WOMEN IN CONSTRUCTION: HINDRANCES THAT SHORTEN THE PROFESSIONAL WORKING LIFE OF FEMALE SITE ENGINEERS ON CONSTRUCTION SITES IN SOUTH AFRICA

RESEARCH REPORT

Submitted by

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Declaration

I declare that this research report is my own unaided work. It is being submitted to the Master of Science in Building at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

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Nondumiso Sangweni

_____Day of _____ (year) _____

Abstract

The issues relating to women in construction exist internationally and, over the years they have been analysed from affirmative action Piper (2002) to cultural beliefs Hopkins & McManus (1998) job satisfaction and development Dabke (2008) and perception and professional acceptance Perreault (1992) & Enshassia (2008). In South Africa, following studies have been analysed, Verway (2005) looked at comparative analysis between SA and USA women entrepreneurs in construction, Mjolo-Mncube (2005) analysed opportunities for women in housing and construction, Mahlobo (2006) looked at challenges faced by women contractors in housing construction. However, not much emphasis has been put around hindrances that shorten the professional working life of female site engineers on construction sites in South Africa.

The study adopted qualitative research method. Fifteen female site engineers currently working on construction sites for different construction companies were selected for questionnaires and open ended interview questions.

Major findings identified discrimination, construction culture, work-conflict, glass ceiling, under representation of women and impact of cultural beliefs to be the hindrances that shorten the professional working life of female site engineers on construction sites. To retain female site engineers in the construction industry, it is recommended that employers introduce flexible work schedule; introduce mentorship programs and give them the same opportunities as their male counterparts in order to create more diversity in the sector thus increasing creativity and efficiency.

Keywords: construction, site, engineers, work-life balance, hindrances, women, culture.

Dedication

In the loving memory of my late parents, words can never be enough to express my sincere gratitude. My awesome daughter, now I know unconditional love exists within our hearts.

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Thanks to my Supervisor **Prof Dave Root**, your academic guidance was beyond your call of duty and for that I am sincerely grateful.

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List of abbreviations

DBSA-Development Bank of Southern Africa

BEE-Black Economic Empowerment

GDP-Gross Domestic Product

UK-United Kingdom

USA-United State of America

CIB-Construction Industry Board

EE-Employment Equity

List of definitions

Construction Industry - Sector of national economy engaged in preparation of land and construction, alteration and repair of buildings structures, and other real property (Business Dictionary,2011)

Gender discrimination - Refers to any situation where a person is denied an opportunity or misjudged solely on the basis of their sex (Mateo Zeske, 2010)

Government - A group of people that governs a community or unit. Its sets and administers public policy and exercises executive, political and sovereign power through customs, institutions, and laws within a state. A government can be classified into many types, democracy, republic; monarchy, aristocracy, and dictatorship are just a few

Presenteeism - The practice of being present at one's place of work for more hours than is required, especially as manifestation of insecurity about one's job. (Business Report, 2011).

1 CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The construction industry in South Africa is one of the biggest role players when it comes to its contribution in the GDP of the country. According to Statistics South Africa 2011 report, the country's GDP expanded 3.2 percent in the first quarter of 2011, of which the construction industry contributed 1.2 percent. In the last quarter (Q4) of 2011 it was one of the notable performers expanding by R6 billion from R34 billion. In 2009 the construction industry increased its GDP contribution by 8.4 %. It is also one of the industries that constantly provide sustainable growth and development in the economy. After that historic announcement in Zurich by the President of FIFA, Sepp Blatter in May 2004 that South Africa was going to host the world in 2010, the construction sector became the most sought after industry in South Africa, providing employment to 430 000 people in the third quarter of 2009, it became the beacon of growth within its peers such as mining, manufacturing, finance, real estate etc.

According to a report by Rutter (2010) prepared for FIFA Council in 2009, 2 143 jobs were created to build the Green Point Stadium in Cape Town and 1 179 artisans underwent training. This is the Western Cape Province alone, meaning more numbers were gathered in other provinces where the stadiums were built.

As much as the construction industry contributes significantly in terms of employment opportunities in South Africa, majority of beneficiaries are men, women are still represented in small numbers. The South African construction industry has been described as the most untransformed sector, since the industry is still dominated by white management Haupt (2009).This is cemented by the fact that the contribution of women in construction employment decreased in recent quarters from 116 000 in Quarter 3 to 110 000 in 2010 Quarter 4, indicative of a 5.2% contraction as indicated on Figure 1 below, from 2009 Quarter 4 there has been a 22% decline in the number of woman employees in the construction sector to date Synman (2011) reported in the State of the South African Construction Industry Report 2011. Despite these reports opportunities for women in the construction industry are slowly increasing.

In 2008 in the US, women accounted for 8.2 % of construction managers while labours accounted for 3.3% of construction workforce Department of Labour, USA (2009). Related

industries showed similar trends, women architects accounted for 24.8%, engineering technicians at 18.5%, industrial engineers at 14.9%, and other engineers at 10.4% and civil engineers at 10.4%, Department of Labour USA (2009). In Zimbabwe, of 105 567 persons formally employed in Zimbabwe's construction sector in 1999, only 6.3 % were women and they mainly operated in menial level according to (Mutandwa *et al* 2008).

In the UK, the Construction Industry Board (2005) stresses that only 13% of corporate managers and 4% of construction site engineers are females states (Lu *et al* 2008). South Africa is no different when it comes to these employment patterns, women participation has been restricted to community work and about 8% of female site engineers are women

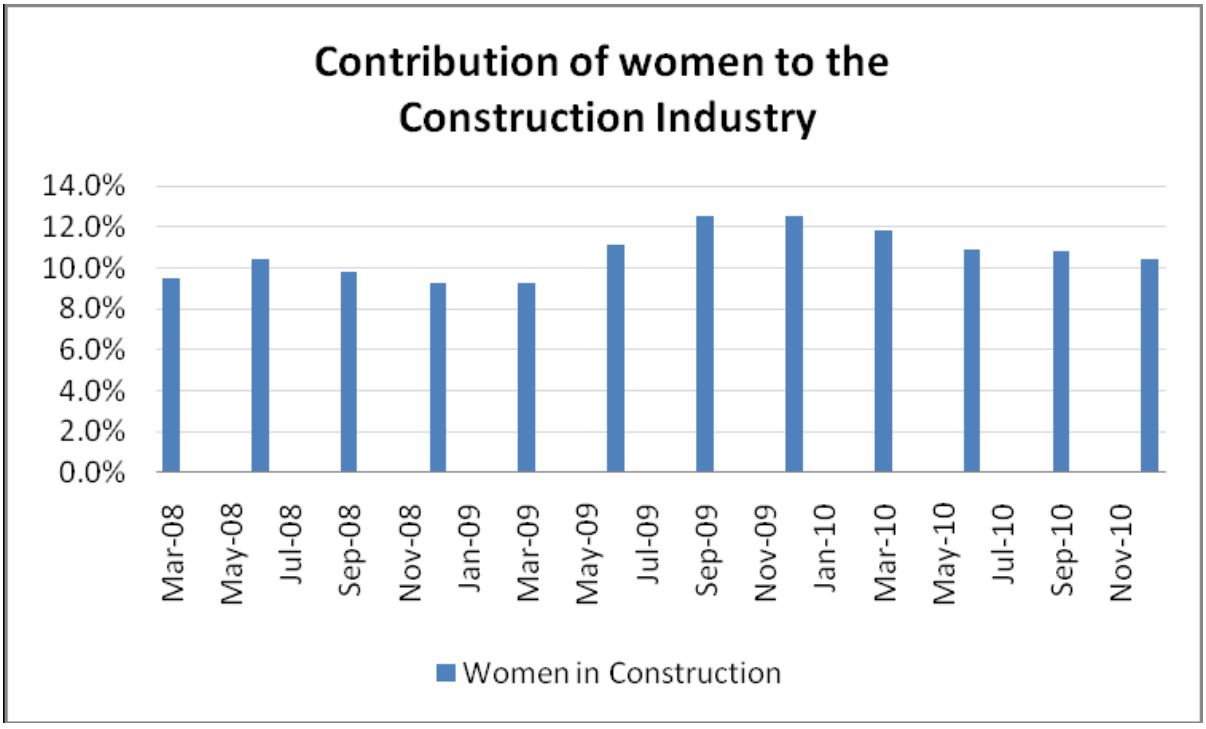

Figure 1: Contribution of women in total construction employment (Source: Labour Force Survey 2010)

With any evolving society, a career is not only a right for women, but it is the key factor that contributes to the economic and social development of that particular country states Parikh & Sukhatme(2004). However, despite all this recognition, the participation of women in the construction sector is still at the infant stage. Numbers are even lower when it comes to female site engineers on construction sites, this can be attributed to a number of corporate & social challenges they are faced with on daily basis. Many studies have suggested that women are mostly working in positions such as clerical and secretarial and safety related posts.

The question must be then asked, what are the hindrances that shorten the professional working life of female site engineers on construction sites in South Africa? This can be attributed to many challenges such as discrimination, glass ceiling effect, inadequate education and recruitment within the industry. Lack of other female role models within the industry, as well as lack of mentors available could be one of the attributes in this phenomenon. Social attributes can be gender stereotypes, changing gender roles in society etc. Gender stereotypes are considered as one of the direct antecedents of discrimination at work according to Dovidio and Hebl (2005) cited by Duehr and Bono (2006).

According to Amaratunga and Haigh (2007) the construction industry is extremely male dominated and it is viewed as a highly gendered activity, it is hard for women to survive in the industry exhibiting the commonly associated female qualities with females. Prejudice attitudes towards female site engineers include the belief that women do not make good leaders since the model of a successful engineer is based on masculine traits (Burke *et al* 2001) cited by Cortis and Cassar (2005).

Due to South Africa's cultural diversity, some women are socialised to believe that they do not belong to non-traditional careers such as construction and are advised to rather follow 'soft skills' careers such as nursing etc. Their primary duties are to be nurturers of the family, their sole dedication must be in looking after their husbands and children, and the workplace is only reserved for their spouses. Putting women's roles in such stereotypical boxes is one of the hindrances that shorten the working life of female engineers on construction sites. So when women join the construction industry this is frowned upon, as they are not only joining the workplace but they are joining the construction industry.

One of the challenges that women face is that of striking the balance between family life and work. According to Ginsburg (2012) generally men are more willing to work longer hours, taking financial risks and relocating to remote areas. This can be attributed to the fact that

most men do not have social responsibility that woman are expected to perform, for instance taking care of the children and other family responsibilities.

According to (Bennet *et al* 1999) women with younger children are viewed as 'highly unreliable' by predominantly male employers. It is believed that construction employers are not sympathetic towards women who are mothers they think this prevents them performing their duties to the fullest. More needs to done by construction employers in creating policies that are equal beneficial to both male and female in providing supportive structures towards family/work life.

One of the reasons why female engineers are still not joining the construction industry or are leaving the industry earlier than expected is ''the image of the construction industry''. The industry is under-utilising the full range of skills and talents in the population because of continuing unequal opportunities for some groups within society. Therefore, creating inefficiency and ineffectiveness by projecting a non-pluralistic image, results in shrinkage in the pool of potential role players and customers of the industry (Dainty, 2001). The industry is regarded as the man's territory where women do not belong; if they try and join the industry they will be at the receiving end of discrimination.

According to (Bowen *et al* 2011) one way in which a male culture manifests (and perpetuates) itself in organisations is through discriminatory practises as unequal pay between male and females. That discrimination will manifest itself in many forms. These undermine, devalue and subordinate women's positions and maintain patriarchal structures Nicholson (1996).For instance a female site engineer will be assigned to what is known as 'a soft job' on site. A typical soft job is whereby a male colleague will be assigned to critical activities such as concrete works, shuttering, steel works, first fix plumbing, first fix electrical including all the brickwork and plastering. The female counterpart will just come right at the end to do all the finishes such as painting, final fix of plumbing and electrical works. In essence she is given all the activities that are perceived to be less challenging, because she is not considered as technically strong as her male counterpart. This behaviour manifests itself as a form of gender discrimination.

When it comes to discrimination and inequality the South African government has not turned a blind eye entirely. According to the Constitution of the Republic of South Africa, 1996, Section 9, schedule 6, this was passed to prevent and prohibit unfair discrimination and harassment, to eliminate unfair discrimination, prevent and prohibit hate speech. This Act

was passed post apartheid to deal with scars left behind by this system. This was not only aimed at eradicating discrimination towards male but it was for females. This is to ensure that no one is treated unfairly based on their gender, marital status, education, race, social background.

The Act has come a long way in dealing with these prejudices especial in industries such as finance, banking, government, however when it comes to the construction industry there is still a long way to go when it comes to women emancipation. The Act has worked to a certain extent but there is still a lot to be done to ensure that women are fully beneficiaries of such Acts. According to Court and Moralee (1995) without commitment to equal opportunities, women's entry into, and their support within the construction industry is unlikely to be redressed.

With low representation of female site engineers in middle management on construction sites this results in low numbers of women in management who can act as role models or mentors to younger women aspiring to take a similar career path. With more female managers acting as mentors/role models, they can assist in making the industry more appealing to younger women through various initiatives. The image of a construction site still resembles that environment that is filled with aggressiveness, hostility and unglamorous activities. In turn these factors intimidate women, making the construction industry less attractive to them; therefore they do not consider a career within the construction industry. This becomes a challenge because if you do not have women's entry to the field, then you are not going to generate enough female managers in a long run.

1.2 PROBLEM STATEMENT

The issues relating to women in construction exist internationally and, over the years they have been analysed from affirmative action Piper (2002) to cultural beliefs Hopkins & McManus (1998) job satisfaction and development Dabke (2008) and perception and professional acceptance Perreault (1992) and Enshassia (2008). In South Africa, following studies have been analysed, Verway (2005) looked at comparative analysis between SA and USA women entrepreneurs in construction, Mjolo-Mncube (2005) analysed opportunities for women in housing and construction, Mahlobo (2006) looked at challenges faced by women contractors in housing construction. However, not much emphasis has been put around hindrances that shorten the professional working life of female site engineers on construction sites in South Africa.

Since the country's first democratic elections in 1994 that resulted into South Africa gaining independence, many changes came along. Those changes came along with policy interventions such as the Constitution of the Republic of South Africa 1996 (Act 108 of 1996), Employment Equity Act (1998), Labour Relations Act, all these acts put emphasizes in that women need to participate in all spheres of the economy. However female site engineers on construction sites are still finding it difficult to optimise the benefits. The hindrances come in many forms of social/corporate ills such as discrimination, power & promotion struggle, lack of training & support, glass ceiling effect. To a certain extent these factors do contribute to a shorter professional working life of female site engineers on site.

1.3 PRIMARY RESEARCH QUESTION

1. What are corporate challenges that female site engineers are faced with on site within the construction industry in South Africa?

1.4 AIM

- To examine and investigate social and corporate hindrances that female site engineers are faced with on construction sites.
- Examine whether discrimination, cultural beliefs, under-representation of women and glass ceiling effect are main hindrances that shorten the professional working life of female site engineers on site.

1.5 OBJECTIVES

- To explore and examine issues such as discrimination, under-representation of women in construction, glass ceiling effect.
- To identify initiatives and campaigns that would prolong the lifespan of female engineers within the construction industry in terms of support systems.

1.6 PROPOSITION

Despite many policy interventions aimed at empowering women in all spheres within the construction industry, they are still at the receiving end of discrimination, gender inequality, promotion struggle etc. They are still leaving the construction industry earlier than expected without realising their full potential and assisting the construction industry in curbing skill shortages.

1.7 SCOPE

The study will focus on women who are currently working as site engineers on construction sites. The study will initial look at cultural, social and corporate challenges facing female site engineers on construction sites, statistical analysis of women employment within the construction industry. The terms corporate culture and construction culture will be explored extensively, followed by the investigation in the underrepresentation of women in construction as well as the factors that act as barriers to their participation in the industry. Lastly the South African legislation and strategies to retain female engineers within the industry will be explored in more depth.

1.8 METHODOLOGY

The aim of the research method to be used is to seek answers to the questions posed in above and to test the literature in chapter two. Research design is the strategy for answering the questions or testing the hypothesis that stimulated the research in the first place Pinsonneault and Kramer (1993). An extensive review of the literature related to the research topic will be done, that will include a survey of previous studies in the field. To test the hypothesis and achieve the objectives of the study the research methodology will be a qualitative method.

The qualitative research will be carried out through interviews and open ended questions with a selected number of women currently working as site engineers on construction sites and female engineers who have left careers on site to pursue other opportunities in consulting, property development etc., as well as construction industry employers.

Collected data will be analyzed and the findings from this analysis will be discussed and compared against literature reviewed. Conclusions will be drawn from the analysis and recommendations will be made for further studies relative to the subject.

1.9 ETHICS

The study strived for honesty in all communications, report data, results, methods and procedures. It avoided any bias in data analysis, data interpretation and other areas where objectivity is required.

1.10 RATIONALE FOR THE STUDY

It has been established that equipping women with construction related skills provides them with confidence to enhance their development DBSA, (2009). With analysing & investigating the above stated problem, the industry will be better prepared in addressing gender equality and providing equal opportunities for all. With the diversification of male and females in the construction industry, that can lead to more informed, adaptable organisations which are more closer to their clients, more responsive and in return they will be able to attract better quality employees.

