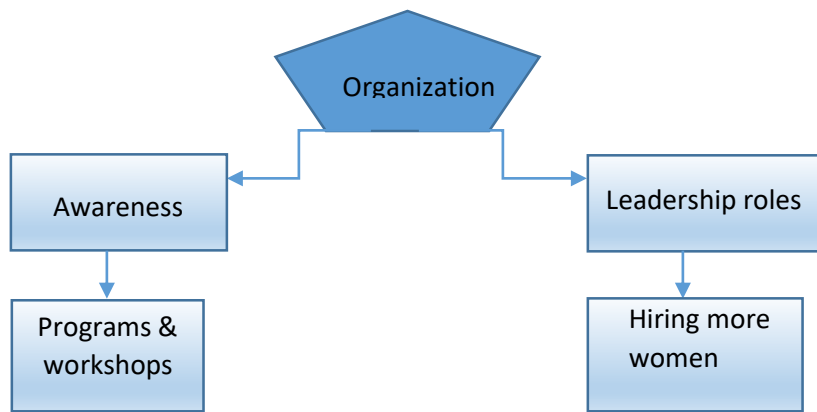


Figure 5: Organization's Influence

Lastly the interview asked the participants if their workplace is taking steps towards giving women more opportunities such as promotions or professional development and so forth. Majority of the responses were positive in which they expressed that their work already has a program in place for women in the workplace, others stated that their workplace have future plans to put together something. This positive response from most of the participants was very interesting as it demonstrates that many workplaces in the UAE are not tackling the issue of the gender gap in which other places in the world may not have addressed yet. Participant 3 expressed in her interview “Gender inequality is one of the hot topics at my workplace. Many session were conducted early 2018 to raise awareness, collect data and survey the current status of gender inequality. Management is developing a roadmap/ career ladder for female to take up positions equal to men. They have also opened the first female accommodation on site to allow female engineers stay close to site, but still they don’t attend on-call duty”. Similarly participant 5 stated “Yes. There are women mentoring program, where young females in the start of their careers with high potential are paired with more experienced employees in managerial positions to mentor and guide them and help them climb up the career ladder. There are also steps taken to

make working at site more comfortable and easy for women like transportation and accommodation, and going to site is encouraged”. Also a few participants expressed that there are plans to encourage and build up women to take managerial jobs in the future and hopefully have a female CEO in their company. Participant 11 stated “My company now has assigned the first woman CEO in one of its operating companies, which has never happened before! It has also announced a list of women occupying VP positions which rarely existed before. Accommodation and travel requirements for women to go offshore has been made relatively easier and more convenient, compared to it being almost non-existent in the past”. There was one of the participant that did not have the same few of the rest and her response stood out, she stated “It has been proposed to have a female quota on every team within the company (this is a fictional example: for every 5 males, there should be a female in the team). This backfired as men managers took it as a task to do and tick off their targets, hiring women as assistants mostly and not looking at the real market out there. In general, the preference in the company is to hire low budget employees with the skills needed, in this case and unfortunately it would be South West Asian males. In general, the company aims to have 20% of the employees as females, as a target until 2020. Is this a fair target? Or a first step towards a bigger goal? We are unsure”. This participant had a more questionable approach towards her organization stating that although there were steps to increase female employees there are those that are trying to play around the rule and make exceptions whether it is on a negative light or by not giving competent women that opportunity they deserve. This response although from only one participant stood out because it demonstrates that although majority may seem content with changes happening their workplace there may be those that may have some doubt regarding the intentions of organizations.

