APPRAISAL OF CAREER DEVELOPMENT AMONG FEMALE PROFESSIONALS IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

BY

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A RESEARCH THESIS SUBMITTED IN FULFILMENT OF THE ACADEMIC REQUIREMENTS OF MASTER OF THE BUILT ENVIRONMENT IN THE DEPARTMENT OF CONSTRUCTION MANAGEMENT AND QUANTITY SURVEYING, FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

AT THE

DURBAN UNIVERSITY OF TECHNOLOGY,

SOUTH AFRICA

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DECEMBER 2021

ABSTRACT

Every human being aspires to attain to the top of his or her career. Failure results in dissatisfaction, poor productivity, and lack of interest and proper engagement in the career. The study aims to appraise career development (CD) among female professionals in the construction industry in South Africa.

The study was conducted among registered female professionals in the SA construction industry. The purposive sampling technique was employed in reaching the sample. The sample frame comprised of registered female professionals within the South African Council for Project and Construction Management Profession (SACPCMP). The total number of registered professionals is 158 and the whole population was taken as the sample size. The questionnaire to the study was administered to the respondents online using Google formssurvey. A total of 67 questionnaires were returned filled, representing 42.4% achieved rate.The inferential statistics was used for data analysis.

The findings indicated that gender discrimination has a significantinfluence on females' participation in CD in the construction industry. Training and continuing education in the construction industry's influences contribution to CD for female professionals, family, and social commitments are impediments to career development for female professionals. Passion mostly motivates the interest in the career choice of females in the construction industry and the factor that most enhances the successof female professionals in career development is education.

Recommendations include that policies put in place should be such that women are represented at all levels and the opportunities are granted fairly to ensure that females are not discriminated against. Provision for training programs be made and salaries for femaleprofessionals should be adjusted such that there is an allowance to cater for domestic assistance. Females should pursue or obtain higher degrees to be successful in career development in the construction industry. These qualifications are such that females couldbe placed in managerial positions. Therefore, the following post-graduate programs are recommended: Construction Management, Human Resource Management, Industrial Psychology, and many others.

Keywords: Career, development, construction industry, female professionals

DECLARATION

This dissertation is the candidate's own work except where indicated in the text and has never beensubmitted part thereof or in whole at any other university of technology.

The research was conducted at the Durban University of Technology under the supervision of Dr

A.O. Aiyetan and the co-supervision of Dr M.C. Mewomo.

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DEDICATION

This dissertation is dedicated to my husband and kids, my sister and my mother for their amazingmotivation.

ACKNOWLEDGEMENT

It has never been an easy route but with God's grace, it has finally gone.

The journey was not very easy, full of challenges but through God's grace it has come to itsdestination and the first acknowledgment goes to Him and the rest out to:

- Dr A. O. Aiyetan of DUT for his supervision and dedicational support.
- Dr M. C. Mewomo of DUT for her unmeasurable support besides co-supervision.
- Sizwe Zungu for his support and encouragement, Sithelo and Sihawu for their support andmotivation.
- Monica Balintulo my mother for her support, Tutuzela Balintulo my sister for her support,encouragement and motivation.
- Ms S'nakhokonke Madlala of SACPCMP for her assistance.
- Dr Justice Agumba of TUT for his assistance
- Mrs Elke H Hefer for her assistance
- I would like to thank all my male friends who paved a way for me to reach participantswhom they work with.
- I would like to extend my gratitude to all the participants of the research data gatheringthrough completing questionnaires.

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CHAPTER ONE

GENERAL BACKGROUND OF THE STUDY

1.1 Introduction

This chapter presents an introduction that highlights the background of the research and the statement of the research problem. The background provided led to the identification of gaps fromprevious studies, which the current research aims to fill. This chapter also presented the significanceof the study and an outline of the thesis structure. This chapter thereafter provides the aim and objectives of the study, the scope of the study, the limitation of the research as well as an introduction of the research methodology employed in the study.

1.2 Background of the study

The building sector is often regarded as one of the most important contributions to a country's economic prosperity (Akanni, Oke, & Akpomiemie, 2014). This means that the building industrycontributes significantly to global growth by providing jobs. However, due to its high gender stratification, the construction sector continues to be conservativein its recruitment of women (Aulin & Jingmond, 2011). The social factors that enable occupational racial disparities of the labour market between masculine and feminine vocations are as pervasive now as they were at the turn of the century, with the construction sector serving as a classic example (Elena, Marisa & Margarita, 2017).

According to Rosa, Hons, Xia and Lamari (2017), the construction business is overwhelmingly male-dominated, with women underrepresented in almost every aspect of the sector.

There is some progress in trying to mitigate the gender imbalance; most of which the industries worldwide, are contributing to it. However, the gap is still there and females in most industries are underrepresented especially with the senior management positions (Valentova, Otta, Silva, McElligott - PeerJ, 2017).

This finding indicates key challenge in the area of opportunities available to women. Women's participation in construction work is extremely low, ranging between 9% and 13%, andhas stayed relatively constant over time, although there is a minor increase in several other nations (Navarro-Astor, Romain-Onsala & Infante-Perea, 2017).

According to the National Association of Women in Construction (2020), female involvement in the construction industry in the United States was 8.9% in 2014 and 9.9% in 2018. Also, women's involvement in the construction sectorin the UK and Australia in 2018 was 12.5% and 12% respectively (Australian Bureau of Statistics,2018; GMB, 2019). Rosa *et al.* (2017) also investigated the role of women in the Australian construction sector and discovered that women made up 11.1% of the labour force. In this statistics,5.8% of the 11.1% are involved in part-time work, while the remaining 5.3% are working on a full-time bases.

Given this, numerous attempts have been made to eliminate the problems of gender discrimination in the construction industry. Several organisational and governmental programs have been implemented over the last several decades to improve the number of female professionals in the construction sector (Norberg & Johanson, 2020). To combat gender discrimination, rules and regulations on equality and diversity have been implemented. Companieswith more than one hundred workers in Australia, for example, are required to declare the makeupof their employment to the government (Lua & Sexton,

2010; Galea, Powell, Loosemore & Chappell, 2015). Despite these attempts, research showed that the industry remains highly dominated by male professionals (French & Strachan, 2015; Powell & Sang, 2013; Naoum, Harris, Rizzuto & Egbu, 2020; Shrestha, Choi, Shrestha, Lim & Nikkhah, 2020). This means that for theconstruction industry to transit to an efficient and effective working environment and gender bias elimination, career development for women in the Construction Industry must be addressed. In addition to that, previous studies on career development in the construction sector focused on how masculine beliefs and traditional image of male professionals as courageous, risk-taking, technically skilled, and muscular continue to shape the sector (Lu & Sexton, 2010; Ness, 2012; Stergiou *et al.,* 2013; George & Loosemore, 2019) while most studies on women in the sector havefocused on the challenges they face (Lu *et al.,* 2010; Navarro-Aston *et al.,* 2017). Unfortunately, research on how women's career development in the sector is regarded and portrayed in general tends to be lacking.