With low presentation of women holding middle management positions on construction sites this results in low numbers of women in management who can act as role models or mentors to younger women aspiring to take a similar career path. With more female managers acting as mentors/role models, they can assist in making the industry more appealing to younger women through various initiatives. The image of a construction site still resembles that environment that is filled with aggressiveness, hostility, unglamorous activities. In turn these factors intimidate women, making the industry less attractive to them; therefore they do not consider a career within the construction industry. This becomes a challenge because if you do not have women's entry to the field, then you are not going to generate enough female managers in a long run.

1.11 STRUCTURE OF THE RESEARCH

Chapter 1: Introduction. This chapter provides the introduction to the current research at hand. It will comprise of the problem statement, hypothesis and objectives of the study, which are complimented by the background of the study.

Chapter 2: Literature review. This chapter will highlight and discuss hindrances that shorten the professional working life of female site engineers on construction sites in South Africa. Literature on past research conducted which is related to the study will be discussed as well.

Chapter 3: Methodology. This will discuss the methodology of the study adopted to suit the research at hand

Chapter 4: Data analysis. The data will be collected and discussed in greater detail in this chapter.

Chapter 5: Discussion of results. The findings will be discussed and compared to the literature reviewed in Chapter 2.This chapter will provide in depth analysis of challenges faced by female site engineers in the construction industry.

2 CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a review of the available literature pertaining to the research problem at hand. The research adopts a conceptual framework approach in identifying the key factors that contribute to female site engineers leaving their construction sites careers earlier than expected. The framework proposed incorporates three key components, namely:

- Socio-economic factors (under-representation of women in construction)
- Relationship between cultural and social backgrounds (work and family demands and discrimination)
- Corporate challenges/culture (glass ceiling effect)

The terms corporate culture and construction culture will be explored extensively. This is followed by the factors that act as barriers to their participation in the industry. Lastly the South African legislation and strategies to retain female engineers within the industry will be explored in more depth. In trying to uncover female engineer's experiences on construction sites, one needs to look at how the roles of females have evolved over the years and the influence of this background into their work experiences today.

2.2 CORPORATE CULTURE/CHALLENGES

2.2.1 Construction industry culture (defined)

Culture is commonly identified as a set of values, attitudes, beliefs, and meanings that are shared by the members of a group or organisation, and is often the primary way in which one group differentiates itself from others states Williams and Dobson (1993). Bodley (1994) simplifies culture as ''what people, what they do, and the material products they produce. Hofstede (2010) defines culture as the collective programming of the mind that distinguishes the members of one group or category of people from another. Essentially culture is what is learned and shared on daily basis.

Culture acts like a template and shapes behaviour and consciousness within a human society from generation to generation states Miraglia (1999). Serpell and Rodriguez (2002)further emphasise that it operates as a decodifier defining situations and words, and giving them new meaning.

2.2.2 Culture levels

According to Schein (1999) a common understanding of culture is by describing it as ‘’the way we do things around here’’. They believe culture can be observed and analysed from different levels, ranging from the highly tangible, to more deeply embedded, tacit and unconscious assumptions as indicated in Table 1 below.

Table 1: Different levels of culture, Source: Schein (1999)

Level 1	Artefacts	Visible organisational structures & processes (difficult to decipher)
Level 2	Espoused values	Strategies, goals & philosophies (espoused justifications)
Level 3	Basic underlying assumptions	Unconscious & taken-for-granted beliefs, perceptions, thoughts & feelings (ultimate source of values and action)

Level 1-Artefacts

This is described as simplest level to identify, for example when walking in to the organisation you can sense that they are unique on how they run the organisation on day-to-day basis. At this stage of observation it is not clear as to why organisations present themselves and dealings with each other in a particular way according to Weippert (2001)

Level 2- Espoused values

This is when one takes two similar organisations and observe their values, principles and ethics that their employers believe in.

Level 3-Shared tacit assumption

In trying to understand the deeper level of culture, a broader history of the organisation must be investigated. This is done by looking back at the initial values and beliefs developed by the co-founders of the organisation to make it a successful operation.

2.2.3 Construction culture

Research done by Abeysekera (2002) showed that within the construction industry, culture is considered to be about the characteristics of the industry, approaches to construction, competence of craftsmen and people who work in the industry, and goals, values and strategies of organisations they work in. Essentially culture in construction is about how things are done, by when, who is involved in carrying out certain task.

These perceptions of culture as applied to construction are consistent with the earlier generic definitions in which culture is seen as "what people think, what they do, and the material products they produce" according to Bodley (1994, p.14). The "culture" which exists within the construction industry may be very different to that which exists within other industries urges Barthorpe (2000)

Ankarh (2007) urges that even in construction project organisations there is culture that regulates the behaviour. Cherns and Bryant (1984) urges that the relationships between the parties within the client project organization is supplemented and moderated by informal understandings and practices which have evolved to cope with the difficulties that characterise construction projects. Another evidence that echoes the same sentiments is that of Dainty (2001) who examined its impact on women on construction sites, referring to a 'site culture'.

According to Michel (1998) construction industry is an integral part of any country's business environment with three types of personality's i.e. three industry cultures as indicated on Table 2 below.

Table 2: Construction industry personalities, Source: Michel (1998)

Construction industry	
Culture type	Personality
Undertakers	Simply leave everything alone- uninspired mourners'' of the past
Caretakers	Just flow with the tide and only take care of things that supports their immediate environment- ''if it aint broke don't fix it''
Risk takers(innovators)	The only ones who promote new technologies, new communication tools and who take on new challenges head on. Contradictory to the ''caretakers'' of the industry, risk takers ''will fix it even if it ain't broke''

He further explains that the construction industry's problems lie with all its participants, not just the ''hard hats''. Due to the lack of trust the construction industry has adopted the culture of being overly protective and overregulated, moving from risk takers to caretakers.

In a study, Greedy (1991) found that women with younger children were viewed as ''highly unreliable'' by their predominantly male employers. In agreement with this statement is Holan and Gilbert (1979) as cited in Ballout (2008), they claim that working parents as compared to non-working parents are more likely to encounter work-family conflict as both

domains may demand greater time and effort from these people. Site based employees, both professional and manual workers are usually subject to changing work locations, this can involve travelling substantial distances or periods away from home, a situation which can present serious difficulties in terms of transport and child-care (Greckol, 1987).

In a study by Evetts (1996) there is pressure on women working on construction sites to forgo or delay childbirth and for those who have children to hide their existence. Therefore the study expected participants with younger children to have different experiences compared to their counterparts with older children. Female site engineers who have gained acceptance within their profession found that this was frequently jeopardized by pregnancy states Greedy (1991). Understandably, some women become disillusioned about their situation and even have opted to leave the profession as a result (Greckol, 1987).

2.2.4 Organisational culture in construction

Women who are willing to join the construction industry face similar stereotypical behaviour as women in other industrial sectors. In this male dominated field there are added stereotypes regarding the nature of the profession and the professionals themselves, Langford (1995). Women who are joining the construction industry turn to fill the secretarial posts than the managerial and specialists positions. In his study, Evetts (1996) found that in case of management, particular individuals (men) were approached and 'invited to apply', a typical scenario of perpetuating 'jobs for boys'.

Organisational culture can be defined as a set of fixed assumptions that are held by the organisation, usually through informal networks, which are quite different from the public structure states (Bennet *et al,* 1999).

In essence it is about assumptions, norms, values and beliefs. In construction, male values are the norm i.e long working hours, competition, independence, full-time working) and are rewarded and the expectation is that career achievement is paramount (Dainty, 2001). Kvande and Rasmussen (1994) who studied male and female engineers on construction sites in six industries in Norway say that there are two 'ideal' types of organization, namely; *static hierarchies* in which older men control young men and maintain patriarchal power relations, and *dynamic network organizations* in which the dominant male group are young men who form alliances with 'new' women, who are 'like themselves' in work orientation and motivation. Kvande & Rasmussen (1994) further state that these young alliances usurp the

old men while women get on better in these organizations compared with static hierarchies (*ibid*.).Whereas Maddock & Parkin (1993) describe five gender cultures in construction.

1. Hierarchical organizations often have what they call ‘the barrack yard’, this culture is hostile to anyone who is ‘’weak’’, possessing very little institutional power.

2. The ‘locker room’ culture is an exclusion culture, usually of white males, frequently talking about sport and sex. Male outsiders can join the group through sport and sexual innuendo

3. The ‘gentleman’s club’ culture is polite and civilised and not hostile to women as long as they conform to clear role stereotypes, this paternalistic and gallant culture is common in consultant organizations in construction

4. The ‘smart macho’ culture is the one which managers feel under pressure to reach performance targets that they encourage excessively long working hours, this is the common feature of the construction industry

5. ‘Gender blind’ organisational culture, they are not common in the private sector of the construction industry but some individual construction managers may take a ‘gender-blind’ perspective

According to Bennet and Davidson (1999) women who seek a career in the construction industry are socialized into its culture through the education system and appear to actively seek that culture. Gale (1994) describes gender values as a continuum, ranging from male to female and suggests that women holding similar values are attracted to similar occupations. The reverse is also true; many women reject the construction culture as unacceptable, so too, do many men states (Bennett and Davidson, 1999).

Numerous research studies indicate that women who seek entry into male-dominated cultures either have to act like men in order to be successful, or leave if they are not adaptable to the culture, or they can remain in the industry without behaving like men but maintaining unimportant positions according to David and Cooper (1992). However, faced with this organisational barrier, some women still seem able to gain a higher degree of career satisfaction and optimism than their male counterparts, as they continue to enter formerly male roles states Nicholson and West (1988).

It is not all dark and gloomy, according to Kondola and Fullerton (1994) it is about acknowledging the differences between people and ‘’harnessing’’ those differences to improve production, creativity, and decision making processes. Women should still be accepted in the industry as different as they are, as they also provide an equally valuable contribution.

2.3 CORPORATE CULTURE/CHALLENGES

2.3.1 Corporate environment/culture

According to Sherriton and Stern (1996) corporate culture refers to the environment or personality of an organization with all its multifaceted dimensions. It is about how certain tasks are carried out. Corporate culture may be described as a general constellation of beliefs, customs, value systems, behavioural norms and the ways of doing business that are unique to each corporation, that set a pattern for corporate activities and actions, and that describe the implicit and emergent patterns of behaviour and characterising life in the organization states Schein (1985)

Hofstede (2010) suggests that corporate culture is equivalent to organisational culture, therefore it can be used interchangeably in the literature. A strong, unique, and appropriate corporate culture, in the view of Gale (1994), has the ability to:

- Reduce uncertainty by creating a common way to interpret events and issues
- Create a sense of order in that members know what is expected;
- Create a sense of continuity;
- Provide a common identity and a unity of commitment; and
- Provide a vision of the future around which the company can rally.

Corporate culture is one of the reasons for women’s absence from management and leadership positions within the built environment. With the construction industry, it is the culture that is male dominated, associated with aggressiveness and prejudices towards women. Gale (1994) states that the construction industry can be broken into several sub-industry cultures according to the size of the firm, and by the output type such as new build, housing, plant construction and civil engineering. Gale further argues that professional practises have cultures characteristics of their professional groups or culture (*ibid.*). For instance recruiting women who possess leadership skills into management positions, same

applies for women who are seen as macho and physical strong, they are seen as a perfect fit for foreman positions.

2.4 ASPECTS OF CORPORATE CULTURE

Corporate culture can be divided into four aspects according to Sherriton & Stern (1996) namely: (a) Ritualized Patterns (b) Management Styles and Philosophies (c) Management Styles and Procedures (d) Written and Unwritten Norms and Procedures.

2.4.1 Ritualized Patterns

Sherriton and Stern (1996) describe these as patterns of beliefs, values and behaviours shared by organization members. This puts emphasis on economic, political aspect of the organization, be it the relationship between customers and clients, colleagues, work ethics and how work gets done. From the construction perspective it is a hierarchy between the client, contractor, and subcontractors. It is how the construction industry implements its value engineering in getting things done in terms of providing the required product at the end of the project cycle.

2.4.2 Management Styles and Philosophies

Culture is also the environment that is created by management styles, philosophies and behaviours. According to Sherriton and Stern (1996) it relates to communication, decision making, motivation, coaching, innovation, planning, problem solving, accountability and other aspects of leadership. These are philosophies that drive management behaviour. For instance a managing director can outline his philosophy regarding his commitment in gender equality especially when it comes to women construction managers, but turns around and discriminate women based on their sex roles. This now becomes a contradiction towards what he stands for and to what he does and implement within the organization. The latter will be followed and remodelled regardless of his philosophy.

2.4.3 Management Systems and Procedures

This is another important aspect of corporate culture where the management environment created by systems, procedures, and policies is in place within the organization, Sherriton and Stern (1996). These can be stated or written, these are systems, policies and procedures that define the organisation's priorities. Kvande and Rasmussen (1994) go further and explain that this aspect of corporate culture deals about the structure of the organisation; who and what is celebrated and how often? What is measured and rewarded? It can go as far as outlining the

type of people to be hired, where do they learn about the organization? What is expected of them as new employees? What are the future career development plans? In the construction industry this will deal with policies such as normal time and over time hours, family/ childcare commitments and how flexible are the polices? Are they conducive ? Are they being implemented or they are just seen as lip service made by executives?

2.4.4 Written and Unwritten Norms and Procedures

According to Sherriton and Stern (1996), culture is created as much by unwritten norms and procedures as it is by written ones. They are often assumed and expected behaviours but there are no written policies explicitly stating them. An example of this may be at a construction site where everyone leaves late towards the end of the day or the foreman cannot leave before the contracts manager, these are not written policies but that's the general consensus. Whether these are written or assumed, they still contribute greatly to the defined culture.

2.5 RELATIONSHIP BETWEEN CULTURAL & SOCIAL BACKGROUNDS OF WOMEN

2.5.1 Gender stereotypes

A gender stereotype is an important basis of this study. In analysing gender stereotypes it is important to start by defining the concept of gender. The concept of gender has been of interest to scholars and researchers in recent time, especially those in the field of social sciences and humanities due to its different connotation and misused in different media states Helgeson (2005).

Gender is distinct from ''sex'' and refers to socially constructed and not biologically defined characteristics of human being, it refers to social construction of what is considered male and female based on socio-cultural norms and power urges (Ifegbesan, 2010). According to Ridgeway (2001) gender can be referred to as a social attribute that prescribes differentiated issues, responsibilities, expectations, norms and modes of behaviour to males and females. Gender roles are what we call femininity and masculinity, they deal with how we expect persons of a particular sex to behave or act within our culture (O'Leary and Ryan, 1994). Scholars such as Shannon (2007) state that the concept of gender role and gender stereotype tends to be related, he further states that gender roles are defined by behaviours.

According to Eagly and Steffen (1984) gender stereotypes like other social stereotypes, reflect perceivers' observations of what people do in daily life, if perceivers often observe a

particular group of people engaging in particular activity, they are likely to believe that that the abilities and personality attributes required to carry out that activity are typical of that group of people. They further state that if perceivers consistently observe women caring for children, they are likely to believe that characteristics thought to be necessary for child care, such as nurturance and warmth, are typical of women.

Another definition of gender stereotypes is adopted from the views about certain status beliefs. These beliefs consist of psychological traits and characteristics, including activities that are suited to men and women respectively. Status beliefs are defined as cultural beliefs that attribute a greater social significance and competence to one group (that is males) compared to the other (that is females) (Ridgeway, 2001). According to Shannon (2007) status beliefs are very influential, they affect conceptualizations of women and men and establish social categories for gender, these categories represent what people think, and even when beliefs vary from reality, the beliefs can be very powerful forces in judgements of self and others. A similar view is shared by Rudman and Phelan (2007) who states "gender stereotypes are cognitive structures containing knowledge, beliefs and expectations of the perceiver".

Gender role stereotypes are imposed when authoritative institutions in societies and individuals within societies share a common view about appropriate roles for men and women states Reeves (2010). Gender roles explain how men and women actually behave, but also suggest how men and women should behave, thus gender roles are both descriptive and prescriptive according to Cialdini and Trost (1998).

Descriptive and prescriptive stereotypes are not mutually exclusive; instead there is a great deal of overlap between the two, with the behaviour that is prescribed directly related to the attributes that positively describe each sex according to (Gupta *et al* 2009). Socialisation during childhood and adolescence, which is facilitated by parents, schools, peers and mass media, encourages adherence to gender stereotypes (Miller & Budd, 1999). In essence gender roles refer to cultural or social expectations of society embedded upon males and females.

Gender stereotypes exist in all societies, professions, careers, homes, schools, workplace and institutions. Different types of gender stereotypes exist; for instance there is self-stereotyping, school stereotyping and family/cultural stereotyping by gender. Heilman (1997, p 877) describes the gender stereotype as "a set of attributes ascribed to a group and believed to characterise its individual members simply because they belong to that group" . While Park

(1997) defines gender stereotypes as conceptions widely held by society that tend to associate certain sets of personality traits to one gender, and stereotypes also grant each gender type particular skills and behaviour whereas Shannon (2007) says that gender stereotypes are beliefs and attitudes about masculinity and femininity.

Ridgeway (2001) gives examples of such examples as she states that males are perceived to possess mechanical skills, while domestic skills are granted to females, Eagly and Steffen (1984) further emphasise that according to stereotypic beliefs about sexes, women are more communal (selfless and concerned with others) and less agentic (self-assertive and motivated to master) than men. These assumptions further perpetuate the stereotype that women are more likely than men to hold positions of lower status and power and women are more likely to be homemakers. Thus gender stereotypes are the attributes assigned to men and women simply by the virtue of their gender (Ngwako, 1999).