6. Discussion

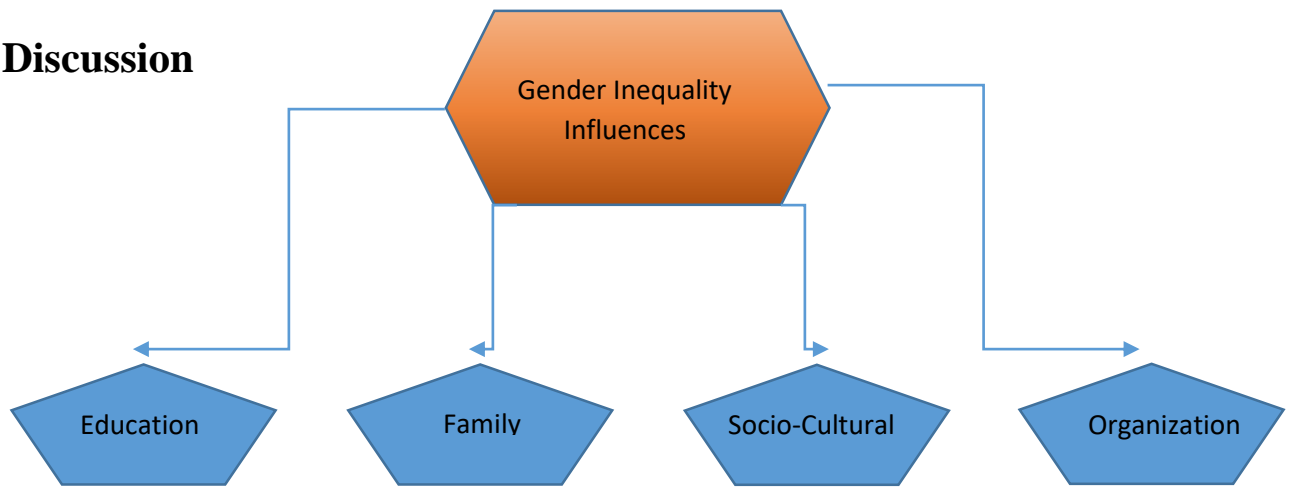


Figure 6: Gender inequality Influence

The main aim of this study was to look deeper into the underlying factors of gender inequality in the design of construction projects in the UAE. These factors were studied against how a woman performs at her workplace due to gender inequality and if a connection can be found between a woman's overall organizational performance and the number of women joining the organization. Social, cultural and religious responsibilities and organizations responsibilities towards the gender gap were factors that were analyzed and looked at deeper. These factors broke down into sub factors that were expressed in the conceptual framework in the paper.

According to the research conducted and studied for this paper there were many scholars and accounts that spoke about gender inequality and how it is prevalent in many workplaces. Different aspects and perspectives were discussed that gave the study a deeper meaning of different ways gender inequality can be defined and how it varies based on the perspectives of many people based on where they are from, their identity, socio-cultural norms and so forth. There was a point in the research to look at studies and accounts from all over the world to get a general view as to how people viewed and defined gender inequality in the construction sector, also what are some things that take place around the world that is viewed as gender inequality. The research varied and accounts from Middle East, Asia, Europe and Africa were all studied and addressed in the research for diversity and more insight into the study. While analyzing the

accounts there was a noticeable issue that developing countries in Asia such as India expressed, gender inequality in India's construction sector revolved more around those of the physical treatment of women in which some were sexually harassed at the work place and mistreated by their supervisors in a physical manner. In contrast studies from Europe looked at gender inequality more from an office setting and how there is a pay gap between men and women. The research from around the world was insightful and demonstrated that although all accounts spoke about gender inequality there were different degrees and levels to it that varied based on the country and their socio-cultural background as well as the type of organization and workplace these women worked in.