In South Africa, the state of women's CD in the construction industry is not quite different from other countries. Thusi (2014) and Yokwana (2015) discovered a lack of career growth for women.Francis (2017) also discovered that the rate at which women advance through the construction industry's pyramid of labour levels differs from that of their male colleagues. Ndweni, Ozumba, Mbalenhle, and Agbhaegbuna (2021) noted that women's participation in education and training has improved providing women access to degrees that would help them achieve their job success. Vainikolo (2017) also affirmed that academic training makes it easier for women to enter the construction sector, but they do not ensure their professional achievement. Consequent to this, the South African government implemented gender-related laws such as the Employment Equity Actand National Policy Framework aimed at empowering women and supporting their

professional growth (Ozumba & Ozumba, 2012). Despite this, there is still a missing link between women's career development in the construction industry. There also seems to be dearth of research studieson women's CD in the SA construction industry. Moreover, it appears that there is a lack ofinnovative assessment and comprehension of the various challenges facing women and success factors that contributes to female career development in the construction industry. Therefore, in order to layout effective strategies that can advance women's CD in construction, there is an urgent need to have a good knowledge of the challenges facing women in the context of the building construction industry and what can be done to overcome these challenges and improve their career success. Furthermore, it appears that the effectiveness of the existing strategies from previous research is yet to be established. Consequently, the impact of the existing policies and strategies in reinforcing the factors affecting women's career success in construction is yet to be known.

1.3 Problem Statement

The status of women is an important factor affecting the overall development of any country (Fernando, Amaratunga, and Haigh, 2014). Thus, women's career development is a global concern in the new millennium (Islam and Sultana, 2006). In most of the developing countries and South Africa as well, women's career issues are at the forefront. The South Africa Government has takenmany initiatives including provisions for equal rights of men and women but the impact is yet to be felt. Understanding the skill requirements of women professionals is considered one of the strategies to tackle gender discrimination in the construction industry (Norberg and Johansson, 2020). Recent studies on career development in developing countries such as South Africa revealed that

the construction industry is experiencing a major setback in the availability of skilled professionals owing to the non-advancement of professionals (females included) in their career paths (Jimoh *et al.,* 2016; Norberg *et al.,* 2020). Women professionals find it difficult to reach thetop of their careers due to discrimination (Sangweni, 2015). This lack of career development of female professionals has led to a lack of skilled workers, quality defects, scheduleoverrun, inappropriate use of materials, improper construction methods, etc. These findings are also consistent with Hussein *et al.* (2018) who identified that the lack of skilled professionals in the construction industry experienced a higher degree of cost overruns and posed a threat to cost performance, lack of expertise, lack of knowledge, and poor workmanship. These studies concluded that, in order to improve the number of female professionals in the construction industry, hence a need to study career development.

Due to the importance of women and female professionals in the construction industry, studies conducted on female skills requirements in construction. Women are considered to be, the most vibrant and dynamic segment as well as potentially the most valuable human resources accordingto (Diwakar & Ahamad, 2015). This agrees with the claims of (Fatimayin, 2013) that women are superior that when it comes to visioning and communicating, providing clear instructions, taking leadership, inspiring others, establishing high-performance standards, and taking on responsibilities. The author pointed that these characteristics make women the main force in an economy's informal sector with just a little share of the formal sector compared to their male counterparts. However, their diligent skills and women's influence in the construction industry isyet to be felt (Aulin & Jingmond, 2011). As a result of cultural preconception that building skills are exclusively for males, women's enrolment in building trades and industry has been

underwhelming, a widespread belief that requires urgent attention. Despite the fact that most professions in the construction sector, including leadership responsibilities, may be performed bywomen, males still dominate the business (Ness, 2012). Although there has been progress as women obtain credentials and enter the workforce, males are still more likely to hold top jobs thanwomen with comparable experience and education (Russell *et al.,* 2017). Therefore, for the construction sector in South Africa and other developing countries to eradicate gender discrimination among professionals, skill requirements of female professionals need to be studiedas this could change individuals' thinking towards the roles of women in the built environment. The present study aims to fill this gap in the literature.

Furthermore, studies that examined the factors influencing career development of female professionals in the construction industries included Worrall *et al*. (2010); Powell, Dainty and Bagilhole (2010); Hatipkarasulu and Roff, (2011); Obamiro and Obasan (2013); Arditi, Gluch andHolmadahi, (2013),; Azhar *et al*. (2014); Navarro-Astor *et al.* (2017); Barreto *et al.* (2017); Rosa,*et al*. (2017), and Bee, Feng, Benson and Lim (2019). Studies by Powell *et al*. (2010) and Hatipkarasulu and Roff, (2011) mentioned that the lack of confidence and timidity, lack of interestand enthusiasm, lack of female role models and family matters are factors influencing women's career development. Other studies by Navarro-Astor *et al.* (2017), Barreto *et al.* (2017), Rosa, et al.(2017), Bee, Feng, Benson and Lim (2019) affirmed that factors such as negative perceptions of women capabilities, minimal recognition of women on construction sites, poor managerial skills for motivation such as, lack of support and recognition from superiors, the assigning of uninteresting minor task, results in discouragement as some women felt undervalued, , misjudgedon performance compared with their male counterparts were factors affecting career development of

female professionals. Also, the majority of these existing studies on women's career development in construction were mainly conducted in foreign countries like the USA, UK, Australia, etc. In Nigeria, Jimoh, Oyewobi, Adamu and Bajere, (2016) and Ahmed and Agboola (2020) noted that the image of the construction industry, career knowledge, male-dominated training courses, recruitment practices and procedures, sexist attitudes, male-dominated culture and the working environment was notable factors affecting career development of female professionals in the construction industry. This view was also supported by Ayegbokiki, Ogungebemi and Atoyebi (2019) who attributed the factors affecting female professionals career development in the building construction industry as a factor of managing motherhood, unsuitablerigid work hours, sexual harassment by male workers, the disparity in remuneration and position on construction sites, unhealthy job relationship, cultural factors and working environment barrier.In view of this, this study put together all the aforementioned factors and analyse how these factorsinfluence the career development of women professionals in the South African construction industry.

Also, various studies have looked at strategies that could improve the career development of female professionals in the construction industry. The majority of the studies have mentioned the use of educational and motivational strategies. Previous studies has suggested some factors such workshop, team building, seminars and training in skills development, communication and provision of incentives for project team members (Amaratunga and Haigh 2014).. Aulin and Jingmond (2011) also mentioned that flexible work schedules and work hours are important factors. In line with Amaratunga and haigh (2014) views,Worrall *et al.,* (2010), noted that active and well-organized training and CD programs are dependable approaches in the career development of personnels. In addition, Obamiro *et al.* (2013) suggested introducing flexible working hours, reducing

workload and making the work less tedious and stressful, eradication of foul languages and harassment of women and continuous supports to balance family responsibilities. Ayarkwa, Agyekum and Acheampong (2012) suggested mentoring, an increase in role models, elimination of gender bias factors and giving career guidance. Networking and mentoring schemes were also considered to retain female professionals in the building constructionindustry. However, the application of all these strategies is yet to be explored in the South Africanconstruction industry. These are necessary to broaden the existing knowledge on skill requirements and career development generally and specifically in the construction industry.