However a program of research by Eagly and Mladinic (1989) has compellingly demonstrated that although most people hold flattering stereotypes of women as helpful, kind, gentle, warm, and empathic, these beliefs may actually undercut perceptions of their competence. Glick & Fiske (2001) share the same sentiments, they have argued that perceptions of the warmth and competence of social groups are often inversely related and that 'benevolent' forms of sexism in which women are seen as warm (but not competent) serve to increase support for the system of gender inequality. Stereotypes are usual unfounded generalisations that are targeted to certain group members thus becoming basis of inaccuracy.

In South Africa and many other countries, females were previously perceived to be well suited for household chores and looking after the children rather than being in a workplace environment. Over the years women have tried fighting this gender stereotype; however it still exists in some spheres. Therefore it is likely that female site engineers from different races and backgrounds may have different experiences in the workplace.

A study in the US (Catalyst/Opportunity Now, 2000) show that across all cultures, managers perceived that women leaders outperformed men most at supporting others, men were perceived to be more effective at 'taking charge' and in almost all cultures, the male respondents perceived that male leaders outperformed women at problem solving. Basically men generally outperform women at influencing those in higher-ranking positions than themselves.

Stereotypes may lead to biased feelings and actions; they may also disadvantage others not because of what they are like or what they have done, but because of the group to which they belong to (Heilman, 1997)

2.5.2 Gender stereotyping in the workplace

According to Simard (2012) stereotyping is more likely to occur in multi-tasking situations, where people revert to 'cognitive shortcuts' and is more likely to occur under conditions of threat to our self image and self esteem; situations that can frequently arise in the context of receiving negative feedback in the work setting. Simard urges that another form of stereotyping occurs when there is a clear 'out group' member, such as a single woman in a male technical team, where the sole woman will be the subject of more stereotyping than the male members will (*ibid*.). Another example is that of tokenism, it leads to the majority of group members to treat a single woman in the group as representing all the stereotypical characteristics of the gender. In such situations the solo technical woman thus sees her work subjected to much more scrutiny than her male peers, and gender becomes a lens through which her work is evaluated. In context this leads to the performance of that woman being judged through stereotypical eyes.

The other form of stereotype manifests itself in certain types of jobs. According to Heilman (1997) the gender typing of jobs as predominantly masculine or feminine is referred to as gender-role stereotype and is common in society Miller & Budd (1999).

Expectations and beliefs concerning the qualities that men and women bring to their work often dictate the type of jobs that are considered appropriate for them, leading to a situation in which the requisite characteristics for some jobs are defined in terms of gender, and those become known as ''men's work or women's work'' states Heilman (1997). For instance stereotypes associated with building, law, medicine, commerce, finance are viewed as masculine whereas teaching, nursing and secretarial jobs are viewed as feminine. In organizational literature, middle management is believed to be 'manly business' while secretarial jobs are seen as 'woman's work' (Heilman,1997).

These stereotypical representations and valuations of what is men's work and women's work reflect and promote sex segregation in employment (Cejka and Eagly, 1999; Marlow and Carter, 2004). Usually the jobs that carry power, prestige and authority in society are stereotyped as masculine (Heilman, 1997). In general, characteristics considered essential for the business world tend to be masculine (*ibid*.); for instance, evidence suggests that business

is generally seen as a ‘man’s world’ and thus is believed to require characteristics that are stereotypically masculine, rather than feminine (Block and Simon, 1989).

These above mentioned stereotypes further perpetuates that women are seen as inferior to men on qualities perceived a necessity to be successful in the world of business. Even when women become managers and business leaders, they are generally seen as less competent and disinterested in taking up challenges (Northouse, 2003). A number of scholars such as Heilman (2001) assert that gender-role stereotyping of top management and executive level jobs as masculine is an important barrier to women’s career advancement. Thus substantial evidence confirms that managerial characteristics are more similar to typically masculine than feminine characteristics (Schein, 2001).

In discussing gender stereotypes, entrepreneurship cannot be ignored. In recent years the numbers of women entrepreneurs has increases dramatically (De Bruin *et al*, 2006). Empirical evidence indicates that still almost twice as many men as women become entrepreneurs, and that these differences are consistent across countries (Acz *et al*, 2005). Recent discussions in the entrepreneurship literature suggest that glaring and persistent differences between men and women’s entrepreneurial activity may be associated with gender characterization (Carter *et al*, 2001).

Scholars argued that socially constructed and learned ideas about gender and entrepreneurship limit women’s ability to accrue social, cultural, human and financial capital and place limitations upon their ability to generate personal savings, have credit histories attractive to resource providers or engage the interest of loan officers and venture capitalists (Marlow and Patton, 2005).

Scholars such as (Barol *et al* 2001) suggest that the masculine stereotype associated with business may not generalize to entrepreneurship because it has been traditionally male-dominated. Men own a larger share of businesses, as well as overwhelmingly outnumber women in industries like high technology that get the most notice from media, public and policy makers (Marlow and Patton, 2005). According to Ridge (2001) women entrepreneurs are concentrated in low growth and low-skilled business sectors such as retailing and service, which are pejoratively labelled as ‘mice’, ‘failure’, and ‘plodder’ compared with high-growth ‘gazelle’ businesses that are commonly associated with men. Most entrepreneur case studies are mostly about men (e.g. Bill Gates, Donald Trump, Sam Walton) and most role models in entrepreneurship tend to be men (Bird & Brush, 2001).

Powell (2002) urged that a comparison of people across three decades (1976 to 1999) found a little change in gender-role stereotype of a good manager having predominantly masculine characteristics. Some scholars have argued that the increase in the number of women in managerial positions over the last few years has led women, but not men, to see a resemblance between the characteristics of females and managers (Duer & Bono, 2006). This encourages other women to identify with female managers and to believe that one day they will be in the same position as well in the near future.

Empirical evidence confirms that as the number of women in management increases, women see a stronger relationship between characteristics of females and characteristics of managers, Schein & Mueller (1992). Thus, the increase in women managers may lead women, not men to believe that managers possess feminine as well as masculine characteristics (Powell, 2002).

Although stereotypes held by women about managerial and feminine characteristics may be slowly changing, men continue to see little similarity between manager and female characteristics according to Schein (2001). Past research provides abundant evidence that female managers are judged less favourably than male managers on a range of personnel assessments, including hiring, placement, performance assessment, and promotion (Cohen, 1998).

2.5.3 Gender stereotypes and women in construction

In construction the workforce is divided sexually and this relation is complex. For Gale (1994) there are relationships between motivation, sex role socialization and the structure of opportunities with respect to career expectations and vocational choice. Astin (1984) proposes four major principles of career choice and behaviour, linking work motivation, sex role stereotyping, and the structure of opportunity and career expectations.

This demonstrates the wide implications for theoretical knowledge necessary to interpret and intervene in the process of career choice. Ridgeway (2001) states that childhood events act as constraints on the potential for influences to cause change in an individual in later life. White (1995) deals with these questions in her study on the characteristics of successful women. Gale (1994), concerned with achievement motivation, states that factors associated with early childhood interactions cause boys to learn how to gain mastery over their environment and girls to learn to obtain help and protection.

In the study by Court and Moralee (1995) into gender issues in the building professions, revealed that almost half of the female construction students surveyed said that their decision to enter the industry were influenced by family or friends already in the industry with 34% being influenced by contacts already in the industry. With that said, most female site engineers are influenced by family and guidance teachers to join the industry; their decision has nothing to do with the gendering of the construction industry and sexual division of labour. Court and Moralee (1995) concluded that women currently in the building industry positively enjoyed the non-traditional nature of their career and that there was no general opposition to women-only activities.

Gender stereotyping for female engineers in construction begin at the recruitment level when they have to compete with their male counterparts despite the necessary qualifications and experience. According to Schein (2001), gender stereotyping of managerial position fosters bias against women in managerial selection, placement, and promotion and training decisions. This dilemma makes it difficult for women to wish for a successful career in the construction industry. It has been found that gender stereotypes are salient in organizations as a potential barrier to advancement (Duehr & Bono, (2005)

Since the construction culture is male dominated and it is viewed as a highly gendered activity, it is hard for women to survive in the industry when exhibiting the qualities commonly associated with females (Amaratunga & Haigh, 2007). The industry expects female engineers to adopt the male traits such as aggressiveness and masculinity (*ibid*.). Prejudice attitudes towards female site engineers include the belief that women do not make good leaders since the model of a successful manager is based on masculine traits (Burke *et al* 2001)

In a study done by Wilkinson (1992) on employers 'attitudes towards women in construction in relation to career path, 64% of the participants thought women would have to work harder than male engineers for a promotion. Wilkinson (1992) concluded that employers have higher expectations of women and therefore they are less likely to be promoted. He further stated that some employers still see women working on site as problem. While 80% agreed that women and men are equally as capable of running a site efficiently, 31% still thought that women would have difficulty in motivating the labour force, whilst 20% seemed reluctant to employ women in these positions (*ibid*.).

2.5.4 Traditional roles

Traditionally the role of an adult woman has been that of wife and a care-giver to the family. She will typically stay at home and do household chores and take care of the children while the man goes out and be a breadwinner for the household. A woman will be given away by her father to the suited husband, with the husband then taking the role of being a provider to her. The husband played an authoritative role to the wife and family and his decisions would go unchallenged. Neither the wife nor anyone else in that environment would dispute important decisions, for example with regard to the home, the upbringing of the children and the betrothing of daughters and sons, and so forth as these rested with the husband and him alone (White, 1995).

Dornbusch & Strober (1988) support the notion of women being in the centre of transformation in the home front as well as the public sphere and neither man nor woman must sacrifice family involvement for participation in society (Malone, 1998). The assumption that children need full time mothering has been challenged by feminists as having been used to justify a system that suppressed women's individuality within the constraints, such a system was not based on the real needs of the children but on the power of men as a group to define women in narrow terms (Dornbusch & Strober, 1988)

As the number of dual-earner couples are rising (Gyllesten & Palmer, 2005), with changes from the extended family structure towards nuclear families, the enormous increase in single parent families as well as the increase of women in the workplace occur, the potential role conflict in women's live has also increased, particularly the conflict between the dual demands of career and family (Ngoako, 1999). Role conflict occurs when two or more contradictory roles have to be simultaneously fulfilled (Malone, 1998).

Working women reported that the daily challenge of a wage earner and family caretaker left them feeling stressed, tired, unsupported, unacknowledged, and with sufficient time for their families, (Malone, 1998). From their study, Gyllesten & Palmer (2005) observed that women are particularly likely to suffer from role overload and that career-family conflict is one of the main sources of stress from working women.

The workplace has been less accommodating with the issue of dealing with changing roles of women. Many employers ignore the fact that female staff members have personal lives with demands that can affect their job performance Malone (1998). They are less willing to recognize multiple role pressures on working women. Time devoted to employment roles in

excess of the normal work day influences the time available to carry out family roles Bird (1984). According to Malone (1998) women often feel they must compensate for time lost with family or at work due to time spent on other competing demands and find themselves constantly playing catch-up.

However the expense of time and energy in one area seems to always carry with it the consequence of getting behind in the area, thus resulting in extra stress and realignment of priorities produce a new wave of guilt and frustration (Ametea & Cross, 1981).

In her study, Malone (1998) found that efforts to fulfil work-role demands interfere with an individual's ability to fulfil family demands and vice versus, then work-family conflict occurs. Carey (1990) explains that role conflict or strain is an expected outcome when one attempts to combine both career and family roles. However Crosby (1987) believes that one factor that seem to contribute to the successful combination of multiple life roles is emotional support of significant others, if a woman is to experience success at work and at home, it appears crucial that those on whom she relies for support encourage her strivings and applaud her accomplishment (*ibid*.).

Family responsibilities had played a major role in whether or not the women had accepted the jobs. Some of them had delayed accepting them until their children were older (ILO, 2004). According to the ILO (2000), family responsibility is an important feature of professions and especially construction work, since it sometimes requires long hours on site to gain experience and recognition, leading to women who want both family and a career have to juggle heavy responsibility in both domains.

The conflict between work and family obligations, that many construction professionals experience, is more acute for women than for men (Amaratunga *et al*, 2007). This was another variable in the study aimed at gauging whether female responses will differ according to marital status. This also gives a perspective on whether juggling family responsibilities and a career do impact on career growth and development in the long run.

The structure of the family also affects work performance, not every family has a nuclear unit structure that consists of a mother, father and children. Single parents do exist and they bear the brunt of doing double the job, emotional and financially. In another study done by Greedy (1991), He found that women in "traditional male professions" are not promoted further than middle management but are generally pushed horizontally into specialist areas. Berthoin and

Izraeli (1993), cited by Schein (2007) in an overview of women in management worldwide stated that "probably the single most important hurdle for women in management in all industrialised countries is the persistent stereotype that associates management with being male. Although women representation in managerial positions is gradually increasing, the phenomenon of women being restricted to lower levels, under the glass ceiling effect is still valid in many countries''(Genige *et al* (2007, p 436).

2.6 WOMEN EMPLOYMENT WITHIN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

According to South African census done in Stats SA (2011) women make up 52 percent of the adult population in South Africa, they make up only 41 percent of the working South African population. The contribution of women in construction employment decreased in recent quarters 116 000 in Quarter 3 to 110 000 in 2010 Quarter 4, indicative of a 5,2% contraction from 2009 Quarter 4 there has been a 22% decline in the number of woman employees in the construction sector to date (State of the South African Construction Industry, 2011).

The numbers indicate low participants of women in South Africa within the construction industry. In Zimbabwe the situation is not noticeably different; of the 105,567 persons formally employed in the construction sector in 1999, only 6.3% were women and they mainly operated at the menial level CSO (2002). This employment pattern of women seems to be quite similar in other countries as well. In the Czech Republic 2.7% of entrepreneurs in the construction sector were women in 2007 (Putnova, 2007). Furthermore, 4.55% of influential positions in the construction business were held by women in that country (Putnova, 2007).

In Singapore the Labour Force Survey reported that women constitute 42% of the local labour force, but only 15% of the construction industry's local labour force are female (Ministry of Labour, 1999). This trend is also observed in other countries, whereby the construction workforce remains overwhelming male (Dainty, 2001).The table below shows women's participation in the construction industry in different parts of the world Wells (2000).

In a study done by Wilkinson (1992) on employers attitudes towards women in construction in relation to career path, 64 % of the participants thought women would have to work harder

than male engineers for a promotion. Wilkinson (1992) concluded that employers have higher expectations of women and therefore they are less likely to be promoted. He further stated that some employers still see women working on site as problem. While 80 % agreed that women and men are equally as capable of running a site efficiently, 31% still thought that women would have difficulty in motivating the labour force, 20% seemed reluctant to employ women in these positions.

Table 3 :Women's participation in the construction industry in different parts of the world, Source: Wells (2000)

	Women in paid employment in construction as a percentage of the total (various years, 1995-2000)	Women in production job as a percentage of the 'economically active' women in construction (various years, 1990-1995)
Latin America (10 countries)	5.0%	9.6%
Western Europe (8 countries)	7.6%	11.2%
Sub-Saharan Africa (6 countries)	5.6%	N/A
Asia:		
Thailand	17.9%	95%
Bangladesh	7.8%	88%
Sri Lanka	12.2%	78%
India	5.7%	N/A
Pakistan	1.3%	N/A

2.6.1 Underrepresentation of women in construction

According to Adeyami (2006), research efforts into women participation in construction in the developed countries have revealed empirically quite a number of socio-economic and cultural constraints inhibiting women's entry into construction. The construction industry is still a male dominated industry, recognised by providing limited opportunities to women entering the industry. The construction industry is only starting now to develop initiatives aimed at increasing the representation of women within the sector. In a Department of Labour report (2005) total employment increased by 22% between 1995 and 2005, with females accounting for 55% of the growth in total employment, substantially in excess of their share of employment in 1995 of 39%. It further states that the average annual growth in employment between 1995 and 2005 was 2,6% corresponding to the greater growth in

employment for females during the period, the female average annual growth rate was 3,5%, while for males it was just below 2%.

However, it must be taken into account that female employment started from a much lower base in 1995, compared to male employment. As demonstrated above, the number of women entering the workforce has increased significantly, that growth is seen in certain sectors such as education, health, banking, insurance and retail. However, the total female employment growth in the secondary sector (manufacturing, utilities, construction) averaged 3,3% per annum, slightly below the aggregate average growth rate of 3,4% in employment in the secondary sector.

Women employed in the construction sector at that time were at 6.3% compared to the males at 93.5%, this signifies that women are entering the industry at a lower rate than their male counterparts, meaning the industry is still very male dominated. However the numbers are shocking in regard to the professional number of women employed in the construction industry in South Africa. A report from South African professional registration (2008) indicated that women represented only 20% of the architecture profession, 12% of quantity surveyors, 2% of civil engineers, 3% of project managers and 0.6% of site engineers.They further elaborate that in 1988, less than 7% of the full time construction industry workforces in Britain were women. This shows that women are not only under-represented within the industry but that their distribution throughout the industry is highly skewed, with almost two thirds working in secretarial or clerical roles (Madikizela, 2008). Further differences between men and women indicate that female input is not as efficient as male input because their skills are not utilized in areas where they could make a significant difference to the production levels of the industry (Fielden, 1999).

The Equal Opportunities Commission (EOC, 1995) stated in its annual publication that ‘women continue to be significantly underrepresented in the primary sector (agriculture and energy and water), in most manufacturing, in transport and communications and, in particular, in the construction industry. Over the years there have been studies by researchers looking at the underrepresentation of women in the construction industry, (Gale *et al* 1994). Thus the lack of women in construction has been a concern for many years now (Amaratunga & Haigh, 2007)

The UK construction industry is busier now than it has ever been for a decade and is suffering from skills shortage in both craft and manual trades such as bricklaying, plumbing

and painting, and at the professional level, in engineering, quantity surveying and estimating (Whittock, 2002). The matter of women participation in the construction industry has attracted some attention, which has prompted the government and the private to take action certain initiatives that encourage women to join male dominated fields.