After studying and analyzing accounts from around the world in regards to gender inequality in the construction field, there was a need for our research to look deeper at the gender inequality in the construction field in the UAE and more specifically in the design on construction projects. There were two research methodologies that were used. The first methodology consisted of a more quantitative approach in which a survey was shared with a large group of people working in the construction sector in the UAE. The results that were obtained from this methodology proved that the influence of socio-cultural responsibilities and the organizations' responsibility in regards to women working in the construction sector was inconclusive. The decision to look at the connection between these factors was due to the studies that were analyzed in which there was a great impact of socio-cultural and organizational responsibilities when it came to women working in the construction sector around the world. The inconclusive results that were obtained in the study could be due to having a small sample size that did not allow the results to be reliable. Other factors could be the survey questions might have been too vague and hard for the participant to understand. The expected results were to find a strong correlation between the number of women in construction and the socio-cultural and organizational responsibilities, as it was prevalent in the research found around the world. The research also looked into the relationship of a number of women in the organization against the organizational performance in regards to resourcefulness, success, competitiveness. The research produced that there was no relationship between these factors. This could be due to the small sample size and the quality of the questions in the survey. The expected results were to find some type of relationship however the output of the results showed otherwise.

Due to the results found in first research methodology there was need to have a second methodology but this time using a different approach of research and looking deeper into the issue. The second methodology focused on getting qualitative data by having one on one interviews with women in the UAE that worked in the construction field specifically those that were involved to some extent in the design of construction projects. The decision to take this approach was to first have the opportunity to ask participants in depth their views on gender inequality at their workplace and also to give them the opportunity to ask for clarification if they were unsure of any of the questions. Also, this research seemed important as it allowed the research to get a better idea on how the participant uses their words, tone and body language when responding to a question in oppose to not being able to see that in the first methodology approach of the questionnaire. The four factors that the interview questions were based around were education, family, socio-cultural and organizational influences on gender inequality in the design of construction projects.

As the research was qualitative the responses were analyzed and transcribed and the results demonstrated that there indeed is a relationship between socio-cultural and organization responsibilities when it comes to the number of women joining the construction sector or being involved in jobs related to the design of construction projects. These results came about a majority of the participants used many examples of how their society, cultural and even religion plays a part in what they can and can't do at their job. There were also many that expressed that the organization's responsibility of ensuring women are given opportunities plays a major role in women joining organizations in the construction sector.

The research also demonstrated that there was no relationship of organizational performance and the number of women joining the workplace as there was not a large enough sample size.

7. Conclusions, Limitations and Recommendations

Throughout the study there were many insightful results in regards to gender inequality. The beginning of the study looking at research and studies from all around the world there were many different examples and measures of gender inequality towards women. Based on the literature review and the information gathered from different scholars from around the world there was an assumption that the UAE had a great number of gender inequality in regards to the specific study

of understanding the underlying factors of gender inequality in the design of construction projects in the UAE. The study discovered positive results when it came to the subject of gender inequality in the UAE. The study and research that was put together demonstrated that gender inequality in regards to the construction sector isn't as high as it has been assumed while putting together the research. There were three hypotheses and the outcomes that came about proved that gender inequality in the UAE is low but not non-existence as there are some results that demonstrated that it still is evident. One of the hypothesis did confirm that 'The social and cultural bias towards men in an organization, has a negative effect on the performance of women who work in the construction sector in the UAE' this proved that there still is some time of gender-inequality in UAE's construction sector. Another hypothesis was rejected and the last hypothesis was proven to be inconsistent therefore it was concluded that gender inequality was not at the high level as it was assumed in the start of the study. The study was further researched as there was a further study to understand why those hypothesis results came about and if there was something that quantitative research had not covered. Therefore, a qualitative research was studied in which it demonstrated that many women in the construction field do face gender-inequality in some aspects of the workplace such as getting promoted or being treated differently than men in regards to their abilities. However, the qualitative research did also prove that although gender inequality is present in the design in construction projects in the UAE it still is low compared to other countries that scholars spoke about.

Some of the limitations that were faced in the research was that there was no preceding study done about gender inequality in the design of construction projects in the UAE; therefore, the precedent studies used were of other countries which were not as accurate because of many factors had to be taken into account such as cultural background, geographical background and social norm and how each country differs from one another. The three hypotheses were based on studies conducted by other countries and that was a limitation as many of the countries studied were very different from the UAE.