1.4 Research questions

The following questions served as a guide for this study to address the identified problems:

1. Which factors influence participation in career development among femaleprofessionals in the construction industry?
2. Which factors contribute to career development among female professionals in the South African construction industry?
3. What are the impediments on career development of female professionals in the South African construction industry?
4. What are the motivational factors to influence the interest and choices of female professionals in the construction industry?
5. What are the qualities that enhance the success of female professionals in the construction industry?

1.5 Aim of the study

This study is designed to provide strategies to improve the career development of femaleprofessionals in the South African building construction industry.

1.6 Research objectives

The research intended to accomplish the following objectives:

1. To assess factors influencing participation on career development among femaleprofessionals in the construction industry;
2. To identify factors contributing to career development among female professionals in the construction industry in South Africa;
3. To determine the impediments on career development of female professionals in theconstruction industry in South Africa;
4. To investigate motivational factors influencing the interest and choices of female professionals in the construction industry;
5. To determine the qualities which enhance the success of female professionals for a system dynamic approach in the South African construction industry.

1.7 Significance of the study

The study on female career development in the construction industry in South Africa is very important given the role, the construction industry has been playing as an informal sector in the development of the economy as well as its great input to the Gross Domestic Product. The study provides the construction industry with adequate information on adequate and well-defined measures to solve the issue of the low number of females

entering the construction industry. Moreso, the outcome of this research is of great importance to academia in serving as a written document to already existing literature worldwide on this particular study. This study has the potential to serve as a guide to government, non-governmental organisations and various stakeholders involve in the construction industry. The study will be of a great benefit to human resource managers in the construction industry in articulating deliberate strategies that can favour CD opportunities for women in the sector. The finding will further aid in workplace policies that encourages women's career development. The study will help the employees in the construction sector to understand the interventions that ought to be implemented in addressing career development-related issues that affect them. The study contributed to the existing body of knowledge in the area of career development for women and its influence on the performance of the construction industry as a result of changing environmental conditions. It also inspires future researchers to carry out further research in the same or related field.

1.8 Research methodology

This section of the research study dealt with the planning and organisation of various procedures and techniques that enabled data collection and analysis. It provided the general ideology behind an approach by ascertaining the relevant concepts, ideas and frameworks that best define a topic. Hence, the research methodology formed the basis of reasoning and justified choices to understand the social world. One of the most important outcomes of this section was to identify methodological traditions that would provide robustness and justification in the adoption of the relevant data collection and

analysis techniques that would be suitable for use. In addition, this research study adopted quantitative method. However, the selection of particular research strategy contingents on the available information and the purpose of the study (Baiden, 2006). Therefore, this study adopted a quantitative research strategy to proffer solutions to the stated research questions and outlined research objectives, thus developing strategies to improve the career development of female professionals in construction industries in South Africa. Chapter 3 of this dissertation elaborates on the research methodology.

1.9 Ethical statement

During the entire process of conducting this research, ethical issues were considered and meticulously adhered to. Respondents were not coerced into participating in this study, they were given the option to take part voluntarily and were presented with informed consent. The privacy of the research experts and participants has been made confidential and will not be disclosed to anyone who did not participate in the study. Throughout the study, participants remained anonymous.

1.10 Structure of the dissertation

The entire dissertation was organised into the following themes and chapters:

Chapter 1- Introduction

This chapter presents an overall overview of the study and highlights critical sections such as the research problem, motivation, and significance of the study. The chapter also presents the aim of the research, the research questions, and the objectives. The description of the various methods used in data collection and analysis were also

discussed in this section. The ethical considerations guiding this study was further presented in this chapter of the research.

Chapter 2- Literature Review

This chapter contains an extensive review of literature generally on career development for femaleprofessionals in the construction industry which comprises each objective that was treated in the research; skill requirement of female professionals in the construction industry, impact of lack ofcareer development of female professionals on the construction industry, factors influencing the lack of career development of female professionals and strategies to improve career developmentof female professionals in the construction industry in South Africa.

Chapter 3 – Research Methodology

This chapter of the thesis provides an overview and robust description of the research design, research methodology, methods and tools used to obtain data. The chapter contains sections explaining the philosophical underpinnings of the research. The method of data collection, namelyfield questionnaires and personal observations is adequately described in this chapter. Theadoption of the quantitative sampling approach is explained in detail and fully justified. Finally, this chapter provides a detailed description of the population, sampling design, questionnaire instrument, data collection process, introduction to data analysis and ethical considerations.

Chapter 4 – Discussion of Results

This chapter presents the interpretation and discussion of the results of the field survey. The chapter further reviews the results of the quantitative survey (field-based

questionnaire) to check for convergence and divergence.

Chapter 5 – Conclusions and Recommendations

This chapter presents the various conclusions and recommendations that are based on the findingsof this study. The chapter reviewed each research question and summarise the processes involved in achieving the earlier stated objectives. The value and contribution of this research were described under three themes, namely theoretical, methodological and practical contributions. General recommendations and areas for future research will follow this. Finally, this chapter discusses the limitations of the study, and conclusions will be drawn.

1.11 Chapter summary

This introductory chapter provides an overview of this research by providing insights into the background, structure, significance, and relevance of this study. The chapter provides a general overview of this career development study. The next chapter provides the theoretical and conceptual perspectives underpinning the concept of career development through a rigorous review of the literature.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This section reviews research works on the present study. The study review literature on the skill requirement of female professionals in the construction industry, the impact of the lack of career development on female professionals in the construction industry, factors influencing the lack of career development among female professionals, and strategies to mitigate the lack of career development among female professionals in the construction industry.

2.2 Career opportunity and skill requirements for female professionals

Skill is the ability to do something. It is the capacity and systematic and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas (Osuala, 2004). Uga (2006) stated that skills are needed for performing certain tasks in a work situation because skills are practical activities that individuals perform for work to be done effectively. To qualify to work in a particular sector one must possess the requisite skills and knowledge; the construction sector is no different. The Construction Sector Council (CSC) (2010) reported that women possess abilities that can enable them to involve in the engineering and construction profession and as such can participate in lighter construction activities and project management. Kumar and Karthikeyen, (2016) noted that for adequate career development to be enhanced, thereis a need for professionals to improve their skills, teambuilding skills, organisational behaviour and social bearing.

According to Moir *et al*. (2011), women interested in construction careers can take advantage of training and mentoring programs from organisations dedicated to promoting gender equality in the industry. The author further noted that women looking to pursue construction management careersneed to take up skills like leadership, problem-solving, initiative, and customer service. Bougle (2009) stated that women professionals also need a good knowledge of every operation or process under his/her control to be able to eliminate common faults, wastage, and any dangerous practices. Also, practical and theoretical knowledge plus varied experience are essential to command respectand help others. Fielden, Davidson, Gale and Davey (2011) in their findings found that women majorly are found in administrative and human resource management roles but have a low turnoutin design, engineering and construction itself.