Even though researchers have focused on how to improve the participation of women in the construction workplace the objective seems to be to solve the labour resources crisis and skill shortages than to improve equal opportunities for women (Agapiou, 2002). According to Haigh (2007), despite the number of recent recruitment initiatives, the industry has failed to make significant progress in recruiting more women. It can be seen from Figure 3 below where the number of women working in the construction industry has remained constantly low.

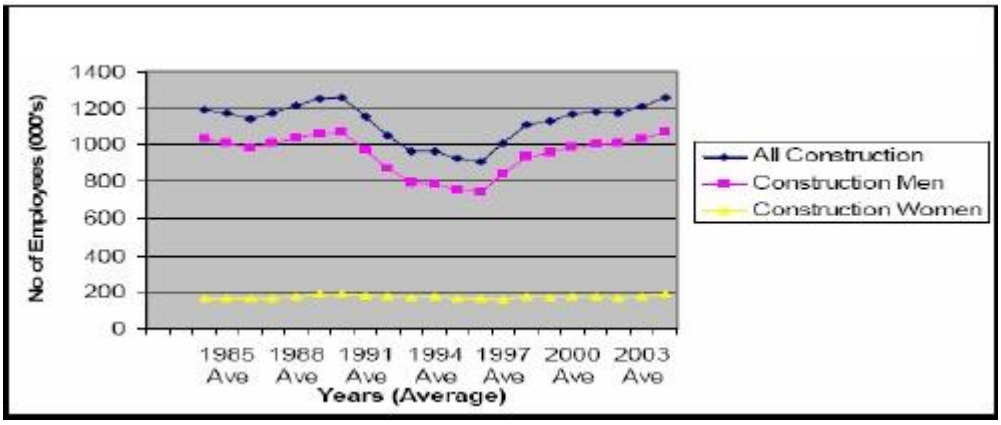

Figure 2: Employment jobs in the UK construction industry 1984-2004, Source of national statistics 2004

The graph above is the clear indication that women are still underrepresented in the construction industry. This lead to this particular question: what could be the cause of this?

2.7 Barriers to women's participation in construction

One of the significant reasons is the barriers facing women working in the construction industry. The following section discusses those barriers limiting women within the construction industry to reach their full potential.

2.7.1 Education and recruitment

After 18 years of democracy in South Africa, the construction industry is a perfect example of an industry that has struggled with transformation into one that is more representative of women. Qualifications and recruitment methods in the construction industry are one of the

contributors to such under representation. The past apartheid government policies made it difficult for women to further their education, thus restricting them from working in various sectors of the economy (Rowena, 1997).

This has resulted in many women not gaining access to quality education, resulting in them not getting tertiary qualifications. Women in construction have not been immune to these challenges regarding qualifications. Most site engineer positions within the construction industry require completion of a tertiary education. According to Betz (2004) the nature and level of education obtained by anyone is crucially related to their subsequent career achievement, their adult socio-economic status, lifestyle, income level, as most employees earn more with increasing levels of education.

Evidence demonstrates that the persistence of gender inequality in construction effects women's recruitment, retention and progress and is largely attributable to cultural and structural barriers (Sang & Powell, 2012). Given the perceived long-term trend of recruitment problems in the construction industry, the importance of attracting more women to construction makes economic sense, apart from the fundamental issues of women's rights and equitable status in society (Gale, 1994). The construction industry in South Africa is the 3rd most male dominated after mining and manufacturing, it appears to exhibit the greatest discrimination in relation to the recruitment of women.

Most women in construction are employed as secretaries, clerks and safety officers. According to (Court *et al* 1995) in managerial and administrative category women are concentrated in specialist positions (including personnel and public relations) rather than main team management. Majority of construction companies consider women suitable for traditional jobs such as nursing, teaching etc. Greedy (1991) found that most recruitment brochures and many professional talks given seem to relate only to male work patterns with no reference to opportunities of career breaks for women in construction.

According to Davidson & Cooper (1992) frequently women are deterred from applying for jobs within the construction industry by informal recruitment procedures, advertisements and brochures displaying images, which reflect masculine values and interests, unstructured interviews, discriminatory selection criteria and sexist attitudes. She further observed that women seem to be recruited in different criteria, in that employers have different expectations of them i.e. to meet short-term 'manpower' shortages, this becomes typically when women reach their late twenties when professional qualifications are complete. This is cemented by

the study done by Wilkinson (1992) where he concluded that some employers still see women working on site as a problem, while others agreed with it in principle.

While 80% agreed that women and men are equally as capable at running a site efficiently, 31% still thought that women would have difficulty in motivating manual labour.

It can be argued that recruitment of female site engineers into the construction workforce is the solution to bridge the skills scarcity in the industry while contributing to gender equality and enhancing diversity. Therefore providing able skilled labour through the employment of women on sites will facilitate an improved rate of construction and quality of building (Ridgeway, 2001). (Loosemore *et al* 2003) have asserted that fair treatment of all employees should be the cornerstone of good employment practice within the construction industry. However, Henwood (1996) has cautioned that the business case encourages women employees to be seen as a last resort to be employed during times of skills shortage. This feeds into increased vulnerability for women, particularly during times of economic crisis (Government Equalities Office, 2009).

2.7.2 Glass ceiling effect

Glass ceiling effect is defined as artificial barriers to advancement of women and minorities; it is that invisible barrier that keeps women from rising to the upper ranks of the corporate ladder (Federal Glass Ceiling Commission, 1995). A lot of women relate with this term because it captures their frustration in the workplace, it prevents them from getting to the top. According to Morrison & Von Glinow (1990) the glass ceiling is that hindrance that is so subtle and transparent, yet so strong that it prevents women and minorities moving up from management to the executive hierarchy.

Morgan (1998, p .18) describes it ”as cases in which women begin their careers on an equal footing with men, and either lose ground gradually over time, or continue to progress on par with their male counterpart until, at some point, their progress is blocked” . More women are encouraged to follow their career paths; they are no longer expected to conform on what a woman in a workplace should behave like. However they still encounter challenges such as glass ceiling that hinders their success towards career advancement. Oakley (2000) states that corporate policies and practices in training and development, promotion and compensation are often identified as major components of the glass ceiling.

Success of few women who have risen above their male co-workers are characterised as being adaptive and proactive, working long hours, capitalizing on performance expectations and devising a self management style that does not conflict or threaten their co-workers (Ragins, 1998). The glass ceiling research timeline indicated in Table 4 provides a better understanding of the glass ceiling phenomenon.

Table 4: Glass ceiling research timeline, cracking the glass ceiling, Source Catalyst (2008)

Glass Ceiling Research Timeline	
Period	Highlight
1985-1986	Glass ceiling terminology introduced and first coined (Hymowitz and Schellhardt, 1986)
1986-1990	Research focused on documenting the effects and proving the existence of glass ceiling (Morrison and Von Glinow, 1990)
1991-1995	Research focused on describing the glass ceiling phenomenon and the importance to organizations and to society as a whole (DOL, 1991,1992,FGCC,1995, Naff ,1995)
1996-2000	Research focused on developing approaches to shattering the glass ceiling, such as mentoring (Catalyst, 2000; Morrison & Von Glinow,1990;White 2007).
2001-2005	Research focused on examining if the glass ceiling still existed and exploring the glass ceiling as a global phenomenon (Cotter et al.,2001;Lockwood, 2004; Naff, 2001)
2005-2008	Research focused on reassessing progress in cracking the glass ceiling, international research, and alternative views. Strategies to address the glass ceiling focused on changing organizational culture rather than fix the person or human capital excuses (Browne and Misra, 2003;Catalyst, 2008;Combs, 2003)

2.7.2.1 The Glass ceiling effect in construction

The increase in number of women entering the construction industry does not necessarily mean that women are rising to middle management and senior positions. The industry is well aware of the existence of the glass ceiling effect that hinders the growth of women in their positions. As much as companies acknowledge the existence of such, there is less action taken to address this corporate culture challenge in construction.

The implementation policies taken to eliminate this effect is moving at a slower pace, one can argue and say this is due to a number of barriers that hinder a successful path of women with construction sites. Existence of glass ceiling suggests that men believe that they are losing their competitive edginess; they are losing their contribution as a result of promoting women into management positions within the construction industry.

One of the notable trends as well is that the CEO's in the construction industry play a supportive role in the background to women in engineering positions, they let them be their own voices when it comes to advocacy for change. According to Ragins (1998) CEO's remain in the background of female career guidance; their intent is largely on being a supporter, but not a teacher of how to succeed in the workforce. This corporate culture trend in the industry is allowing women to solve their own problems, without the interference of CEO's and shareholders. Therefore women are left with the task of helping themselves towards their own career advancement.

The above mentioned may seem to be a proper way of doing things for CEO's; however this norm quickly transfers to lower management. In male co-workers in lower management displays these unsupportive attitudes towards women in engineering positions. This unsupportive behaviour coupled with other discriminatory acts towards women becoming leading site engineers within the construction industry fuels the effects of glass ceiling. Women view this as one of the hindrances in their career development.

2.7.2.2 Consequences of glass ceiling in construction

It is evident that the number of female site engineers in construction is relatively lower than that of men. Whether they are removed from the industry by unsupportive polices or they leave voluntarily, the small numbers of women that stay on top signals the existence of glass ceiling. The ceiling effect makes it difficult for women to climb the corporate ladder from middle management position to the next senior position. These effects eventually results into reduced numbers of female site engineers within the construction industry. These reduced

numbers of female engineers deters the ambitions of young women in junior positions who aspire to be in those positions one day. They find themselves outnumbered in the industry and they struggle to be part of the network society that will lead them to the next level of management.

Women often work harder than their male co-workers as to eliminate the perception that they are less incapable than men. According to Ragins (1998) this becomes especially relevant when there are first females to enter that position, believing themselves to be seen as a test case for other women in the future''. Just because there are all these challenges facing women on construction sites, it does not mean that they must stop trying to stand up for themselves. It is important for women to stand up for themselves and what they believe in, at least in that way they may crack the glass ceiling.

2.7.3 Discrimination

Women's increasing acquisition of higher level qualification has been hailed as the success story for women in 1990s (Walby, 1997) hence there are more women are taking professional construction positions on site. However women continue to be under represented in most sectors of the economy, with the construction industry being one of the oppressors when it comes to this phenomenon. Time and time, discrimination has come up as one of the reasons on why women are still under represented.

Sex discrimination refers to cases where a person may be denied opportunities for employment or engaging in certain activities on the basis of their biological sex (Albertyn, 2003). According to Nkuna (2010) sex discrimination is divided into two, direct and indirect sex. Nkuna (2010) further give examples that give rise to direct sex discrimination for instance, a man with less experience and no qualifications than a woman is given a promotion regardless of a woman having more experience and qualifications. A woman is demoted when she returns to work after taking time off for maternity leave.

Ridgeway (2001) defines indirect sex discrimination as policies and practises that disadvantage one's gender considerably more than another, although it may seem to apply to both sexes equally. For instance, any benefits due to a length of service may work against women who have taken time out from work to raise children

In South Africa, the Equal Pay Act of 1970 falls under the anti-discrimination acts that were introduced together with, The Employment Equity Act of the Republic of South Africa, 1998

(Act 55 of 1998). The purpose of the Act is to eliminate unequal pay between man and women especially in cases where they are performing similar work.

In terms of section 1(5) of the Equal Pay Act, the concept of 'rated equivalent' is defined as: A woman is to be regarded as employed on work rated as equivalent with that of a men if, her job and their job have been given an equal value, in terms of the demand made on a worker under various headings (for instance effort, skill, decision), on a study undertaken with a view to evaluating in those terms the jobs to be done by all or any of the employees in an undertaking or group of undertakings, or would have been given an equal value but for the evaluation being made on a system setting different values for men and women on the same demand under any heading.

According to Mamashela (2011) the Equal Pay Act of 1970 of South Africa mirrors the United States' Equal Pay Act of 1963; they were both established to rectify the wage gap between man and women. In a comparison study of Britain, Germany, Luxembourg, Spain and the US, Robson (1999) it shows that low pay was considerably more extensive amongst women than men. In each country, more full time women workers than men were low paid in every industry with two exceptions: the finance industry in the US and community and personal services in Spain (Robson, 1999). In the UK, women in full time employment earn on average 82% of the average hourly pay of male full time employees Women and Equity Unit (2004). South Africa is no exception, according to ILO data (2011) the country has one of the most unequal scales in the world, and it fell at the 38th position with a pay gap of 4.4%. Unequal pay is not only a challenge for long earning women as Rubery (1998) argues that it exists also among highly skilled and high earning professionals.

In an article published by the newspaper (Star, 2011), Director of Employment Equity, Ntsoaki Mamashela proposed amendments to the labour law, specifically the Equal Pay Act. According to Mamashela, the new clause will deal with unfair discrimination by employers in respect of employees doing the same work or similar work or work of similar value (*ibid*.). He further argues that the difference in pay and conditions of work between employees performing the same work will amount to unfair labour practise unless the employer can justify such relating to experience, skill, responsibility and qualification.

Despite the intervention of the above mentioned polices, pay discrimination is still one of the biggest challenges facing women in engineering positions in the construction industry. For instance one may have both female and a male site engineers performing the same duties,

with the same experience and skills however, when it comes to remuneration the woman is paid less based on the fact that she is woman therefore she is perceived to be less deserving than his male counterpart financially. However this serves as one of the demotivating factors for women, some of them end up leaving the industry based on unequal pay.

Despite an increase in entry of women to these positions, the earnings gap between man and women is wider. Even when women have completed their formal education there is discrimination on remuneration (Bentley & Adamson, 2003). In a study done Women and Work Commissions (2006, p. 30) in the UK, they came to this conclusion about pay discrimination:

"Closing unequal pay for female site engineers within the construction industry remains one of the biggest challenges facing the government and the private sector, however it must be noted that there has been some progress in implementing Equal Pay Act in eliminating the salaries gap over the past few years, but the progress is still slow".

2.8 LEGISLATION

South Africa has emerged from history that was filled with injustices such as apartheid. This historical legacy of patriarchy influenced essential informal and formal human relationships with a marked impact at the workplace (Kornergay, 2000). So since the first democratic elections in 1994, South Africa saw an introduction of the Constitution, the Bill of rights. It is in the section on the Bill of Rights, that 'equality' is specified and enshrined. Section 9(3) of the constitution provides that the State may not unfairly discriminate directly or indirectly against anyone on one or more grounds, including race, gender, sex etc. Eradicating all forms of discrimination in the labour market is one of the fundamental objectives of the Government (Phaahla, 2000).

2.8.1 The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)

The purpose of the constitution of South Africa is to heal the injustices of the past caused by apartheid and to afford the citizens of the country with equal right and ensure their protection by law. The constitution was promulgated into effect on the 4th of February 1997 by Mr Nelson Mandela who was the President of the Republic at that time, with the exception of some financial provisions that were delayed till the 1st of January 1998, replacing the Interim Constitution of 1993.

The process of drafting the constitution involved many citizens of South Africa, by far the largest public participation. Marking the end of apartheid era, two years of intense negotiations between political parties, ordinary citizens and civil society at large, the Constitution of the Republic of South Africa, 1996 (Act 108 of 1996) was born. This means that the constitution is the representative of South African citizens, judged by the general consensus that was reached. Since its inception, the constitution has been amended sixteen times, this is to ensure that the constitution has some credibility and is accepted by the citizens of South Africa.

The constitution is a social contract, resulting from, among others, ordinary peoples struggles and it must be therefore be honoured by both government and the people, it must be protected and advanced as an instrument of social transformation, so that majority of South Africans identify with it and willing to mobilise in its defence if required (De Vos, 2010). Relevant to this study is Chapter 2 (Section 9) of the constitution, the bill of rights. This consists of civil, political, economic, social and cultural human rights of the citizens of South Africa. Section 9 states clearly that everyone is equal before the law, any form of discrimination including race, gender, sex, pregnancy, marital status, ethnic or social origin, culture, sexual orientation, age, conscience, belief, language, birth is prohibited. The bill of rights is the most important aspect of the constitution. It deals with the rights of all people in the country and it upholds values of human dignity and equality to all.

As stated in the constitution, bill of rights is introduced as ‘’cornerstone’’ of democracy that enshrines the rights of all people in the country and affirms the democratic values of human dignity, equality and freedom. This chapter promotes equality among all citizens, ensuring that unfair discrimination based on gender is prohibited.

Ruth Bader Ginsburg, an Associate Justice of the Supreme Court of the United States came under a spotlight after expressing her views about South Africa’s constitution in relation to Egypt. According to Ginsburg (2012 p. 31) “South Africa’s constitution is so unique, is its inclusion of positive rights, in addition to freedom from discrimination, including on the basis of sexual orientation, disability or religion, and freedom of speech, under chapter 2 of the constitution, South Africans have the right to make decisions concerning reproduction, form a political party or form and join a trade union”. When she was asked about what model should Egypt use when drafting its constitution, in her answer “I would not look to the U.S Constitution, if I were drafting the Constitution, I might look at the Constitution of South

Africa". Ginsburg is not alone in her views; Sunstein (2000, p. 10) a legal scholar is currently running the White House Office of Information and Regulatory Affairs has called the constitution of South Africa "the most admirable constitution in the history of the world" . As much as the South African constitution is regarded among the best in the world, very few citizens understand it, let alone exercising their rights and holding those responsible into account. However, the constitution still gives its citizen some recourse to demand government action when it comes to economic, social and civil matters.