Other limitations that were faced throughout the research was the time frame given for the study due to time restrictions, it was difficult to get a large sample size for the quantitative research and only 40 participants were able to take part only 27% of the participants were women which demonstrated a small percentage of women present which may have made the results bias

towards men. If the data sample was larger there would have been larger number of women and better and more accurate results. Due to the limitations in the first quantitative research there was decision to focus on a more qualitative research which only interviewed women in the UAE working in the construction field and covered their experiences and opinions. The limitation of the qualitative research was not having enough women to completely represent those in the construction field as it was not easy to find women that were willing or had the time to participate in the research, also if there were no time restrictions there would be a better chance to cover more women in the interviews and get more insights.

Throughout the study and research, a few recommendations to further broaden the research and get better results would be using a larger sample size with at least a year timeline to reach out to as many people as possible. The recommendations for the issue of mitigating the underlying factors that lead to gender inequality in the design of construction projects in the UAE would be to raise awareness not just in the workplace but from a young age such as in public and private schools encouraging the younger generation to embrace gender equality and to look at people's competencies and not their gender. There are many ways to raise awareness such as reaching out to families and changing their outlook and mindset on gender equality. Breaking stereotypes where companies give more opportunities to women to be engaged in the construction sector. Having role models and known figures in the community to speak on the issue of gender inequality and encouraging women and families to lessen the gap of gender inequality. Fortunately, based on the research and what was expressed by the women that were interviewed there are some companies in the UAE that have started to take the issue of gender inequality into their own hands and have put together focus groups and systems to allow women to grow in the company. Although not all companies have been as successful to tackle the issue there are positive improvements in the right direction. Based on our study and research we have concluded that the UAE in comparison to other countries has already made measures to deal with the issue of gender inequality and is in the right path to lessen the gap. The recommendation to further this study is to look deeper into measures that the UAE companies in the construction sector are taking in regards to gender inequality and use that as a model for other neighboring countries.

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9. Appendices

Appendix - A

The Research Questionnaire:

Dear participant,

The following questionnaire will allow you to give your opinion on the subject of gender inequality in the constructing sector in the UAE.

The sample group are participants working in the construction sector.

The information that will be gathered from this questionnaire will allow us to get a further insight for our study the discusses “Mitigating the underlying factors leading to gender inequality in the design of construction projects in the UAE”. Therefore, we greatly appreciate your honest answers.

All information will be confidential and all answers will be looked at anonymously. All information gathered will only be used for the study mentioned above.

Thank you.

Research Team

Part 1: General Information <i>Please choose one answer for each question</i>			
A	Gender	(1) Male	()
		(2) Female	()
B	Age	(1) 18 - 25	()
		(2) 26 - 32	()
		(3) 33 - 40	()
		(4) 41 or above	()
C	Job Status	(1) Entry Level	()
		(2) Middle Level	()
		(3) Managerial/Leadership Level	()
D	Education	(1) Less than High School	()
		(2) High School	()

		(3) Bachelor Degree	()
		(4) Master Degree	()
		(5) PhD - Doctorate	()
E	No. of years worked in Construction	(1) One year or Less	()
		(2) 2 - 5	()
		(3) 6 - 10	()
		(4) 11 - 15	()
		(5) 16 and above	()
F	Type of work	(1) Site job	()
		(2) Office job	()

Part 2: Independent Variables
Please choose one answer for each question

No	Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	My parents did not influence my choice of education.	()	()	()	()	()
2	My parents did not influence my choice of occupation.	()	()	()	()	()
3	My work in Construction does not affect my personal relationships.	()	()	()	()	()
4	Socio-cultural factors did not influence my choice of education.	()	()	()	()	()
5	Socio-cultural factors did not influence my choice of occupation.	()	()	()	()	()
6	My culture does not prevent women from working in Construction sector.	()	()	()	()	()
7	My religion does not prevent women from working in the construction sector	()	()	()	()	()
8	Women looks at Construction as a masculine job.	()	()	()	()	()