2.3 Factors affecting the participation of female professionals on career development in construction industry

2.3.1 Nature of the industry

The construction industry has been regarded as a complex industry because of its benign nature (Amaratunga *et al*., 2006). The construction industry has been described as hard, masculine and difficult. Hard in terms of the kind of resources and materials used and the stress that is involved,for example, the lifting and transportation of building materials from one point to another. Masculine in nature is related to the fact that it is mostly dominated by the male gender. Agapiou(2002) observed that the male-dominated image signifies an industry that requires brute strength and good tolerance for outdoor conditions, inclement weather and bad language. Amaratunga *et al*. (2006) observed that this is the principal

reason women are uninterested in the construction industry. The image of the industry is associated with bricklaying, deeming it dangerous, hardworking and macho, despite years of positive image campaigning (Jones, 2005). English *et al.* (2006) revealed that construction by its very nature constitutes a challenge in terms of health and safety and ergonomics as it exposes workers to a wide range of health and safety issues. The nature of the industry is a major reason why some women professionals might not want to participate in construction-related matters.

2.3.2 Socio-cultural Perception and Orientation

Socio-cultural perceptions have also been seen as an issue affecting the career development of women professionals. Some particular jobs have already been attached to the girl child due to stereotyped beliefs which are attributed to cleaning, cooking, and domestic farming. Sangweni, (2015) also considered the poor representation of women as well as the influence of cultural beliefswhich tend to shorten the working life span of female professionals in the construction industry.

2.3.3 Poor image of the construction industry

Bee, Feng, Benson and Lim (2019) has noted that the following factors affect CD among female professionals: difficulties in performing a heavy task, competitive working environment, difficulty to integrate into the male-dominated industry, very long and inflexible working hours, etc. English *et al.* (2006) indicated that the image of the industry discourages participation by women such as inflexible working environments. Other factors influencing the CD of women professionals in the construction industry include gender stereotypes, the problem of balancing family responsibilities with work demands, poor industry image, the perception that the industry is dirty and dangerous, sexual

harassment, high work demand, and stress level, etc.

2.3.4 Gender discrimination

Jahn (2009) affirmed that women working on-site, nowadays, are victims of unfair treatment, discrimination and disrespect. Ahmed and Agboola (2020) noted that the construction image, career knowledge, male-dominated training courses, recruitment practices and procedures, sexist attitudes, male-dominated culture and the working environment were notable factors affecting the career development of female professionals in the construction industry. Powell *et al.* (2010) found that females abandoned their organisations as a result of perceptions of what they referred to as “outright discrimination” as well as fewer career advancement opportunities. Even though lack offit and discrimination can reduce females’ career advancement, organisations can assist with increasing access to organizational training and development, providing senior role models as wellas encouraging supportive supervisory practices.

Worrall *et al.* (2010) also discover that in addition to discrimination, females are facing hurdles like (exclusion from networks, lack of mentors, etc.) in their careers, which affect both retentionand progression.

2.3.5 Discouragement due to male attitude

Construction industry is well known of being male dominant and as of such males turn to be free at work as though they are alone and start behaving in a manner that is not accommodative to females. The culture of the industry is stereotypical meant for males predominantly for example their network platforms whereby are made to be the male orientated sports events like golf etc. Ahmed and Agboola (2020) noted that the

construction image, career knowledge, male-dominated training courses, recruitment practices and procedures, sexist attitudes, male-dominated culture and the working environment were notable factors affecting the career development of female professionals in the construction industry.

2.3.6 Fear of the competition within men

Jimoh et al. (2016) found that women face several challenges ranging from the lack of self- confidence to compete with their male counterparts. Rosa et al. (2017) mentioned negative perceptions towards women, life-work balance, and stress as the top mentioned encounters that influence women's career development. The performance and poor career development for women in construction are highly influenced by the gender stereotypes they encounter in the workplace, lack of self-confidence and insecurity to compete with men (Jimoh, Oyewobi, Adamu & Bajere, 2016 Barreto et al. (2017) identified peculiar barriers facing the CD of women. In his research, it

was discovered that women face invisible barriers throughout their careers and have fewer professional opportunities than men.

2.3.7 Masculine nature of the job requirement

The construction industry is viewed to be masculine inclined, difficult, working in extremely harshweather conditions as well as climbing up and down scaffolding and ladders which comes with some risk for women.

The engineering and construction industry demands masculine personae therefore female professionals are said to be invading this field which was previously known to be

for males only (Thurasamy *et al*. 2011) This was also supported by Ness (2012). Ayegbokiki, Ogungebemi, and Atoyebi (2019) attributed the factors affecting female professionals' career development in the building construction industry as factors such as managing motherhood, unsuitable rigid work hours, sexual harassment by male workers, the disparity in remuneration and position on construction sites, unhealthy job relationships, cultural factors and working environment barrier.

2.3.8 Family commitments

Abele & Spurk, (2011) conclude that family responsibilities have a significant influence in reducing women's career development. Worrall et al., (2010) denote that children often consume more time that could be dedicated to working overtime or long hours and their long hours of workcould mostly be afforded by males as they generally spend very little time with children.

Stereotypically, women are still having the primary duty of taking care of children as well as the households irrespective of more equal sharing domestic duties in recent times (Watts, 2012).

Even though career breaks, parental status, and the number of children, have been discovered to hurt women. The employment of domestic assistance has been used to minimize that effect to a greater degree (Lu & Sexton, 2010, Frances, 2017, French & Strachan, 2015). Amaratunga *et al*.,(2008) confirm that children are always seen as hurdles to the career advancement of women, especially in the Construction Industry. Construction's ethics of presenteeism culture, refusal to accept career breaks and long working hours are usually mentioned to be challenges for women,

together with the need to relocate for project purposes (Amaratunga *et al*. 2008, Watts

2012, English & Le Jeune 2012). There are certain studies in other disciplines apart from construction that denotes partners and children have very little impact on women's progress over the life span (Kahn *et al*., 2014). The benefits of multiple roles (George & Loosemore, 2018, Oliver, 2013) are considered to overshadow the greater stress managerial women perceive in balancing their home lives and work (Powell, Dainty & Bagilhole, 2010, Naoum, 2019). According to Astor *et al.* (2017), women in the construction industry confront numerous career barriers, the more frequent being the difficulty of balancing work and family, and the lack of professionalism in human resource management (Ortiz, Nicholls & Leonard, 2015).