2.8.2 Labour Relations Act (LRA), Act 66 of 1995

The act was established in 1995 as amended by Afrikaans Labour Relations Act 1998 amendment, Labour Relations Act 1998 amendment, Labour Relations Act 2000, and amendment Labour Relations Act 2002. The act is applicable to employers, employees, trade unions and employer's organisation with the exception of South African National Defence Force, the National Intelligence Agency and the South African Secret Services. As stated on (LRA, 1995) its purpose to advance economic development, social justice, labour peace and democratisation of the workplace. It gives effect to Section 27 of the constitution.

The act regulates the rights of the unions and promotes collective bargaining within the organisation. It also acknowledges the CCMA (Commission for Conciliation, Mediation and Arbitration), Labour Appeal Court as superior courts for matters arising from this act. These institutions are there to curb unfair labour practises and address unfair discrimination in the work place. Trade unions are included in the constitution of South Africa meaning any employee has a right to join a trade union and they have a right to participate in a collective bargaining and a protective strike.

2.9 CONSTRUCTION CHARTER

After several concerns from the government regarding the lack of transformation in the construction industry, the construction charter was created in 2006. This was in recognition of unequal opportunities that exist within the construction industry. Its aim is to address challenges facing Black Economic Empowerment in the construction sector, including vast inequalities in control and ownership, declining investment in depleted skills base and inadequate working conditions Charter (2006)

The charter committed to these following targets between 2010 and 2013. Regarding ownership their target by 2013.

- 30 % economic interest held by black people and 30 % participation by blacks in voting rights
- 10% economic interest held by black women and 10 % participation by black women in voting rights
- 10% economic interest held by broad based groups, specifically black employees

Regarding control when it comes to black people and black women in particular, the sector is committed to achieve the following targets by 2013.

- 40% black people at board level
- 20% black women at board level
- Between 2010 and 2013
- 25%/ 40% black people at executive management level
- 10%/ 10% black women at executive management level

Regarding employment equity between 2010 and 2013, the targets are;

- 25%/40% black people in senior management
- 10%/16% black women in senior management
- 30%/ 40% black people in middle management
- 12% 16% black women in middle management

The construction charter has worked to a certain extent in bringing transformation to the industry however the representation of women in management position is still low.

2.9.1 Gender Policy Framework

In South Africa, women have been on the receiving end in relation to inequality in all spheres of their lives, be it government, business society or their homes. Government has a vital role to play in levelling the ground for women when it comes to equality. The construction

industry is the perfect example of the sector that stills lags behind in terms of transformation and equal opportunities between men and women. There has been success in other industries such as medicine, education, technology etc., however not much has been achieved in construction as far as gender equality is concerned. Gender equality manifests itself in numerous ways, these include differences between man and women in respect of, among others, access to opportunities, resources and tools of economic advancement and access to basic human rights Hangana (2006).

The GPF attempts to ensure that the process of achieving gender equality is at the very centre stage of the transformation process in South Africa within all structures, institutions, policies, procedures, practises and programmes of government, its agencies and parastatals, civil society and private sector Kornegay (2000).

According to the (Gender Policy Framework, 2000), their main objectives are:

- Create an enabling policy environment for translating government commitment to gender equality into reality
- Establish policies, programs, structures and mechanisms to empower women and to transform gender relations in all aspects of work, at all levels of government as well as within the broader society.
- Ensure that gender considerations are effectively integrated into all aspects of government policies, activities, and programmes
- Establish an institutional framework for advancement of the status of women as well as the achievement of gender equality; and
- Advocate for the promotion of new attitudes, values and behaviour, and culture of respect for all human beings in line with the new policy

The policy only applies to all government departments, provincial administrators, local structure, parastatals and other public entities.

2.10 Conclusion

Higher numbers of female site engineers deserting their careers on construction sites is a serious challenge faced by both government and private sectors. It becomes a countless effort if there is an increase in recruiting female site engineers when they are not supported, utilised

and retained once they start working on construction sites. The organisational culture in the construction industry is still not conducive to the female participation of female engineers thus contributing to the declining retention levels. The above literature demonstrates that discrimination has not disappeared in construction however it has manifested itself as another aspect of organisational culture in construction. These cultures get filtered into the system in such that they are hard to recognise and eliminate thus becoming acceptable to the industry. By breaking stereotypes and barriers coupled with initiatives such as flexible/open relationship working practices, equal opportunities policies and mentoring programmes, more female site engineers can be retained on construction sites. This can assist construction companies with transformation that will support gender inclusiveness of female engineers in the industry.

3 CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The aim of the research method to be used is to seek answers to the questions posed in chapter one and to test the literature in chapter two. Research design is the strategy for answering the questions or testing the hypotheses that stimulated the research in the first place, Pinsonneault & Kraemer (1993). The purpose of any research is to add value to the body of knowledge that already exist or adding something new that will improve the existing studies. This chapter provides details of the methodology that will be employed in analyzing the data that is collected during this research. This is an exploratory study in nature, which seeks better understanding on hindrances that shorten the professional working life of female site engineers on construction sites in South Africa? Key issues and key variables will be determined A brief summary of demographic details of the sample is represented. The purpose of the demographic questionnaire and interview schedule was to give a description of the sample in the study and establish different themes

3.2 Defining what research is

According to (Booth *et al* 2003), research is about gathering information in order to answer a question that solves the problem. Research requires the application of various objective methods and techniques to formulate knowledge urges Welman and Kruger (1999). However according to Leedy & Mellville (2005) the purpose of research is to gain informative answers with the assistance of data, which is related to the problem.

There are two types of research data namely, qualitative and quantitative. Qualitative research provides an illumination and understanding of the complex psychological issues that are most useful for answering humanistic explanatory questions such as why or how Marshal (1996). This data includes any information that is not numerical in nature, qualitative research, on the other hand, is concerned with collecting and analysing information in as many forms, chiefly non-numeric, as possible. It tends to focus on exploring, in as much detail as possible, smaller numbers of instances or examples which are seen as being interesting or illuminating, and aims to achieve ‘depth’ rather than ‘breadth’. (Blaxter *et al* 1996). According to Pope (2000) qualitative research is a scientific research that consists of an investigation that seeks answers to the question, systematically uses a predefined set of procedures to answer the question, collects evidence, produces findings that were not determined in advance, produces findings

that are applicable beyond the immediate boundaries of the study. However a simpler version is offered by (Nkwi *et al* 2001), qualitative research involves any research that uses data that do not indicate ordinal values. Qualitative researchers are interested in understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world. Merriam (2009). Whereas with quantitative data is information that can be captured numerically. Aliaga & Gunderson (2000) describe quantitative research as explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics). Quantitative research is based more directly on its original plans and its results are more readily analysed and interpreted Hughes (1996). This type of data is often collected in experiments, manipulated and statistically analysed. Quantitative data can be represented in a form of graphs and charts Van Wagner (2009). Neuman (1994) clearly differentiate between the qualitative and quantitative methodologies as tabulated in Table 5 below.

Table 5: Differentiation between qualitative and quantitative methodologies, Source Neuman (1994)

Quantitative method	Qualitative method
Objective is to test hypotheses that the researcher generates.	Objective is to discover and encapsulate meanings once the researcher becomes immersed in the data.
Concepts are in the form of distinct variables	Concepts tend to be in the form of themes, motifs, generalizations, and taxonomies. However, the objective is still to generate concepts.
Measures are systematically created before data collection and are standardized as far as possible; e.g. measures of job satisfaction.	Measures are more specific and may be specific to the individual setting or researcher; e.g. a specific scheme of values.
Data are in the form of numbers from precise measurement.	Data are in the form of words from documents, observations, and transcripts. However, quantification is still used in qualitative research.
Theory is largely causal and is deductive.	Theory can be causal or non-causal and is often inductive.

Procedures are standard, and replication is assumed.	Research procedures are particular, and replication is difficult.
Analysis proceeds by using statistics, tables, or charts and discussing how they relate to hypotheses.	Analysis proceeds by extracting themes or generalisations from evidence and organizing data to present a coherent, consistent picture. These generalisations can then be used to generate hypotheses.

Denzin (2000) states that quantitative and qualitative research methods differ primarily in their analytical objectives, types of questions they pose, types of data collection instruments they use, forms of data they produce, degree of flexibility built into study design. Table 6 demonstrate a more in-depth theoretical treatment of the differences between qualitative and quantitative research.

Table 6: In-depth theoretical treatment of the differences between qualitative and quantitative research, Source Denzin (2000)

Comparison of quantitative and qualitative research approaches	Quantitative	Qualitative
General framework	Seek to confirm hypotheses about Phenomena Instruments use more rigid style of eliciting and catergorizing Use highly structured methods such as questionnaires, surveys, and structured observation	Seek to explore phenomena Instruments use more flexible iterative style of eliciting and catergorizing responses to questions Use semi-structured methods such as in-depth interviews, focus groups, and participant observation
Analytical objectives	To quantify variation To predict causal relationships To describe characteristics of a Population	To describe variation To describe and explain relationships To describe individual Experiences To describe group norms

Question format	Closed-ended	Open-ended
Data format	Numerical (obtained by assigning numerical values to responses)	Textual (obtained from audiotapes, videotapes and field notes)
Flexibility in study design	Study design is stable from beginning to end	Some aspects of the study are flexible (for example, the addition, exclusion, or wording of particular interview questions
	Participant responses do not influence or determine how and which questions researchers ask next	Participant responses affect how and which questions researchers ask next
	Study design is subject to statistical assumptions and conditions	Study design is iterative, that is, data collection and research questions are adjusted according to what is learned

One of the main differences between quantitative and qualitative methods is their flexibility. Quantitative methods are generally inflexible and responses from participants are closed ended. According to Denzin (2000) the advantage of this inflexibility is that it allows for meaningful comparison of responses across participants and study sites, however it requires a thorough understanding of the important questions to ask, the best way to ask them, and the range of possible responses.

For this study the focus is more on a qualitative method. There are different approaches in collecting and using qualitative data, the distinction is not always clear.

3.3 Design of the study

3.3.1 Research method undertaken

This is a qualitative study in nature. The aim of qualitative research is to provide an illumination and understanding of the complex psychosocial issues that are most useful for answering humanistic exploratory questions such as why or how Marshall (1996). The current study chose the qualitative approach due to the fact that it involves more complex issues such as gender roles, corporate culture and challenges that lead to hindrances that shorten the professional working life of female site engineers on construction sites in South

Africa. Even though qualitative and quantitative research methods can be used in conjunction with each other, this study is qualitative in nature.

As defined by Hakim (2000) qualitative research provides the 'individuals' own accounts of their attitudes, motivations and behaviour. It offers richly descriptive reports of individuals' perceptions, attitudes, beliefs, views and feelings, the meanings and interpretations given to events and things, as well as their behaviour; displays how these are put together, more or less coherently and consciously, into frameworks which make sense of their experiences; and illuminates the motivations which connect attitudes and behaviour, the discontinuities, or even contradictions between attitudes and behaviour, or how conflicting attitudes and motivations are resolved in particular choices made Smith (1988).

Qualitative method was chosen simply because of the flexibility it offers and the adaptation of the interaction between the researcher and the participant. Qualitative methods allows open-ended questions, participants are free to respond in their own words and responses are more than 'yes' or 'no'.

Another criterion that was taken into consideration is that with quantitative method the relationship between participant and the researcher is often informal than in the quantitative research. Participants are to elaborate in greater detail on their answers. Aliaga & Gunderson (2000) emphasize that open-ended questions have the ability to evoke responses that are:

- Meaningful and culturally salient to the participant
- Unanticipated by the researcher
- Rich and explanatory in nature

The quantitative approach could prove to be difficult to obtain certain aspects/phenomena's of the topic at hand hence a qualitative method has been adopted. Data was collected by interviewing participants, in-depth interview guide was used to explore and explain themes. The in-depth interviews will give participants an opportunity to tell their own stories in their own words. This means that the use of in-depth interviews means key issues raised by the researcher could be explored in greater detail. With the above in mind, one can understand why qualitative research is well suited for some objectives rather than others

Data from the qualitative in-depth interviews was analysed using Inductive Thematic Analysis. The process consists of reading through textual data, identifying themes in the data,

coding those themes, and then interpreting the structure and content of the themes notes Guest & MacQueen (2012). Guest (2012) describes thematic analysis as a rigorous, yet inductive, set of procedures designed to identify and examine themes from textual data in a way that is transparent and credible. Our method draws from a broad range of several theoretical and methodological perspectives, but in the end, its primary concern is with presenting the stories and experiences voiced by study participants as accurately and comprehensively as possible.

With regard to thematic analysis, the researcher formulates themes from data that is collected in the interviews Nkuna (2010). Fundamentally, what happens is that, from the information gathered, the researcher is able to identify themes or categories in which different responses fall under Boyatzis (1998). For example in the current study, the researcher found that female site engineers had similar views stating that work-family conflict is a major concern in their jobs; the researcher then decided to classify those responses under one category and name it 'perceived work-family conflict/lack of balance between work and family life demands'.

After analysing the content of each individual participant's data, the study attempted to determine general trends, that is, analyse all of the participants‟ responses as one. This was done in order to see if there would be any correlations, and to possibly establish if these findings could be validated, meaning if internal validity could be established notes Golafshani (2003). Basically, this was to see if patterns, similarities or differences could be assumed in all the categories of female site engineers. If for example, results show that all the female site engineers in the different stages of their careers experience discrimination.

An alternative explanation would then have to be sought, which could be that female site engineers in general experience discrimination irrespective of whether or not they possess any level of experience or qualifications. If this is the case, then this discrimination against female site engineers should rather be defined as sex discrimination.

3.3.1 Sampling procedure

Population for the study was identified as female site engineers working on various construction sites. Emails were sent to various female site engineers working on construction sites as well as female engineers who have left site to work in consulting, banking, property development ect, requesting their participation. 15 female site engineers from various construction companies were selected for this sample, this number should be able to provide sufficient coverage sample within the construction sector. They were given information sheet

explaining what the study entails, they were asked to sign a consent form regarding their participation. Participants were given sufficient information to decide whether to participate in the study or not.

The targeted samples of the study were female site engineers currently working on construction sites. In order to get in depth information on experiences and support provided by the industry, analytical variables and biological samples of individuals will be obtained. This being race, age, marital status, establishing whether they have children or not, education level, number of years in management. The diversity in the sample will allowed the researcher to obtain clear and comprehensive data.

3.3.2 Sample description

The total sample size was 15 participants from different construction companies and they were currently working on site. All the female site engineers were included in the final sample; there were no neutral participants in the study. One of the variable that was measured in the questionnaire was race and it was decoded in the following manner, 8 = African, 3 =Indian/Asian, 1= White, 3 = Coloured. As seen on Table 7, the sample was skewed towards the African population since fourteen of the total participants were Africans.

Given the history of South Africa it was important to capture race since the country is characterized by different cultures and practices, which is possible to influence participants' responses. It is vital to recognise the effect of demographical details in relation to the way participants respond to questions and it has been acknowledge in the field of psychological testing. According to (Meiring *et al* 2005) in order for the test scores to be meaningful, the language, context and cultural background of the people being tested should be taken into account. Meaning the manner in which participants respond to certain questions will be influenced by their history, cultural and social backgrounds.

Table 7: Descriptive analysis

Race	African White	8 1
	Coloured Asian/Indian	3 3

Age	24-30	9
	31-39	5
	40-45	1
Marital Status	Single	10
	Married	2
	Divorced	2
	Widowed	1
Children	Yes No	3 12

Age of the participants was also taken into consideration, this ranged between 23 and 40 years of age. Age was considered a very important variable in describing the sample. This was included as a variable in order to determine whether certain responses are similar as far as the age group is concerned. Younger women may have different responses compared to women in their late thirties who joined the work force prior to 1994 when the construction industry was still at its lowest form of transformation. In other previous studies age has been dubbed as the predictor of discrimination. In a research conducted on females and discrimination in the workplace, older women were more likely to report that they are discriminated against compared to younger women notes Burke & Raju (1995).

Taking into consideration marital status and age, younger women who are not married and have no children may have different experiences and views compared to older women who are married and have children. This variable was coded and captured as, 2= married, 2=divorced, 10= single, 1=separated. Ten participants' were single, whereas the five were married. According to Denzin (2000) married people may be expected to have different experiences to unmarried people. For married women, their commitment to career may be impeded by parental and household responsibilities Lee & Choo (2001). This may be due to that unmarried women are likely to have less family responsibility than their other female counterparts who are married and are mothers. Kolade & Kehinde (2012) urge that family responsibility refers to instrumental activities relating to child upbringing, providing goods and support services for the family.

Another variable that was considered necessary was educational qualification. The participants education levels came to; 8= passed matric and have a university degree, 4=

passed matric and have a university of technology diploma, 3= only matric completed. Of the 15 participants from different construction companies in South Africa, twelve had tertiary level qualification while the other three had only matric qualification. In a study done by Barnejee (2006) educational level was identified as one of the factors that impact on perceptions of workplace discrimination. Therefore educational qualification was included in this study as one of the variables in order to gauge whether this could be associated with female site engineers living their careers on construction sites earlier than expected.

Another variable that was measured was management levels of the participants, with 10= middle management, 3=junior management, 2=senior management. According to Abidin (2009) females in higher management positions are more likely to report different experiences, with regard to work-family conflict compared to females in middle positions and junior positions. The status attainment theory attributes women's achievement in the workplace to gender-linked characteristics that women bring with them to work states Sandico & Kleiner (1999).