9	Women believe they are unrepresented in the construction sector.	()	()	()	()	()
10	Women believe they need to work twice as much to be seen equal to men.	()	()	()	()	()
11	Women believe men are given more opportunities in the workplace than they are.	()	()	()	()	()
12	Construction entities in UAE when hiring look at skills and experience of the candidates regardless of his/her gender.	()	()	()	()	()
13	Construction entities in UAE provide fair hiring opportunities for both men and women.	()	()	()	()	()
14	Construction sector have good recruiting and retention in regards to women employee.	()	()	()	()	()
15	Men and Women in Construction get equal salary for the same position.	()	()	()	()	()
16	Men and Women in Construction get equal benefits for the same position.	()	()	()	()	()
17	Men and Women get equal bonus and annual salary increase for their performances.	()	()	()	()	()
18	Men and Women in Construction get equal promotion opportunities.	()	()	()	()	()
19	Men and Women are both given opportunities to get leadership roles.	()	()	()	()	()

20	Men and Women in Construction get equal Training and skills building opportunities for future development.	()	()	()	()	()
Part 2: Dependent Variables <i>Please choose one answer for each question</i>						
No	Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Change in Women's perception about the masculinity of Construction field will lead to increase in their numbers in Construction.	()	()	()	()	()
2	Freedom in choice of education (not to be influenced by parents or culture) will lead to more women working in Construction.	()	()	()	()	()
3	Freedom in choice of occupation (not to be influenced by parents or culture) will lead to more women working in Construction.	()	()	()	()	()
4	Fairness in employment regardless of gender will lead to have more Women working in Construction.	()	()	()	()	()
5	Equal pay between genders will result in higher women motivation.	()	()	()	()	()
6	Equal promotion opportunities between genders will impact positively on women participation.	()	()	()	()	()

7	Equal training and skills building opportunities between genders will impact positively women progression.	()	()	()	()	()
8	Gender diversity in Construction increases organizational innovation.	()	()	()	()	()
9	Gender diversity in Construction increases organizational creativity.	()	()	()	()	()
10	Gender diversity in Construction increases organizational competitiveness.	()	()	()	()	()
11	Gender diversity in Construction increases organizational profitability.	()	()	()	()	()

Appendix - B

Below is a set of outputs from the regression tests of the hypotheses:

Regression Test Outputs – Hypothesis 1

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias ^b		Enter

a. Dependent Variable: No_women_Var

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.552 ^a	.304	.267	2.66577	.304	8.089	2	37	.001

a. Predictors: (Constant), Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias

b. Dependent Variable: No_women_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	114.967	2	57.483	8.089	.001 ^b
	Residual	262.933	37	7.106		
	Total	377.900	39			