2.3.9 Recruitment policies and procedures

The construction industry is characterized by competition amongst colleagues, extensive workinghours, and self-sufficiency probably as a result of the industry having more males than females asa result male values turn to dominate and are standardized for the industry Amaratunga *et al.* (2006). Other authors indicate perceptions that are undesirable about the capabilities of females (Chun, Arditi & Balci, 2009); Menches & Abraham, (2007) reveal minimal recognition on the project site. Further, striving to balance the two parameters, i.e the professional and personal goalsHatipkarasulu and Roff, 2011); English & LeJeune, (2012) slow career advancement; Loosemore& Waters, (2004) lack of support from superiors and high-level of stress, including lack of matching recognition for the work done, Dainty & Lingard, (2006), misconception between the construction industry image and female societal involvements, the unfair attitudes towards female performance in comparison to their male counterpart performance. The strength of organisationalculture is directly proportional the 'internalisation' and acceptance of the

beliefs and values of theorganisation by its members. Base on the fact that that the construction industry is considered being a male-dominated industry, the deep-rooted masculine idea is maintained by the 'internalisation' of masculine attitudes and ideologies Naoum (2011). Furthermore, it is worth noting that cultural change is influenced by some factors such as management strategy, organisational characteristics and values, and leadership, operational and environmental influences, as a result, there is no assurance that changes to gender diversity will result due to changes in policy and structure.

2.3.9 Lack of career progression

Jimoh *et al.* (2016) also found that women are facing several challenges ranging from a limited number of women attaining senior positions in a firm and a smaller proportion of women trainingin construction-related fields to unequal job opportunities for women. These findings are similar to the results of Dainty and Lingard (2006), Shanmugam *et al.* (2007) and Azhar *et al*. (2014), who found most of the barriers stated herein as impediments to female participation in construction.

2.3.10 Female preference for some jobs to others

Nature of the industry among other things does affect the number of females who get attracted and pursue career in construction. This include the harsh weather conditions under which the construction work is carried out. Female professionals like Quantity Surveyors among others easily get unhappy with their workloads, which are influenced by the long working hours and lack of work-life balance (Lian and Ling 2018). This may be due to the risk and uncertainties they have to face when dealing with different construction industry stakeholders (Wiese 2015). With all these in mind females just

decides to pursue other less demanding career paths. Some studies also states that the lack of awareness and recruitment of girls or young females from high school levels also contributes a lot in many potential students ending up in other different careers as opposed to construction.

2.3.11 Lack of mentoring

Application of mentoring is commonly practical whereby the candidate will work closely with the mentor or under his or her direct assistance or sometimes supervision. This provides exposure of the candidate to the reality of the job and hence develop a lot of motivation and encouragement. For a profession of this nature it would be so beneficial to have female mentors (who are so scarce) for female candidates whom young females can aspire to emulate. Therefore, lack of mentoring would just bring some confusion and discouragement. Obamiro and Obasan (2013) mention lack of confidence and timidity, lack of interest and enthusiasm, lack of female role models, and family matters as factors influencing women's careerdevelopment. English and Hay (2015) also felt thatpolitical policy is insufficient to provide change, rather women need to be monitored to ensure equal opportunities and the provision of initiatives to support women such as role models and mentoring programs are essential.

Fernando, Amaratunga and Haigh, (2014) and several other authors have recommended mentoring programsas an added strategy to improve the CD of females in the building construction industry. This would probably result in the encouragement of staff at higher levels to engage in mentoring of junior members upon entrance into the industry and assist them in navigating company policies and close relationships with senior staff and be able to see them through regarding challenges theymay face.

2.3.12 Salary and wages compared to other jobs

Bee *et al.* (2019) examined the factors affecting career women in construction and barriers faced by them and discovered that career opportunity, belief in getting better pay. The results of the studyby Infante-Perea *et al.* (2016) have also shown that both men and women perceive the job marketconstraints and inadequate preparation as the two main career barriers.

From the foregoing literature review by other researchers, various factors were concluded to have affected the career development of female professionals in the construction industry. Most of these studies were carried out in developed and other developing countries. Therefore, there is a need toinvestigate the factors influencing the career development of female professionals in the South African construction industry.

2.4 Factors contributing to career development of female professionals

2.4.1 Training and continuing education

Fernando, Amaratunga, and Haigh (2014) suggested that there should be training programs designed to develop team skills. He also suggested that seminars and workshops should be organised for project team members to develop their communication and professional skills. Further, Worrall *et al* (2010) noted efficient training and CD programs as an additional and provenstrategy to develop the career of employees in an organisation. (Worrall *et al.,* 2010).

2.4.1 Promotion

When promotion opportunities arise in industries where one gender dominates over the other, it isperceived that the dominant one will benefit or be more highly regarded than the less dominant one. The above does not exclude the construction industry which is male dominant. Francis (2013)in his study provided noted that promotional procedures have a potential gender bias.

2.4.2 Mentoring

This is a process where candidates are being groomed and prepared for a future profession or position and even employment. Ayarkwa, Agyekum and Acheampong (2012) suggested strategies such as mentoring, increase inrole models, elimination of gender bias factors, giving career guidance and increasing constructionhigher education to attract and retain professional women in the industry. These strategiesaccording to the author will help retain female graduates and enable them effectively participate in infrastructural development. Evidence suggests that equipping female students with an opportunity to embrace courses in construction studies is inadequate and incomplete without supporting them in their studies through to a career. Consequently, Moore (2006); Fernando, Amaratunga and Haigh, (2014) and several other authors have recommended mentoring programsas an added strategy to improve the CD of females in the building construction industry. This would probably result in the encouragement of staff at higher levels to engage in mentoring of junior members upon entrance into the industry and assist them in navigating company policies and close relationships with senior staff and be able to see them through regarding challenges theymay face. Rosa *et al.* (2017)

findings reveal that more social/networking platforms be created to break the existing norms of networking. The author also suggested getting a role model/mentor will assist in improving the existing networking. Moreover, mentoring will assist in retaining females in their construction chosen career (Francis, 2017).

2.4.3 Networking

Networking means interacting with other people within the profession or industry, sharing ideas and doing business in the form of marketing. There are different ways and platforms of doing this.With today's technology, social media covers a lot, however, one has to be vigilant as to how one

uses it, as it could also do the opposite if not implemented properly. There are certain female platforms like tea parties and kitchen parties that can be diverted and celebrated in the form of conferencing career opportunities from local societies. It has been indicated that formal business networks that are for women can be adopted for organisations and the wider social group of womenin management and leadership positions (Villeseche *et al.,* 2017). Thacher (2015) discovered thatevents starting from as simple as organising lunch could also be looked at as the platform for networking. The author further confirmed that lunch with like-minded individuals strengthens relationships and facilities knowledge sharing.

2.4.4 Motivation

It is crucial to motivate those who are already in the industry and also to encourage those who arewilling to come on board but have a fear of the unknown. Self-motivation can also be achieved, for example, English and Hay's (2015) study reflects that the response from

their interviewees emphasised that men will not change but that women can. “You have to be clear and strong abouthow you want to be treated. It is hard work earning their respect and even harder to maintain it! It’s ongoing” (English and Hay, 2015) One other thing to consider is when the higher learning institutions are marketing themselves to the high schools, the construction and other built environment departments should also assign female representatives to target females in high schools so that the females would be motivated from a young age to also consider construction as a profession and understand that it is not only for their fathers and uncles but for them as well.