Additionally, participants were assessed if whether they have children or not, with 5=Yes (with children), 10= No (without children). Five participants had children, while 10 participants had no children. This variable was assessed in the same manner as the marital status of the participants. According to Schwartz (1996) people who have children and family responsibilities are likely to report different experiences to those with no children responsibilities, Wilkinson (1992) investigated employers' attitude towards women in engineering in relation to career paths and childcare, 64% of the employers admitted that female engineers appeared to have to work harder than male engineers for a promotion. It seems as women with older children are likely to have the same response as women with younger children that might need more attention and care.

Another variable that was taken into consideration was the length of time in that particular position as a site engineer. In this study, four participants stated that they have four years experience in their current position; seven participants had been in their current position for more than six years, four participants had less than two years experience in the field. This variable was included for the same reason as the participants' age because the experience in that position is likely to be related to the person's age.

3.3.3 Data Collection

The research adopted semi- structured interviews; they consisted of several key questions that assisted in identifying hindrances that shorten the professional working life of female site engineers on construction sites in South Africa. The flexibility of this approach compared to structured interviews allowed for more elaborate information from the participants. The questions were open-ended requiring more than a yes/no answer. The researcher started by asking easy questions and proceeded with more difficult and sensitive questions.

A key finding that emerged from semi-structured interviews, which was not previously thought to be as highly influential as the data subsequently confirmed, as far as career progression is concerned, there is a notion that females with no family responsibilities are likely to be more successful in their careers, because they have more time and devotion to dedicate on their careers, unlike their married women who are suppose to divide their time juggling their careers and family responsibilities. There is a strong culture within the industry that working long hours demonstrates employment commitment states Sutherland & Davidson (1993), and a lack of compliance with such cultural norms can adversely impact promotion prospects and even future job security.

3.4 RELIABILITY & VALIDITY

Reliability is defined as the extent to which a questionnaire or any instrument procedure produces the same results on repeated trials Miller (1998). In other words, if the same participants were to be sampled again under the same methodology, but over a certain period, their responses to the questionnaires should be the same (that is, consistent) to those gathered from the initial sample questionnaires Golafshani (2003). Unless major experiences have taken place in between the two sampling process, that would alter the responses.

According to Silverman (2006) the two central concepts in any discussion of the credibility of scientific research are validity and credibility. These are as equally important in evaluating qualitative research. Accordingly, Newman (2003) asserts that ‘most qualitative researchers accept principles of reliability and validity, but use the terms infrequently because of their close association with quantitative measurement.

Some scholars have introduced different labels with slightly the same content as Guba & Lincoln (1994) in their work ‘Competing Paradigms in Qualitative research’ propose two key criteria for assessing validity in qualitative study ; credibility, whether the findings are

believable and transferability, whether the findings apply to other contexts. Again, Sarantakos (1994) offers some other concepts associated with validation in qualitative research; cumulative validation, meaning findings be supported by other studies; communicative validation, findings be evaluated by respondents; argumentative validation, conclusion should be followed and tested and ecological validation, using table methods and taking into consideration the life and conditions of the researched Sarantakos (1994).

Silverman (2003) identifies two other forms of validations that have been suggested as particularly appropriate to the logic of qualitative research Triangulation, meaning comparing different kinds of data quantitative and qualitative and different kinds of methods (observation and interview) to see whether they corroborate one another and respondent validation taking ones findings back to the subjects, where these people verify ones findings Silverman. Therefore, in our attempt to pave a way in qualitative research we should keep in mind the fact that, as Bulmer states 'qualitative researchers try to achieve validity not through manipulation of variables but rather through their orientation towards, and the study of, the empirical world' Bulmer (1979).

In designing semi-structured interviews, the researcher consulted with a number of experts in the fields of construction management, gender and corporate culture studies. The final questions were deemed reliable by these experts. The questions contained no ambiguity thus allowing participants to answer accurately and with consistency

The questions are perceived to be valid since they are formulated towards answering the research questions proposed. In this study the questions explored if there is enough motivation and support for women in management roles within the construction industry, government policies and legislation aimed at curbing these challenges.

3.5 ETHICS

Two informed consent forms were distributed to each participant to sign as an indication that they accepted that the researcher use their data in the current study. One was for the completion of the questionnaire (that is agreeing to participate in the study), and the other was for the interview to be recorded (see Appendices A). The consent forms included an outline of what the study entailed. It also ensured that privacy (confidentiality) of the participant was protected. The data will be kept for a period of 5 years; thereafter the raw data will be destroyed.

3.6 RESEARCH BIAS (ACKNOWLEDGEMENT)

It is necessary to declare the inherent bias of the researcher, as a female with firsthand experience of challenges faced by site engineers on construction sites, has influenced the choice of research problem and the establishment of research questions. Every effort has been made to obtain academic objectivity during the different stages of the research.

3.7 Conclusion

This chapter provides some justification on why the qualitative method was selected. The vital sections covered in this chapter include the design of the study, the sampling procedure, and the procedures that were followed in collecting data. The chapter also included the measuring instruments, together with reliability and validity. The chapter ended with a discussion on the analysis and ethical considerations of the study as well as research bias (acknowledgement). The following chapter provides data collection.

4 CHAPTER 4: DATA ANALYSIS

4.1 INTRODUCTION

It has been established in Chapter 3 that the main research question investigated by the study is to establish hindrances that shorten the professional working life of female site engineers on construction sites in South Africa. The study expected female site engineers in the sample to elaborate and report on such challenges. These expectations were informed by the literature reviewed in the previous chapter. The reviewed literature urged that female site engineers may experience discrimination purely based on their gender on construction sites, as well as glass ceiling effect that hinder their career growth and development.

Additionally this study noted that the construction industry is still dominated by males, however the private sector and the government is only starting now to develop initiatives aimed at increasing the representation of women within the sector. Therefore it was considered vital for the researcher to be able to demonstrate by offering evidence that there are hindrances that shorten the professional working life of female site engineers on construction sites.

Considering the exploratory nature of the study, a qualitative evaluation was attempted in depth around challenges facing site engineers in a workplace. The raw data (transcripts from the interviews conducted with the participants telephonic and via email was analyzed into themes that were further scrutinised to answer the research questions proposed by the current study.

This section presents data from the qualitative interview that was conducted by the researcher. The results are presented thematically, with extracts drawn from the interviews being used to illustrate these different themes. This chapter presents and discusses the findings of the data collection exercise. The data presentation, analysis, interpretation and discussion is presented in five sections. The themes are ranked according to according to those most likely to influence, to those least likely influence respondents in their decision to leave their careers on construction sites.

Section One presents the first theme that emerged, which is the perceived impact of discrimination. The responses are further analysed along demographical lines: age and gender;

Section Two presents the second theme, perceived impact of construction culture/environment in relation to striking a balance between work and family;

Section Three presents the third theme that emerged is the perceived lack of supportive environment on career growth of female site engineers.

Section Four presents the fourth theme was the perceived impact of the glass ceiling on career growth opportunities of women.

Section Five presents the fifth theme, perceived impact of under representation of female site engineers.

Section Six presents the last theme that emerged is the perceived impact of cultural beliefs on female engineers and their careers.

Section Seven summarises the ranking of the themes and the impact they have in shortening the professional working life of female site engineers, leaving their careers on construction sites earlier than expected to pursue other commitments in other fields.

At the end of Section One, Two, Three, Four, Five and Six the respondents' responses are analysed in more detail with insight offered from demographic data and with answers to open-ended questions posed in the questionnaires and interviews presented to provide richer insights.

4.2 SECTION ONE

4.2.1 Impact of discrimination on female site engineers

The researcher asked general questions to participants about what they perceived to be the hiring prerequisite for a site engineer position and whether they perceived these prerequisites to be presented across the board (males & females). This also included participants identifying challenges that the think would confront aspiring female engineers who are still eager to join the construction industry. The aim of these questions was to establish whether the other forms of discrimination; i.e. traditional discrimination were experienced by working female site engineers.

Findings revealed that 8 out of 15 female site engineers as presented by (Participants 1, 2, 3, 4, 5, 6, 7 and 8) perceived traditional forms of discrimination to be still in existence. More specifically P1 reported that female site engineers are still discriminated against based on

gender and character traits associated with being a woman such as being emotional, sensitive and less assertive. The study understood this as a form of gender discrimination. The following snippets make this point clear:

4.2.2 Perceived Gender/Sex Discrimination

Extract one

Interviewer: In your organisation, do you think both males and females see the same things as being required from them?

P1: *''I do not think so; ideal on paper it is like that, however in practise it is totally different. As female site engineers on construction sites we are always expected to work twice as hard compared to our male counterparts just to prove our capabilities and skills required for that task at hand. Men are perceived to be more assertive generally, unfortunately that theory exist in the working world as well''*

P1:…*''you almost need to forsake your femininity or reach a point where you distance yourself with anything that is associated with feminism in order to be accepted into what they call the ''boys club'' or a gentleman's club. You need to act like them in order to be successful or leave the industry if you cannot adapt otherwise you will be given unimportant tasks and positions''*

Extract two

P4: "*Being the only female site engineer on this job has taught me that the levelling field for both males and females is not the same. I think as women in construction, you join this male dominated industry already feeling a bit insecure about your competence levels and people take advantage of that and discriminate you against that".*

P4:…. *"my visibility on this construction site always attracts unwanted attention from my dominant male colleagues. They often see me as some sort of an intruder and use sexual harassment to keep me out of what they see as a male territory''*

Extract three

P5: *''No, as a female on this site I am always expected to go an extra mile to prove if my capabilities match my skills and qualifications unlike my male colleagues. One of the factors that contribute in different expectations is coming across as arrogant instead of being*

confident and outspoken, in that way you are expected to deliver more than your counterparts''

P5*: ''The hard work and long hours that you put in are hardly recognised compared to men. I have witnessed men getting more promotions and higher salaries than women, regardless of those men have less qualifications and years of experience in the industry''*

As seen from the above statements female site engineers are still facing discrimination based on their gender even today. P (1) is one of the female site engineers with 5 years experience on different construction sites and therefore she has the first hand experience on what goes on site. She mentioned that she is always expected to work twice as hard compared to her male colleagues. One can argue and say the participant was implying that companies do not consciously sit down and set rules or procedures to discriminate against female site engineers, however this discrimination is rooted from societal attitudes and prejudice against women. The participant further explains that in order to fit within the organisation you will have to distance yourself from feminism.

This can imply that women will have to tolerate overt sexist language and behaviour that women from other industries would not tolerate; this is all in the name of fitting in into the boy's club. From the participants comment it can be deduced that if you are not willing to adapt the masculinity approach on site you may be indirectly discriminated against e.g. being assigned to smaller, unexciting tasks compared to one's male colleagues. In this case the workplace atmosphere becomes a continuous testing ground of resilience for female engineers.

Another site engineer P(4) provided a similar view about the levelling field not being the same for both male and females. She indicated that in theory the hiring criteria is made to appear equal while in practise (on site) the situation is totally different from being fair and equal to both sexes. The participant also implied that that female site engineers who are perceived to be insecure and too nurturing, which in turn makes them seem very emotional, these characteristics leads them to be discriminated against.

This can be linked to that in the most construction sites female engineers have to possess male characteristics such as (masculinity, assertiveness, and confidence) in order to be taken seriously in their positions. The participant further explained that by not possessing the

masculinity traits one's competence levels are always in question than one's male counterparts, you are constantly under pressure to prove oneself.

The participant also touches the issue of sexual harassment on construction sites. Harassment can be visual, verbal or physical and it can be more prominent in some sites because they are isolated. She mentioned that male colleagues see her as some intruder and use sexual harassment to keep her out of their territory. This woman's presence on site as a professional in turn increase resentment from male colleagues, where they turn threat of sexual advances to be part of the normal working relationship regardless of making site engineers uneasy and vulnerable.

In a study by Mcllwee & Robinson (1992) in the US on women engineers they found that women find it agitating to be called names such as 'honey', 'sweetie', 'babe'. They suggest that this behaviour is a form of sexual harassment, undermining women's professional status and reinforcing men's views of women as merely sexual beings. While this can be seen as harmless jokes in other cases it can be used to reinforce power relations by exerting sexist jokes aimed at making women feel inferior as noted in the literature, for example P(4) stated:

… "you get the obvious, hints of perverted behaviour there and there, you just have to learn to take it in your stride"

From P(4) comments it can be deduced that from junior site engineers on construction sites to women in senior management positions they all suffer the same type of discrimination which eventual causes them to leave their professional working careers on construction and move to consulting (project management) or leave the construction industry altogether.

P(5) participant shared similar views in support of the perception that females are discriminated against when companies start promoting men with less qualifications and skills compared to their female colleagues. The participant indicated that when she first occupied the position of a senior site engineer, which was previously occupied by a male, many colleagues did not trust her competences regardless of the previous male engineer having less qualifications and experience than her. Her decision-making contributions were always questioned and scrutinised.

She also realised that the previous engineer was supervising a larger group of people and he was responsible for nearly twice the budget she was given. This appears to indicate that women are given glorified job titles with less responsibility where they are not given the

opportunity to manage the same number of stuff as men do. This could imply that because men tend to enter management roles with larger number of staff, while women are often assigned to specialist roles with fewer subordinates.

From the above observations, the common view amongst the participants, female engineers are likely to leave their careers on construction sites due to a number of discrimination acts levelled against them. The study found that 7 participants P (1)……. experienced discrimination, with one participant stating that sex discrimination exists even though she does not personal experience it. This gives a clear indication that female engineers at South African construction companies still experience discrimination even though they may demonstrate their competence through skills, level of education and years of experience in the field. Furthermore, some female engineers will not make it to senior roles because of their feminist views that are considered less suitable for the site management aspect of things.

4.2.3 Perceived Age Discrimination

Two of the participants (P 1 & P 2) indicated that they felt that they were being discriminated against because of their age. These participants stated that it was older employees who discriminated against them. Older employees were reluctant to take instructions from younger female engineers. The following extracts were observed:

Extract 4

Interviewer: How has the respond been since you have been appointed to this position?

P (1): *"I have experienced mixed reactions. I have instructed one of the engineers'' reporting to me to do a certain task in a particular manner. She did not do the task required instead she went and seek a second opinion from my contracts director. This has happened before with other engineers reporting to me and I never took it personal"*

Interviewer: Basically they are defying your authority?

P (2): *"I think so; it might happen that because the gentleman who was in this position was much older than I am, maybe they think because of his age, he was a better candidate than me"*

Extract 5

P (3): *"Things are very hard for since I am the youngest in my team"*

4.3 SECTION TWO

4.3.1 Impact of construction culture/environment (striking the balance between work and family)

The sub-theme that emerged as a possible factor that is one of hindrances that shorten the professional working life of female site engineers was the perceived impact of construction culture/ environment in relation to striking the balance between work and family demands. The view was demonstrated by P1, P2, P7 and P9. Three participants maintained that construction culture affected their careers; however it was not a particular inhibiting factor in their growth. These participants stated that they did not aspire to be in any senior role as this may mean that they need to spend less time with their families thus making it difficult to strike the balance between the two. The following extracts were observed:

Extract 6

Interviewer: Construction culture is considered to be about the characteristics of the industry, essentially about how things are done. It is associated with long working hours, sexist attitudes, masculinity, exclusive networks etc. Has any of the above mentioned challenges triggered the thought of leaving your career on construction sites working as a female site engineer?

P(1): …. "*Definitely yes the thought have crossed my mind now and again. In the near future I will like to settle down and have children. With the construction industry it is rather difficult to strike the balance between work and family demands because of the long hours you are expected to put in."*

"…..after marriage and kids your priorities in life change. Some females with families are still willing to work late and working over weekends; however majority are not willing to do so."

"To put things into perspective, I will leave my professional working life on site once I become a mother. For instance most site work is 6-7 days a week, starting from 07h00am to 17h00pm or even later if the need arises"

"*….another challenge that would make me consider a career outside construction site management is the exclusionary networking sessions that are usually available to men*".

What can be deduced from participant P(1) is that the construction industry suffers from lack of flexibility, this may be due to the pressure placed on certain projects by stakeholders hence all employees are required to put more effort during such crucial time. Family demands are a very important feature especially in construction since more often the industry requires long hours on site to gain experience and recognition as a female site engineer. The industry also suffers from the culture of presenteeism, where it is more important to endure long hours than it is to be more productive with shorter period's e.g. working from home. Therefore, women who take a role of balancing work and family demands would be bound to suffer from the culture of presenteeism comparably to her male colleagues.

When women put their family responsibilities first and spend less time on site they are deemed to be unreliable or not hard working enough. The misconception of the construction industry that suggest that working long hours makes for a better employee give rise to career challenges for women who have or plan to have children. Women in these positions occasionally feel that they have to prioritise their careers by neglecting their families. Smaller construction firms are often concerned about the cost of female site engineers taking maternity leave. As a result, women in these positions end up leaving their careers on construction sites and miss out on career progression.

Some participants were asked if their organisation operate from a number of work-life balance policies. They stated that they were aware that their firm operate a wide variety of policies aimed at balancing employee's work/family life. They maintained that such policies are not implemented within their firm. This then seems as a matter of having something on paper however in reality the policy does not do anything. Most developed countries, females often adopt sequencing where a period of work is followed by a period of family responsibilities and return to work. This does not particularly work in construction industry since it demands time commitment and it is extremely competitive.

From paragraph three, P(1), the response from this participant suggest that construction companies still have networking forums leaning towards men since most network activities are male-friendly e.g. attending sporting events (few women are sport enthusiast compared to men) or having drinks after hours away from work (which is unfavourable for women with household/family responsibilities). In male dominated networks, women face less informal communication, this increases their chances of not having mentors because they are few in the construction industry.