a. Dependent Variable: No_women_Var

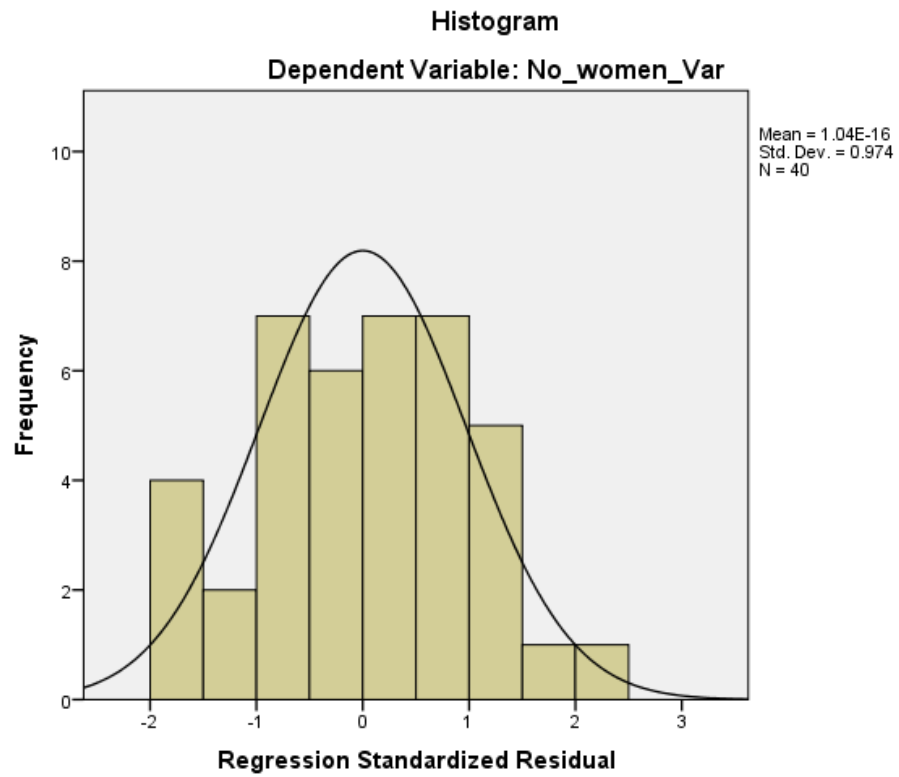
b. Predictors: (Constant), Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.131	1.847		1.696	.098

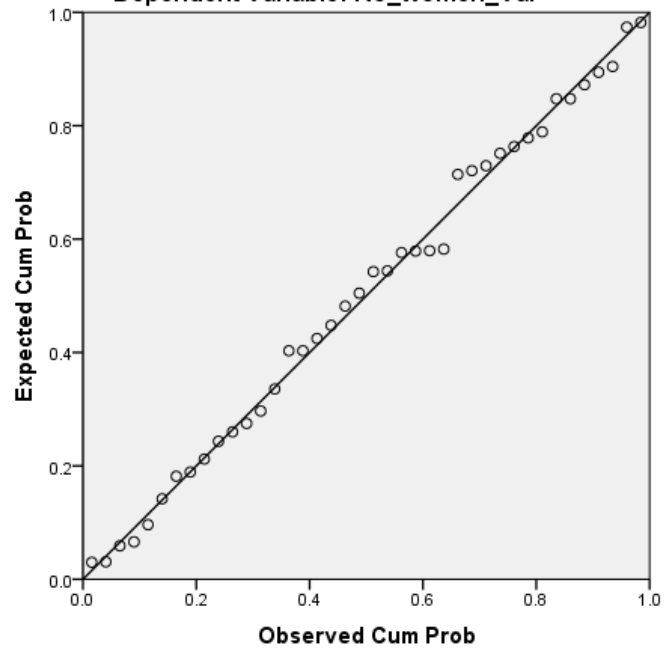
Indep_Val1_OrgBias	.204	.056	.521	3.607	.001
Indep_Val2_SocioCulNorm	.042	.074	.082	.567	.574

a. Dependent Variable: No_women_Var



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: No_women_Var



Regression Test Outputs – Hypothesis 2

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Indep_Val2_Socio CulNorm, Indep_Val1_OrgB ias ^b		Enter

a. Dependent Variable: Wmen_perf_Var

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.579 ^a	.335	.299	2.73055	.335	9.086	2	36	.001

a. Predictors: (Constant), Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias

b. Dependent Variable: Wmen_perf_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	135.484	2	67.742	9.086	.001 ^b
	Residual	268.413	36	7.456		
	Total	403.897	38			