2.4.5 Job sharing programs

The concept of the introduction of Key Performance Indicators (KPIs) predicated on productivityrather than unofficial presentism merit-based system will provide an avenue for women to prove that they can perform in a role without reliance on long working hours (NAWIC, 2013). Job sharing can be referred to as the situation where two employees may be working temporarily doingthe job of one permanent employee. This gives the relief of permanent benefits to be offered by the employer as well as giving the employees some flexibility in terms of working hours as well as reduced workload. There are two types of job shares: the "twins model," in which the job- sharing employees work together on the same projects seamlessly; and the "island model," in which the job-sharing employees work independently of one another, on different tasks, according to Cynthia Thomas Calvert, president of Workforce 21C. Job sharing is not very common among professionals in the construction industry as it is easier and best that the professionals should startand finish projects at hand unless the situation is extreme.

2.4.6 Tuition refund programs

This could be adopted as a way of inspiring and encouraging students to invest in their studies while at the university. An institution could set up a rewards program, like a percentage of tuitionto be refunded to the students who perform very well and pass all their modules with distinction for the semester. Another approach would be to motivate them to pay their fees in full by rewardinga certain percentage of fees back to all those who managed to pay their fees in full for the semesterby the end of the first month of that semester.

2.4.7 Incentive for late retirement

Construction industry is perceived to be amongst good paying industry however the demand of the jobs counter balances all of that and construction workers and professionals, always wish they could get extra money. Because of that, they wish to extend the retirement age, so they can continue to earn some income especial if there are no health issues. This industry is often regarded as scarce skilled working environment and because of that, the organisations can benefit in terms of retaining the experienced healthy workers but in certain conditions. (Blomé, Borell, Håkansson & Nilsson, 2020) in their study discovered that it is important to introduce age management which is followed by practical aspects to be handled, which as per the conditions of different organisation and individual position turn to differ from one another. Authors then conclude to say the key to successful age management is a customized integrated strategy, which is designed through applying a suitable approach to explore the organizational preconditions and the existing attitudes.

2.4.8 Paid and unpaid leave bonuses

Leave benefits in most employment organisations are the same for males and females except for maternity and paternity leave. In South Africa, female employees are entitled to four consecutivemonths of unpaid leave. They need to inform the employer in advance as well as apply for the UIFbenefit, which will pay them whilst on leave (Olusola *et al.*, 2012)

2.4.9 Realistc job previews

A realistic job preview is any simulation designed to teach prospective applicants about a job's duties, expectations, and daily activities in the workplace. These are perceived to be the ideal wayof recruiting the best suitable candidates for employment. For example, some candidates become interested in a job advertisement without really understanding the day-to-day requirements of theposition and only discover after being hired that things are not as expected which results in their frustration of not enjoying the job as the employee. Psychologically, a frustrated employee is mostlikely to be less productive which might affect the employer as well.

2.4.10 Dependency care services

This in line with the family programs do affect female career development particularly in construction industry. Studies indicate that females at some point in their lives they need to have babies and look after them then later in their lives they need to look after sick aged parents. All these affect career and career development badly. Francis (2017)

reveals that employing domestic assistance as additional resource at least manage to improve career progress. Another alternative is to take the child to the day care centre and pick it up after work. Most of these options come at a price which is why the salary should also be considered in this case. In short is the salary is low they one cannot afford these services and that would mean the career will suffer.

2.4.11 Flexible work schedule

Aulin and Jingmond (2011) cited flexible work schedules and work hours are positive ways to encourage female professionals in the construction industry. In addition, networking and mentoring schemes are considered ways to retain female professionals in the construction industry.Jimoh *et al.* (2016) noted that making young women aware of the opportunities in construction, better representation of women and extending the influence of women are best strategies for the continued participation of women in construction. The study also showed that flexible working hours and creating scholarship opportunities for women especially for secondary school and university students to pursue a degree in the built environment are good strategies to improve women's involvement in construction. Obamiro and Obasan (2013) suggested that introducing flexible working hours, reducing workload and making the work less tedious and stressful, the eradication of foul language and harassment of women and continuous support to balance family responsibilities are possible ways to improve the career development of female professionals. Numerous studies showed that lack of Flexible Working Arrangements (FWAs) tend to prohibit women to become mothers, which would enhance role performance (Caro, Madrid and Cárdenas, 2022).

2.4.12 Work-family programs

There needs to be a balance between career and family programs, which can be such a challenge for female professionals especially in construction industry. Francis 2017 reveals that family variables such as parental status and career breaks affect career development particularly for females in construction industry considering their demanding roles. The author goes further to say in any event partnered females who turned to share the responsibilities and assist each other, may improve career progress.

2.5 Imperdiments on career development programs for female professionals

2.5.1 External funding issue: Lack of industry driven support for further or higher education

Funding seems to be another common impediment to career development even for undergraduates (Chinomona, 2015). The author further mentioned that there are some sponsors but never sufficient enough to meet the demand. Chinomona (2015) also mentioned that some female entrepreneurs in South Africa who form part of the construction industry lack education and training. Some individuals from less privileged backgrounds may have difficulty accessing funding.

2.5.2 Apathy: Lack of career development focus

Apathy is more likely to be influenced by the lack of support and motivation specifically from the industry government. Francis (2017) noted that in an isolated industry like construction, peer support may have a positive influence on women's career development. Government should also find a way to persuade the industry to offer more financial support to young professionals' especially women.

2.5.3 Access: Limited access to education and training

Traditionally, at the beginning of the 20th century, especially in South African culture, educatinga girl child was never a necessity as they were perceived to get married and become housewives. Simon *et al.* (2016) noted that a fewer number of young women compared to young men were entering post-school studies in these industry areas underpinned by an employment-based model of training. The author raised the fact that there could be a lack of role models for the young girlsto be inspired.

2.5.4 Institutional Issues: No suitable courses are available

This could relate to certain live institutional issues; for example, when the students are available to enroll in Quantity Surveying studies at the University of KwaZulu Natal, the university decidesto do away with that department. Therefore, the students who want to study Quantity Surveying will either (a) migrate to another province, which will result in the budget being adjusted to cater for additional expenses such as accommodation and other expenses (b), these students may decideto settle for their second career choice. Theodore *et al.* (2017) discussed the factors that seem to be helpful or challenging

students from achieving their goal in university under the category of external (e.g. family), institutional (e.g. academic support), and student or personal (e.g. persistence) factors.

2.5.5 Financial constraints on the part of the employer

Transitioning from a full-time worker to further studies requires a lot of sacrifice of both time andmoney. Some people have to opt for study leave to be able to go study abroad. As a result, this option could sometimes lead to the employer appointing a temporary replacement while waiting for that employee to return after qualifying, which is not guaranteed especially if the studies werenot sponsored by the employer. The employer now finds himself/herself having a financial burdenof paying two salaries. As a result, some employers have very strict conditions when it comes to granting study leave to the extent that some employees opt to quit their jobs to study.