Extract 7

Interviewer: Do you aspire to be in the management position while you are still working on construction sites?

P9: *"No, I do not aspire to go further into any management position while I am still on site. For me it has been a clear choice since I have to put my family first before any work commitments. The management position comes with a lot of commitment and sacrifice in a form of spending less time with your family. For that reason I do not aspire to go further into management within a construction site.''*

P5: *"If I was asked this question three years ago, the answer would have been yes. My life has changed; I now have two kids and a husband. I have realised that if I want to climb up the industry ladder that would cost my family something"*

P 7: *"I was actually in a senior management position before I had a baby. However after my daughter was born I chose to go back to middle management in order to spend more time with her. I am content with the decision I took"*

Another participant P(6) shared a similar view, although she was not referring to herself;

"...the challenge may be coming from the female herself, limiting herself because of marital demands or finding a balance between the two may prove to be difficult. She may choose not to apply for a senior position because they want to be a mother and have a family"

What seem to be notable with these participants (P 9, P5 and P6), is the similar view that they share, there is a notion that aspiring for a more senior position within a construction site is associated with more responsibilities on site and less time to spend with the family. This was stated as one of the reasons why female site engineers will leave their careers on site to focus on family or stay in the same position for years in order to balance work and family responsibilities. For instance P (5) did mentioned that she does want a higher position because she wanted to spend more time with her children and husband. She further stated that in the near future when her children are a bit older, she will aspire for a senior management position.

Participant P7's case is quite different. She did mention that she was in a senior position before having a child, however after that she made a conscious decision to go back to middle management. She told her superior's that her priorities have changed, she will no longer be

working long hours anymore. This demonstrates that females can make sacrifices by devoting less time to their work when they are faced with family and work demands. This substantiates the claim that the perceived challenges between roles of a female site engineer and a mother or wife can negatively impact on their career development.

Likewise, P6 reported that female site engineers can limit their opportunities to advance their careers by choosing to take care of their families. Additionally P 7 stated that she was of the view that one has to make a vital decision, either family or work and in her case she chose family which is more important to her than a higher position. She elaborated further when she emphasized that a female site engineer with child responsibilities would not be able to excel in both their job as an engineer and their job as their mother. Furthermore, P 7 gave a more interesting point when she mentioned that part of the solution is that construction firms can build child care facilities nearby where employees can bring their children during the day and after hours. This would enable female site engineers to work in late while they know that their children are being looked after. The above findings revealed that the perceived lack of balance between work and family demands is considered to be one of factors that contribute as one of the hindrances that shorten the professional working life of female site engineers.

4.4 SECTION THREE

4.4.1 Perceived Impact on Lack of Supportive Environment on Career Growth of Female Site Engineers

Findings from the participants reveal that female site engineers that lack company support, mentorship programs and employee feedback (in form of yearly appraisal) as a hindrance that shorten their professional working life on construction sites. If the environment was conducive in all aspects they believe that would enable them to succeed in their respective positions and rip the rewards of progress in their careers. The theme is demonstrated in the following extracts.

Extract 8

P 10: *"As much as there are challenges such as discrimination in the construction industry especially for women working as site engineers on construction sites. I think us as females in these positions are not prepared enough. I think mentorship programs are needed, where female site engineers are mentored and prepared, where they are made to feel comfortable, where their work is not judged based on their looks but their skills and competences."*

Extract 9

P 11: *"The availability of mentors for female engineers who could act as sources of support or role models is almost non-existent in the construction industry especially on sites. Making the industry more supportive of women and providing clear goals and intentions for their career progression can enable more females to stay and build sustainable careers within the industry."*

P 11: *"The task of creating supportive environment for women on construction site is challenging and daunting, however it is not impossible to achieve."*

Extract 10

P 9: *"What I have realised is that South Africa has move remarkably in empowering women and giving them opportunities in both private and public sector, although the construction industry is still lagging behind. However I have found that there seem to be some confusion in the workplace, even in our society, yes opportunities for women are created but are we supporting them and making sure the environment is conducive enough for them to excel in their careers."*

P 9: *"For me, empowerment of female site engineers is all good and well. However their empowerment must go beyond that, once they are in their positions so what? How do you provide support to ensure that they stay in their position? How do you make sure that their contribution is worthwhile?"*

Extract 11

P 12: *"I think the government is doing its fair share of women empowerment; however the implementation part is questionable when it comes to the private sector especially in the construction industry. I do not get any professional support from my senior managers within this company I am currently working for. I was just thrown in the deep end when I first started out on site as a site engineer."*

Extract 12

P 13: *"Women in construction always need support because of the conflict between work and family responsibilities. As a female site engineer in a senior role I always play my role as a leader by ensuring that other female site engineers in junior and middle management*

positions are greatly supported, since I was once in their shoes few years ago before reaching management levels."

P 10: *"…the hardest part is when you are a working mother with small children, you always think you are neglecting them……you are not doing enough to support them in their day to day well-being……I have married ladies with small children in my team……reporting to me…..I tend to be understanding and fair with them….because I know exactly what they are going through. Employers should be focusing on unique strengths and abilities that female engineers can bring to the construction industry. These include abilities of team work, negotiating, interpersonal skills and the ability to manage several trades/tasks simultaneously."*

In support of the views expressed by P 11, six participants (P 9, P12, P10, P9, P5 and P6) held the perception that even though they may occupy site engineer positions, the conditions that will enable them to succeed and grow further in their careers are not created or implemented properly. Instead of being supported by their organisation they find themselves under constant pressure from their senior managers to prove their competence at all times. These site engineers strongly expressed the view that they do not get what they deserve in terms of recognition. Limited work opportunities and the unsupportive environment is the most mentioned factor affecting their careers.

P 10 and P 9 reveals that the industry is still lagging behind in forming and implementing mentorship programs for women, by creating those programs companies will be assisting women to adjust and be better prepared for the challenges within the industry. These programs make a vital contribution to female site engineers while helping develop tomorrow's construction industry leaders.

It is widely known in construction that the lack of visible role models in construction/site management perpetuates gender stereotypes related to the progression of women in construction. It is also one of the contributing factors on why female site engineers leave construction sites prematurely. P 6 implied that lack of senior female engineers makes it difficult for women on site to see how they can balance work and family commitments as a woman at that level, which can be de-motivating to career progression and development. These senior female engineers will be able to give the upcoming female engineers more licence to be themselves in their jobs without having to conform to macho-management stereotypes.

One of the participants suggested that women get summer jobs in construction while they are still studying before settling in full-time as site engineers. She further stated that women need to educate themselves in advance before they enter the construction industry as engineers so that they are aware of the working conditions on construction sites. They have to know the dynamics of the industry either good or bad; they need to understand that in construction you go where the work is, for women with children this is not viable. Therefore women need to be better prepared to respond to conditions they will come across on construction sites and they need to be able to select a company with good practises in place.

From participants P 9 & P 12, they share the same view that as much as female site engineers are getting empowered there is still a lack of support from their organisations regardless of the initiatives put in place by the government directed at the private sector. As discussed previously, work-family conflict was also perceived as an inhibiting factor and this links into the theme of lack of '' supportive environment''. Female engineers experiencing work-family demands stated organisational support in form of family friendly policies (child-care facilities) and flexible work-conditions would enable them to bridge a balance between work and family responsibilities.

Furthermore participants were of the view that if such initiatives are implemented that would positively impact on their career growth and they would be able to stay longer periods working on construction sites as site engineers. The clients, employers and government need to drive and implement policies to hold the industry into account to grow the population of women engineers on construction sites. Retaining talent in female engineers requires more flexible/conducive work environments and unambiguous communication channels. Proving flexibility has been known to combat burn out, which is another cause that hinders the professional growth of female site engineers.

4.5 SECTION FOUR

4.5.1 The Impact of Glass Ceiling Effect on Career Growth Opportunities of Female Site Engineers

Extract 13

Interviewer: Glass ceiling effect is a syndrome that hinders the growth of women in construction, at times it results in some women leaving the industry prematurely. Have you

experienced the same in your position as a female site engineer working on construction sites?

P 11: "*I have experienced glass ceiling in my position, after four years in my current position I was real pushing into breaking that invisible barrier that women face as they try to achieve that promotion to the upper level of management in their organisations. I made sure I followed my company's goals, I mirrored their vision everywhere I went. To my major disappointment, I found out that after four years of service there is no promotion for me since the company does not promote females who are married and have children. I can move back down or sideways. As a female engineer I will always have to settle for middle management positions, nothing further than that. This has affected my productivity, I don't put as much effort as I use to."*

Extract 14

P 13 "*…my case began when I started with my colleagues after graduation. We started on equal footing with them; we progressed on the same par with them up until I started to realised that my progress was getting starting to get blocked."*

Extract 15

P14 "*….yes I have. I have abandoned any efforts to make it to the top of this organisation. In the near future I am planning to take my energy to a smaller and more flexible company or start my own business. I have come to realise that when women are in minority in that field their access to resources and opportunities becomes limited."*

Extract 16

P 15: *"No I have not; I started in my senior position after working in middle management for 5 years as a site engineer, subsequently to that I was promoted to my current senior position. I believe I was promoted through my hard work and resilience, not leaving out my qualifications and experience. However I have noticed, the more senior I get, I feel like most of my male colleagues are not taking me seriously and half the time they dismiss my concerns as emotions coming into play."*

Extract 17

P 12: *"Yes I have, glass ceiling for women in construction does exist. I have experienced it, I have not moved to the upper ranks of the corporate ladder for the past 7 years. I have the relevant qualifications, experience and skills that are required for a senior management position, however for some reason I'm just not moving any further. Maybe this can be attributed to us women being in minority on this construction site or some sort of gender inequality."*

"….if the situation does not change in the next twelve months. I am going to leave my career as a female site engineer on this site."

What can be deduced from participants P (11, 12, 13, and 14) is that they all have experienced glass ceiling in their careers as female site engineers. They held the perception that even though they are occupying their current position, the conditions that are required to assist them to succeed and move up the corporate ladder are not created. Instead they find themselves not rising to the top as men do, regardless of being qualified and competent, they know they are capable of rising to the top; however the invincible barriers prevent them from breaking through the glass ceiling. Participant P 12 is even prepared to leave the industry if the situation does not improve for her in the next twelve months.

This is contrary to popular belief that these women are not moving up because they lack educational qualifications. P 13 and P 14 have mentioned that they have relevant qualifications and experience required to move up the ranks. P 14 even implied that she had been delaying marriage and having children hoping to be promoted to the upper management level. The industry is well aware of the glass ceiling effect of female site engineers that hinders their professional growth; however there is less urgency in tackling the issue given the large number of qualified women who are already in middle management within construction sites.

Another participant P 5 cemented this view:

"…after years of being stuck in the same position I resigned. I am currently freelancing for construction companies and charging an hourly rate. They see me as the perfect fit into the situation and confusingly the men that hire and pay me well won't promote female site engineers within their organisation. This confuses me a great deal; they value my skills and competences as long as I am not part of their construction firm."

Participant P 14's experience is different from the other participants who experienced glass ceiling. She has managed to be promoted to the upper level position within a reasonable time despite having witnessed glass ceiling happening to her other female subordinates. She still holds the view that her organisation is still able to provide opportunities for them as women to develop their careers within the construction industry. However P14 mentioned that the more senior she gets, the more her male colleagues do not take her seriously. This can be attributed to gender inequality or some sort of racial discrimination. (Cotter *et al* 2001) found that gender inequality among professionals and upper level managers does not represent glass ceiling, if women in non-professional and senior managerial positions experience the same degree of gender inequality, then the inequality we see among these groups is not glass ceiling but rather a common pattern of gender inequality.

Participant P15 attributes the glass ceiling she is experiencing in her organisation as the manifestation of being in minority group and being a woman of colour. In a research done Catalyst (2000) an independent research group issued a report on corporate women highlighted the persistence of glass ceiling, especially for women of colour. According to this report women of colour experience what you call a ''concrete ceiling'' not just a mere glass ceiling.

What can be also drawn from P14's comments is that while the entry to the construction industry is getting easier for female site engineers, progression to the top is still very slow. It can be argued that there are many factors that contribute to the progression of women on construction sites such as performance, mentoring schemes and supportive environment. Therefore glass ceiling cannot be looked at in isolation as the only hindrance that affects career development for female engineers.

Interestingly none of the participants mentioned anything about glass ceiling earnings although earnings are not always the determinant of glass ceiling.

4.6 SECTION FIVE

4.6.1 The Perceived Impact of under representation of Female Engineers

Extract 18

Interviewer: Would you say female site engineers are under-presented within the construction industry? Do you think the government is doing enough to deal with challenges faced by female engineers on construction sites?

P 3*: "There are many female site engineers, but in the private sector of South Africa being a site engineer is the ceiling for female graduates, then few females are used at the executive level."*

"…private companies are not interested in females on site, for them they are just there to meet the quota needed to get government work"

Extract 19

P 5: *"Female engineers are still underrepresented in the construction industry, however over the years the numbers are increasing significantly. The industry still disregards female engineers as it is still a male dominated industry. We are mainly used to front for companies as there is minimum growth for us."*

"…..both the government and private companies are not doing enough in curbing challenges faced by female site engineers. Policies developed by the government do not address the problem of window dressing and the corruption of the industry makes it difficult for government to monitor the process"

Extract 20

P 4: *"Yes they are still underrepresented. The industry is still very male dominated. Positions normally held on site for women are administrative mainly."*

"…to a certain extent, government is trying by all means by creating and implementing policies such as affirmative action (AA), however implementation on construction sites for female engineers is still very minimum."

"….legislation and policies are just as good as the paper they are written on; many policies need measures to see their effectiveness in the industry"

Extract 21

P 6: *"Yes they are underrepresented, the female site engineers that make it based on merit in the construction industry I give credit to them simply because it's not easy, you must give as good as you get."*

"…..not much is being done to support us as far as policies are concerned."

".....policies are a lot of hogwash…people just go on with their way of doing business. Having something on paper does not mean it will transform into anything tangible without proper transformation, implementation and measures".

Extract 22

P 2: *"Contractors are just so hostile towards us female engineers. They are just not interested in the implementation of equal opportunities policies aimed at increasing the representation of women engineers on construction sites."*

".....with this kind of attitude you just can't help it but want to leave your career in the construction industry"

From the above illustrated extracts from participants P(2,6,4,5), female site engineers are still underrepresented in the construction industry. However participant P 3's observation and experience is different, she reckons that they are many female site engineers, but in the private sector of South Africa being a site engineer is the ceiling for female graduates, only few females are used at senior and executive level. She further mentioned that female site engineers working on site are just there to meet quotas required in order to have access to government projects.

Taking majority of participant's views, the industry lacks diversity and it has lagged behind for many years in initiatives or research into underrepresentation of female site engineers on construction sites. The industry is still very male dominated as attested by majority of the participants, which in some cases it may mean that female site engineers must deliver and act in mannerisms established by men. This might mean some companies have never experienced ways of getting things done outside this pyramid. In doing her work, these engineers must learn to conform to the already designed male-dominated systems or change the status quo altogether. These observations support the literature review, in that there is not enough representation of female site engineers on construction sites in South Africa. As a result not many of them are willing to spend more time working professional on construction sites, in a long run they prefer going into consulting or leaving the industry altogether.

Participant P4 did mention that women who are currently working on site are still concentrated in administrative roles. It appears as if the industry is cheating itself by not increasing the representation of female site engineers on construction sites.

However some career experts in the industry view the drive of increasing women representation as the attempt of employers trying to keep them as the last resort. One of the common views shared by the most participants particularly P(6,4,5) is that policies aimed at dealing with underrepresentation of women as female site engineers on construction sites are not doing much justice for them. The policies are in place, already however they are not implemented into dealing with the transformation required to redress the imbalances created by the society. They further explain that those policies are just like any writing on paper nothing much.

Participant P5 believes policies developed by the government do not address of challenges such as window dressing because the corruption in the private sector makes it difficult for government to monitor the implementation of these policies. Participants P3 echoes the same sentiments that they are many female site engineers working in the private sector of South Africa, however their fate is reaching the glass ceiling, then few of them reach senior roles or executive level. She believes policies make a difference when they are implemented, enforced and monitored. Participants P7 is different from other participants view; she mentioned that when she started working on site there were no policies in place to deal with female site engineers, however things are improving now, and she had seen employers bring in policies and training courses.

4.7 SECTION SIX

4.7.1 Perceived Impact of Cultural Beliefs on Female Engineers

Extract 23

Interviewer: Does women's cultural beliefs and background influence their success in the construction industry? Has that affected your technical skills anyhow or gave you ideas of leaving the industry altogether?

P10: *"In my case I don't think cultural beliefs and background have anything to do with my success as a female engineer in the construction industry. However as far as the technical side of things are concerned I am still adjusting to the processes due to a lack of exposure in the past. There is drastic change that's taking place I am still finding my footing around this issue….so in a way technical skills have affected my career but not to the extent of leaving the company."*

Extract 24

P8: *"Looking at history, women use to work on construction sites doing different trades although it was considered socially unacceptable. Females were considered to be physical and emotional weak to work on sites since her primary duty is to be a care-giver. However things have changed, the world is evolving at a faster pace than before. With all of the above mentioned points my cultural upbringing has not negatively affected my ambition in pursuing my career as a site engineer".*

"……for the technical side of things I was fortunate that I was offered a year's internship on a construction site while I was still an undergraduate student. By the time I finished my degree and started working permanently I was clued up about majority of the technicalities on a construction site. Thus it didn't affect me that much because I was well equipped already".