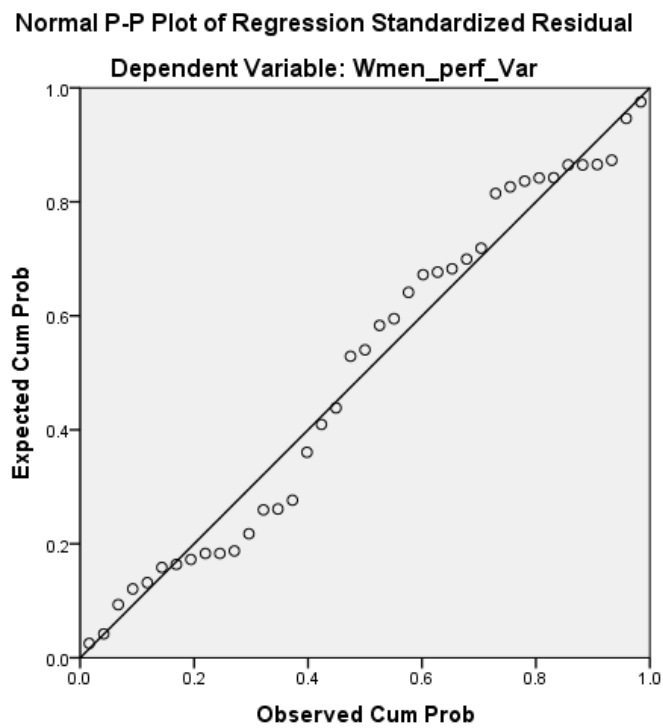
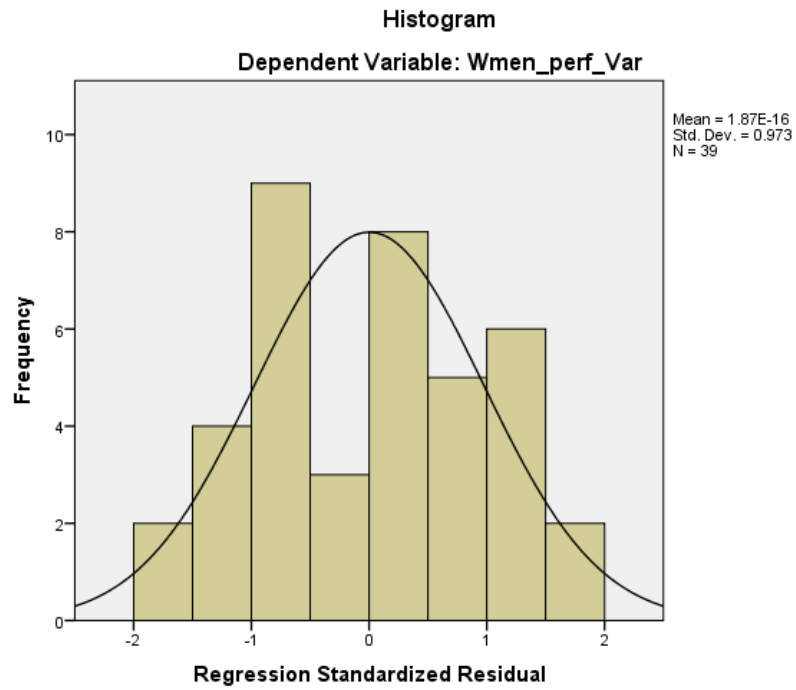
a. Dependent Variable: Wmen_perf_Var

b. Predictors: (Constant), Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.443	1.893		-.763	.451
	Indep_Val1_OrgBias	.128	.058	.315	2.198	.034
	Indep_Val2_SocioCulNorm	.210	.076	.396	2.761	.009

a. Dependent Variable: Wmen_perf_Var



Regression Test Outputs – Hypothesis 3

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias ^b		Enter

a. Dependent Variable: Org_perf_Var

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.377 ^a	.142	.096	3.57157	.142	3.074	2	37	.058

a. Predictors: (Constant), Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias

b. Dependent Variable: Org_perf_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78.424	2	39.212	3.074	.058 ^b
	Residual	471.976	37	12.756		
	Total	550.400	39			

a. Dependent Variable: Org_perf_Var

b. Predictors: (Constant), Indep_Val2_SocioCulNorm, Indep_Val1_OrgBias