2.5.6 Time constraints due to intrinsic nature to the industry

Time is of the essence in this industry as life revolves around projects, which comprise specific durations. For example, a construction project has specific start and finish times that have to be strictly observed. Therefore, projects have live cycles and it becomes a problem if the employee'sstudy leave or course attendance clashes with the peak of the project when the professional's undivided attention is most needed. Francis (2017) mentions that females working in construction do experience, career penalties if they take career breaks, choose part-time work or even access work flexibility. Other studies confirm that even the maternity leave is considered to have a negative effect on females 'career in construction industry.

2.5.7 Bureaucratic structures that hinder access to further education and training

Some positions are so demanding such that it is almost impossible to further the studies, for example working as a site agent in a large construction project whereby the working hours are long and perhaps the construction site is in very remote area with no university nearby. Francis (2017) cites that women experience discrimination and come across many obstacles in their career (like informal work practices, lack of mentors and sometimes exclusion from networks) than the case with their counterparts men. The author confirms that this has an impact on progression as well as retention.

2.5.8. Family and social commitments

Most women at some stage in life are expected to become mothers or wives and sometimes both.These responsibilities, however, become a priority in any woman's life. If a woman has a professional job, probably a managerial position that is just as demanding as family commitment,it is perceived that she may fail to balance work and family. Adogbo *et al.* (2015) mentioned thatit is impossible to work in construction without interacting with men, and for some married women, that may be a source of conflict with their spouses. Cultural expectations are also perceived to limit women's interactions to ensure that they are not labelled as "loose women". Forwomen who are overly concerned about societal approval, they are constrained to address professional work as well as people's expectations of what is considered appropriate behaviour forwomen.

2.5.9 Traditional and religious restrictions of females to certain work types

Some areas especially rural areas are still firmly holding on to their traditional customs. These customs together with certain religious beliefs include dress codes; for example, a female is not expected to wear pants in some areas. Similarly, cultural beliefs prohibit females from driving carsor riding horses and are not allowed to study beyond matric because of the perception that they should marry, stay at home and raise their children while the men are out there working. A nationalculture deeply affects the models that individuals have for their organisations and meanings that are attributed through them (Hofstede and Hofstede, 2005). Organisations constitute a subjective for employees because employers will give meaning to their organisational environment based onthem on their perception of culture (Trompenaars and Hampen-Turner, 1998).

2.5.10 Abscondment

Also, employers are skeptical of permitting their employees to further their studies while still on the organisation's payroll. They sometimes fear employees eloping after getting a better qualification thereafter expecting some recognition in terms of promotion and if the promotion isnot forthcoming, newly qualified employees might decide to resign and join another company where their qualifications will be appreciated and are offered better benefits. According to Norwood *et al.* (2006), undergraduate students have their perception of salary range in connection with their qualifications. Therefore, a further perception is the promotion as well. However, an employer could overcome the abscondment by assisting the employees who are studying financially, for example, the organisation could pay the university fees and the employee will have to serve the

company for a specified period after qualifying, and during that period the organisation would look for a replacement if the employee decides to leave for greener pastures.

2.6 Motivational factors influencing the choice of female professionals for career in the construction industry

2.6.1 Passion

Considering that the industry is too demanding, involves a lot of hard work and sometimes unpaid overtime, especially from the project manager's perspective; therefore, only persons who are passionate about the job will succeed. As for women with familial responsibilities, it can be challenging to balance work and family. According to Gannett (2019), women's entrepreneurship is a source of job creation, economic development, and empowerment for women seeking stability and independence. In general, most South African women have always had an eye for business, some in domestic agriculture, where they sell their harvest or some form of stokvels which is another way of generating income. In the deep rural areas of the Eastern Cape Province in South Africa, women work from home making traditional building blocks. Some women in Limpopo and other regions use their traditional painting skills to paint their communities. Therefore, their passion for construction is developed when these skills, for instance, stokvels and domestic painting, are combined with the manufacture of building blocks.

2.6.2 The money

Almost everyone in business has a common goal of making money, in addition, to a particular type of work to attain financial independence; this is the same for women. Greene (1997) mentioned that typical low-paying and low-status jobs, such as jobs in the

clerical, retail, and service sectors, are commonly associated with women. Yet, male-dominated occupations are traditionally higher-paying with a higher status than female intensive occupations and these are labelled “male jobs”. Amongst other things, females are attracted to this industry by money as well.

2.6.3 Career progression

Women do like climbing up the ladder and this can be influenced not only by experience but by career development as well. Valerie's (2017) cross-sectional correlational field study used a theoretical framework including interpersonal, organisational and individual factors concerning 456 women professionals to investigate the impact of some identified variables on CD. Among the listed investigated factors, individual factors have the most significant influence on women's career progression.

2.6.3 The impact the industry has on the world

The construction industry is perceived to be sustainable in terms of job security considering that construction goes beyond just the new projects and includes maintenance and revamps. This industry covers a large sector of the economy. Kamaruddeen *et al.* (2019) discovered that the sizeand market(s) of the construction firm may strongly influence the level of professionalism and practices. This factor was seen to influence females' career choices in the construction industry.

2.6.4 Job Security

There is a perception that construction or building works do not end at the “hand over” or completion but once the building starts to operate then maintenance will be required and in that way, the builder will always have something to do. According to Adogbo *et al.* (2015), job satisfaction, as well as promotions, will also contribute to ensuring that women are retained in theconstruction industry.

2.6.5 Travel opportunities

Construction work involves some travelling as well, since the company may not only focus on thelocal jobs but also consider the ones that are outside their radius. In this case, the workers may have to be accommodated in the same proximity as the site with subsidised accommodation wherethey are to stay for the duration of the construction project and once completed move to another site. Through this, one can learn new languages as well as get to know other cultures.

2.7 Theoretical framework for career development

This section gives an overview of the theoretical framework that will be used for this study. Careerdevelopment theories indicate the numerous tracks towards enhancing proficient progression andthe professional course followed by individuals for overall employment fulfilment and goal accomplishment (Jena and Nayak, 2020). To determine the weaknesses, strengths, fundamental values and desirable paths it is critical to have sound knowledge of these theories in the process ofchoosing a career. The pattern through which the theories are integrated into the study will also bediscussed. The research will

be informed by different theoretical approaches. These approaches are discussed in this section. From the perspective of social psychology, many theories describe the career development of professionals. These theories have been used in studies to help understand the career of the individuals, as well as societal responses to the world around them and, have been used to investigate the individual's relationship with career development. Some ofthese models are described below;

2.7.1 Content theories

2.7.1.1 Person-Environment Correspondence or Work Adjustment Theory

The previous study has indicated that the difference between individuals and vocational behaviourinfluences the theory of Work Adjustment. (Dawis & Lofquist, 1984; Dawis 2005). This theory deemed career choice as a linkage consisting of accommodation and adjustment. This theory addresses two ways. Firstly, he considers the desire of individuals that searches for a work environment that meets his set conditions. Secondly, he searches for criteria that on an individual with skills that can meet the organizational needs. Consequently, the amount of satisfaction derived depends on set criteria that meet the desired requirements.