Extract 25

P9: *"No, as much as the South African culture expects women to play a traditional role in that sense that women are less capable than men due to their biological abilities, thus they are expected to fulfil domestic roles."*

In the above extract, P10 mentioned that as a female site engineer it becomes a hindrance when one lacks technical expertise of what is required on site in that it impacts negatively on your work performance. Similar views were shared by P9 and P8; they did mentioned that when they first started in the industry they could not comprehend the technical skills required by the industry. Therefore in meetings where technical skills were of fundamental importance the situation was extremely challenging. Moreover, these participants highlighted that even though things were doom and gloomy in the beginning regarding their technical expertise eventually things got better and they were able to close the gap and perform better in their jobs.

4.8 SECTION SEVEN

4.8.1 Conclusion

The objective of this chapter was to presents data found in the study. The responses were organized in themes. The themes taken into consideration were the one's discussed from the literature, as well as the themes that emerged from the participants' responses during the interviews. Findings found were the following: the study deduced that female site engineers still face discrimination on construction sites in a form of age and gender. They also reported

that the construction culture (environment) affected their careers on site; however it was not an inhibiting factor hindering their progress.

They further reported that a supportive work environment would enable them to succeed in their respective positions and there will be fewer site engineers resigning from site prematurely. Perceived work-family conflict and glass ceiling came out as the number one factors that contribute in shortening the professional working lives of female site engineers on construction sites, followed by discrimination and under-representation of women respectively.

5 CHAPTER 5: CONCLUSIONS AND RECOMENDATIONS

5.1 INTRODUCTION

Results in chapter 4 provided responses by the participants in the interviews conducted. This chapter is aimed at providing findings by attempting to give clear meaning to the responses provided by the participants. This chapter reintroduces the research problem and research questions and evaluates whether the research aim and objectives have been answered with information drawn from the literature reviewed and the field research findings. The findings are summarised and conclusions drawn from them. The chapter concludes with recommendations and suggestions of further areas of research.

5.2 REVISITING THE RESEARCH PROBLEM AND RESEARCH QUESTIONS

The issues relating to women in construction exist internationally and, over the years they have been analysed from affirmative action Piper (2002) to cultural beliefs Hopkins & McManus (1998) job satisfaction and development Dabke (2008) and perception and professional acceptance Perreault (1992) & Enshassia (2008). In South Africa, following studies have been analysed, Verway (2005)looked at comparative analysis between SA and USA women entrepreneurs in construction, Mjolo-Mncube (2005) analysed opportunities for women in housing and construction, Mahlobo (2006) looked at challenges faced by women contractors in housing construction. However, not much emphasis has been put around hindrances that shorten the professional working life of female site engineers on construction sites in South Africa.

5.2.1 Research questions posed

- What are corporate challenges that female site engineers are faced with on site within the construction industry in South Africa?

- Are discrimination, cultural beliefs, under-representation of women and the glass ceiling effect the main hindrances that shorten the professional working life of female site engineers on site?

Objectives

- To examine and investigate social and corporate hindrances that female site engineers are faced with on construction sites

Sub-objectives

- To explore and examine issues such as discrimination, under-representation of women in construction, glass ceiling effect.
- To identify initiatives and campaigns that would prolong the lifespan of female engineers within the construction industry in terms of support systems.

5.3 ACHIEVEMENT OF RESEARCH AIM AND OBJECTIVES

The questions were answered by the research aim and objectives. The research aim was to determine hindrances that shorten the professional working life of female site engineers on construction sites in South Africa. Those factors were identified as discrimination, construction culture, lack of supportive environment, glass ceiling effect, under representation of female site engineers, impact of cultural beliefs

5.4 KEY FINDINGS

5.4.1 Impact of discrimination on female site engineers

The present study confirmed previous research by Dainty (2001) that women in non-traditional work such as engineering and construction are often subjected to discrimination than their male counterparts in traditional form of female employment. In their argument they state that female site engineers are discriminated against based on gender and character definition associated with being a woman such as being emotional, fragile and sensitive. By these arguments, the present study was to answer one of the objectives that female site engineers do experience discrimination on construction sites, which is one of the contributing factors that female engineers do mention upon leaving their careers on sites. Discrimination was found to be the most ranked factor that shortens the professional working life of female site engineers on construction sites in South Africa.

Gender discrimination was not the only form of discrimination found on construction sites. Age and sex discrimination was also part of the major findings of the study. As one of the findings, two of the participants reveal that they were discriminated against because of their age. The older employees were reluctant to take orders from them junior employees because they were much younger.

Findings revealed that five participants have experienced sex discrimination on construction sites, one of the participants did mention that she was seen as an intruder by her male

colleagues; therefore they used sexual harassment to keep her out of their territory. This made her feel uneasy and vulnerable, she ended up resigning from her position to go and pursue a consulting career in the property sector.

This prediction proved to be difficult to determine in the present study as majority of female engineers were African. These engineers did not report discrimination on site based on their race. With majority of the participants belonging to one race, the present study could not prove whether members of other races could have similar views. Members of the other races in the sample did report on some form of discrimination however it was not based on race. It is vital to note that discrimination reported by participants took the form of traditional discrimination (age, gender). This substantiate that although African female site engineers perceive discrimination to exist on construction sites, however in this present study they do not attribute this discrimination to be about race

The study found that discrimination encountered by participants should not be attributed to race only; however other factors shared by the participants' plays a major role in shortening the professional working life of female site engineers on construction sites. In a bigger picture, the study is of the view that female site engineers across different races, experience discrimination on sites due to other factors they might have in common other than race. Regarding the participants' age, the study anticipated that there would be a general pattern in younger engineers reporting less discrimination compared to older engineers who had endured the stereotypes of patriarchal society.

The study found that the younger female site engineers do experience discrimination based on their age since older employees refuse to take them seriously based on their age. Thereby supporting the view that experiences of discrimination on sites do differ according to participants' age. For instance P1 and P2 reported being discriminated against because of their age, where older employees are reluctant to take instructions from them. Contrary to previous studies quoted earlier that indicated that older employees are more likely to experience age discrimination. In this case it was older employees sabotaging young female engineers. This also substantiates the point that not all participants did experience age discrimination, only a third of the sample went through such.

Perceptions of discrimination were also found to be related to the length of time working as a female site engineer. For instance P7 and P4 they have been in their current position for less than three years and P2, P3, and P4 for over six years and the rest for over eight years, yet all

of them reported discrimination to be present on construction sites regardless of how long you have been there.

As mentioned in the literature, although there has been some evolvement from the society and legislation intervention that allowed female site engineers to enter the workplace, it might not imply that the workplace is no longer discriminatory towards female site engineers. This study reveals that female site engineers are still discriminated against even today on construction sites.

5.4.2 Impact of construction culture/environment (striking the balance between work and family

The participants were requested to consider a number of factors from the construction industry and rank them according to how likely it would cause them to leave their careers on construction sites. Family-work conflict was found to be the biggest influential factor that contributes as one of the hindrances that shorten the professional working life of female site engineers. This was demonstrated by participants P1, P2,P7 and P 9, they stated that they are struggling to maintain the balance between work and family demands since they have younger children and the construction industry is characterized by long and inflexible hours.

P10 and P11 also reported work-family conflict since they recently got married and they are planning to have kids in the near future. Three participants maintained that work-family conflict have not affected their careers since they do not have any children and they did not aspire to be in any management position in the near future. P1 did mention that the inflexible working hours in the construction industry have triggered the thought of leaving her career on construction site since she is likely to settle down in the near future.

For participants P9, P5 and P6 it was notable that they share a similar view, a notion that aspiring for a more senior position in the construction industry is associated with more responsibilities on site and less time to spend with your family. P5 mentioned that she does not want a higher position since she wants to be there for her children and husband. She further stated that in the near future when her children are older, she will work harder towards a senior management role. P7 made a choice; she left her career as a female site engineer working on site to concentrate on her role of being a mother since she was experiencing work-family conflict. P3 stated that she was single and she did not have any children hence she did not experience work-family conflict.

In supporting these views, as cited in Navarro-Astor (2011) women feel like they must choose between a lifestyle oriented to work or the one leaning towards more family time, as family responsibilities increases they tend to reduce their involvement at work. It is further stated that they adopt an approach of either a 'career' or 'family'. With these findings female engineers' perceptions about how supportive their company is towards work-family conflict will play a major role in their attitudes towards their careers. For instance, when an employer experience challenges at work it has a potential to spill over to their personal life, which may result in them not finding some balance between the two.

Evidently, work-family conflict is identified as one of the hindrances that shorten the professional working life of female site engineers on construction sites. Lack of family oriented policies for female engineers working on construction sites is one of the reasons that they leave the industry or the profession altogether.

The present study found that female site engineers experiencing work-family conflict believed that introducing flexible working hours (working off-site) and providing childcare facilities will prevent burn out and ease up the load of work-family conflict. This in turn will allow female site engineers adequate time to grow and nurture their careers on site.

5.4.3 Lack of Supportive work environment and career growth

Despite women participation on construction sites and them moving from junior level to middle management positions, there seem to be a number of factors that place women in a disadvantageous position required to reach the top.

Findings of the present study show that P9, P12, P5 and P6 believed that female site engineers are not able to progress further in their careers because they lack a supportive environment, which turns out to be a hindrance that shortens the professional working life of engineers on sites. Lack of mentorship programs and employee feedback (in form of quarterly appraisals) were identified in the study as factors that represent a less supportive environment. P 10 is of the view that mentorship programs are needed where required where female site engineers are mentored and prepared before they take up their positions on site. All these issues give a clear indication that it is not enough for females to be appointed as site engineers by their companies; they also need to create a supportive environment

Lack of supportive work environment and career growth was found to be the third ranked factor that contributes as one of the hindrances that shorten the professional working life of

female site engineers. In sharing these views, P11 argued that availability of mentors for female engineers is almost non-existent in the construction industry; she further stated that making the industry more supportive of women and proving clear goals and intentions for their career progression can enable more females to stay and build more sustainable careers within the construction industry. P6 mentioned that female site engineers in South Africa have no reference points to learn from and this explains why they are less likely to succeed on site.

P 6 maintained that many senior female site engineers leave their professional careers on site before they reach directorship level, thus leaving no path for upcoming engineers to learn from. If these reference points were available it would be possible to create mentorship programs, thus reducing the number of professionals leaving the industry earlier than expected. A study by Fielden (1999) found that support on site enables women to cope better with isolation and potential problems from male colleagues; this can be in form of networks and mentoring schemes. Mentorship programs, employee appraisal, flexible working hours and childcare facilities are factors that contribute to supportive work environment. Previous research has shown that a supportive work environment on site yields a positive outcome. Findings reveal that females who work in more supportive organisations reported that they were satisfied with their jobs, they took fewer sick leaves, worked more in their free time, worked later in their pregnancies and they were more likely to return to work after maternity leave compared to females who worked in less supportive organisations.

5.4.4 The Impact of Glass Ceiling Effect on Career Growth Opportunities of Female Site Engineers

The study explored whether the glass ceiling effect experienced by female site engineers has an impact on their perception of career growth opportunities. As well as establishing whether this contributes in female engineers leaving their careers on construction sites sooner than expected. Glass ceiling was found to be the first ranked factor that contributes as one of the hindrances that shorten the professional working life of female site engineers. Findings of the present study showed that participants, P11, P12, P13 and P14 have experienced glass ceiling in their current roles as site engineers working on construction sites. They found themselves not rising to the top like their male counterparts, even though they are qualified and competent enough to rise to the top. The invincible barriers prevent them from breaking through the glass ceiling.

P13 & P14 mentioned that they have relevant qualifications & experience required to move up the ranks, however they remain stagnant in one place. What can be deduced from participant P14 is that while the entry to the construction industry is getting easier for female site engineers, progression to the top is still very slow. P12 expressed that she was preparing to leave the construction industry if the situation does not improve in the next twelve months.

5.4.5 The Perceived Impact of under representation of Female Engineers

In recent years the construction industry has made many strides as far as evolution is concerned, women have been moving towards professional occupations, which were previously reserved for men. As much as opportunities for women in the construction industry are increasing gradually, female site engineers working on construction sites are still under-represented.

The study found that female engineers are still severely under-represented on construction sites in South Africa. This was the fourth ranked factor that contributes to female site engineers leaving their careers on construction sites sooner than expected. Getting more female engineers into construction is a necessity in curbing the skills shortage within the construction industry and introducing diversity which in turn increase creativity and improves efficiency.

5.4.6 Perceived Impact of Cultural Beliefs on Female Engineers

The literature in Chapter 2 examined the cultural and historical identities of women .In many cultures women are fully depended on men from a young age. Those males figure in their lives, be it their father or an uncle, will determine whether they go to school or not. The findings of the study suggest that there is a link between the women's choice of careers in construction and their cultural beliefs as these were informed in their upbringing and determined by their historical backgrounds. The impact of cultural beliefs was found to be the least ranked factor that contributes to female site engineers leaving their careers on construction site earlier than expected.

Most female site engineers endorsed the view those women who believed in the historical traditional roles of women is less likely to choose construction-related careers. Moreover the majority of them held that women who believed that culturally women were merely wives were less likely to embark on careers in construction. The findings showed that even though the cultural and historical identities of women and the roles played in society had evolved

over the years, there was still the belief that women who believed that they were meant to be housewives would not choose careers in construction.

Professional women agreed that their career choices had been influenced by the cultural beliefs and backgrounds. They had also experienced the impact of the traditional roles that women were expected to play in society on construction workplaces. This impact influenced how they conducted themselves as professionals in their workplaces. Those who had studied further had come from communities where women were encouraged to pursue further studies.

The study also found that majority of males in the construction industry still believes that women are better suited for softer occupations such teaching, nursing, administration etc. Employers must communicate with male employees in a manner that will remove judgement and promote equal opportunities for female engineers.

5.5 CONCLUSIONS

This study has provided greater insights into experiences of female site engineers working on construction sites. The study shows that every year the construction industry loses valuable talent and the skills are not transferred any further because majority of female engineers leave the industry altogether. More than half of the respondents cited that work-family conflict and glass ceiling as the number one factors that contribute in shortening their professional working lives on construction sites.

The results reveal similar experiences of female engineers in India and Australia; this indicates that construction culture makes it difficult to achieve a balance between work and family commitments in any country. Furthermore, initiatives such as flexible working hours, mentoring schemes, promotions based on performance can assist with the retention of female site engineers. Equal opportunities policies will ensure that both male and female engineers are promoted based on performance and merit.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCH

During the cause of this study it became clear that most people are still unaware of the value of having female engineers working on construction sites. Gender diversity is vital in redressing the issues of unequal opportunities within the construction sector. The study focused on identifying the hindrances that shorten the professional working life of female site engineers, however, further research should be taken into consideration in exploring the

experiences of successful female engineers who have stayed on in their positions till they have reached senior and executive positions.

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APPENDICES

APPENDIX A

Consent Form for the Interview

Faculty of Engineering and the Built Environment

School of Construction Economics & Management

University of the Witwatersrand

Private Bag x 3

WITS

2050

I …….consent to be interviewed by…… for her study on hindrances that shorten the professional working life of female site engineers on construction sites in South Africa.

I understand the following:

- Participating in this interview is voluntary
- That I may refuse to answer certain questions
- I may withdraw to participate in the study anytime
- My responses will remain confidential

Signed by……..

Date…….

Consent Form for Recording

Faculty of Engineering and the Built Environment

School of Construction Economics & Management

University of the Witwatersrand

Private Bag x 3

WITS

2050

I …….consent to be interviewed by…… for her study on hindrances that shorten the professional working life of female site engineers on construction sites in South Africa.

I understand that:

The tape and transcripts will not be seen or heard by any person other than the researcher

No identifying information will be used in the transcripts or the research report

Signed by……..

Date…….

APPENDIX B

Interview Schedule

Section A (Introduction)

Demographics questions

How old are you?

What is your highest level of education?

What is your current position within the company?

Please state your salary range?

How many years of experience do you have in relation to the construction industry?

What is your area of expertise in the construction industry?

Section B (Corporate culture)

The company you are currently working for is founded on vision and mission that act as guider & a compass in its pursuit of profit making, please elaborate on these objectives?

What policies are you aware of that support female site engineers or any female in junior positions? Are they given equal opportunities?

Section C (Organisational structure)

What is your primary drive in your current positions within the organisations?

Elaborate on how you were appointed to your current position, was it through merits, favours etc.

Are women involved in any decision making in the organisation? If they are involved, their role is to what extent? If not, why is that?

Section D (Legislation)

Are women aware of different legislations and affirmative action policies put in place for them in South Africa? Are these policies taken seriously and implemented in your company?

Do women believe that these policies have contributed positively or negatively for them in the workplace?

Section F (Conclusion)

Respondents can offer their own opinions regarding their experiences as female site engineers in the construction industry

APPENDIX C

Demographic questions

Indicate by using a tick where applicable

Gender

Female

Male

Race Group (for research purposes only)

African

White

Coloured

Indian

Institution/organisation……..

Job Level …….

Indicate with a tick, your organisations' primary activity in the construction sector

Project Management (consulting)		Contractor	
Architectural firm		Government	
Manufacturing		Subcontractor	
Quantity Surveying(consulting)		Supplier	

Would you say female site engineers are under-presented within the construction industry?

Please fill out in the space provided

Do you think the South African companies & the government are doing enough to support female site engineers on construction sites?

Please fill out in the space provided

Do you believe government policies and legislation are successful in curbing these challenges, if not, why not?

Thank you for participating in this research.