Dawis (2005) highlighted four types of adjustment that are usually maintained by an individual and his/her environment. These four types are; flexibility, tolerance, activeness, and reactiveness.The flexibility indicates tolerance level in the environment. The next stage refers to the level at which flexibility is modified by tolerance. The third stage involves finding a solution to a difficultsituation by self-modification without flexibility. The last stage is the perseverance level.

Dawis (2005) also denotes that the major strength of the theory of Work Adjustment is the fact that it measures indexes of correspondence, skills and abilities, needs and values and satisfactoriness, variables. Satisfaction and career development is better clarified by the Work Adjustment theory through person-environment correspondence. This theory has triggered a lot ofinternational studies through needs/abilities, work adjustment as well as satisfaction.

Two parameters have been identified, namely: the similarity between interest and jobs, general ability and vocational interest. The findings reveal that congruence and extroverted personality have a greater relationship on the level of productivity that is stable with Work Adjustment Theorylikelihoods. Feij, Vander Velde, et al (1999) report a study on young Dutch adults with ages ranging from 18 to 26 years. They found a relation between perceived skills and vocational interest with job satisfaction. The finding corroborates with Work Adjustment theory content, affirming that vocational interest becomes steady in adulthood, due to steady growth in course of time based

on interest and skills among participants, leading to a developed steady display of interest. Self- efficacy for adaptive behaviour is associated with adaptive performance (Griffin & Hesketh 2003). Adaptability personality projects and work requirements for adaptive performance are closely related to the notion of Work Adjustment Theory. Although Work Adjustment Theory was developed in the USA, it can be used to assess satisfaction and career development in mixed cultures.

2.7.1.2 Holland's Theory of Vocational Personalities in Work Environment

For Career counseling and guidance, the theory of Holland can be greatly applied (Jena *et al.,* 2020). According to Holland, vocation and personality are arranged in hexagonal structure and can be classified as RIA, SIA with 'R' standing for Realistic, 'I' for

Investigative, ‘A’ for Artistic, ‘S’for Social, ‘E’ for Enterprising and ‘C’ for Conventional. The first letter in each code above represents the primary interest of the person and the rest of the letters represent secondary interestregarding the choice of career. The study of Rounds and Tracey, (1996) conducted on Holland’s hypothesis and its content indicates positive results in many cultures. Tak (2004) administers a survey and the result of the survey reflects a good fit in the model of interest. Sverko and Babarovic's (2006) research support Holland's hexagonal model. Six first-order factors clustered into three groups, are: Realistic-Investigative, Artistic-Social, and Social-Enterprising- Conventional were reported in the study of Leung and Hou (2005). A definite cultural value and perception were produced from these clusters. Holland’s structure of vocational interests reveals diversified support across the cultures.

2.7.2 Process Theories

2.7.2.1 Self-concept Theory of Career Development

Super (1963) establishes that CD and career choice are related to the self-concept of the person (idealogy, principles and interest). Self-concept is a theory that deals with amongst other issues, physical and mental development, personal experience and environmental features. Super (1990) establishes a model for the phases of life. This consists of growth (development), exploration (Consideration), establishment (Formation), maintenance (conservation) and disengagement. It isimportant to control the vocation development chronologically. "Career maturity" refers to the extent to which an employee can easily accomplish his or her vocational task at each time of their career development. An adequate number of studies on Super’s (1990) theory have been conducted at the international level confirming the same thing (Patton & Lokan, 2001). Findings from the

study of Patton *et al.* (2002) reveal that students with higher maturity levels are likely to proceed to full-time study. They are also likely to achieve more and psychologically fit when related to other students. A study on CD interventions corroborates with the career developmental expectations recommended by career maturity.

2.7.2.2 Gottfredson's Theory of Circumscription and Compromise

The theory of Gottfredson on career development is an improvement on career developmenttheory. Gottfredson (1981, 1996, 2002, 2005) concludes that in the making of a career choice thereis a demand for a greater level of cognitive ability. Gottfredson (2002, 2005) explains that geneticfeatures perform a critical role in influencing the qualities of a person such as skills, interests, and values and these traits are influenced by the level of environmental exposure. Gottfredsondeclares that an individual is dynamic and an agent who can modify the environment and based onthis views career development as a process of self-creation. An individual making an occupationalchoice that he or she feels capable of succeeding in in the world is another process of career development known as compromise. However, the theory can be applied for career guidance suchas gender stereotypes found in the cultures of Asia, where the choice of a profession is made basedon consideration of gender suitability (Leung, 2002)

2.7.3 Theory of content and process

2.7.3.1 Social cognitive career theory

Yusoff, Mahfar & Sukri bin Saud (2019) refers to Social Career Cognitive Theory (SCCT) as a career theory explaining the career self-efficacy aspect. Social Cognitive Career

Theory (SCCT) put forward a model having three sections on career development, namely: career choices, vocational interest, stability and career performance. These three sections emphasises self-efficacy, personal goals, and outcome expectations. According to Lent, (2005), personal goals relate to the choice of engaging in a particular task or producing a certain result. Self-efficacy is defined by Lent (2005) as “a dynamic set of beliefs that are linked to particular performance, domains and activities”. Outcome expectations are “personal beliefs about the consequences or outcomes of performing particular behaviour”. The theory explores the career goals and career choices development and as the functions of the interface between interest, self-efficacy, and outcome expectations over time. The recommendations in the model of career choice theory, present the influences and interactions between the person and the environment at each other. According to the theory, it may be required of a person to make a compromise of personal interests during the career choice process as a result of factors that act as barriers to decision-making, such as factors that limit context-related support, cultural beliefs and social barriers. The theory has been utilised in many research studies internationally that have enabled constructive contribution to knowledge (Hampton, 2005). A positive relationship exists between career search, self-efficacy of participants, family support and a negative relationship between career search, self-efficacy and career indecision was found in a study that Nota et al. (2007) applied an SCCT structure on. As recorded by Creed et al (2005), a change in career decision-making, self-efficacy over a certain time does not relate to similar changes in career indecision.

2.8 Qualities that enhance success of female professional in building construction industry

2.8.1 Good organisational skills

Kumar and Karthikeyen, (2016) noted that for adequate career development to be enhanced, thereis a need for professionals to improve their skills, teambuilding skills, organisational behaviour and social bearing. According to Moir *et al*. (2011), women interested in construction careers can take advantage of training and mentoring programs from organisations dedicated to promoting gender equality in the industry. The author further noted that women looking to pursue construction management careersneed to take up skills like leadership, problem-solving, initiative, and customer service. Good organizational skills have to do with creating order and a clutter-free environment or working space. The achievement and maintenance of this result in a calm employee with good planning and decision- making skills. Data suggested that when profitable companies employed women in even 30% leadership team positions, there was as much as a 15% increase in net revenue (Peterson, 2017).

2.8.1 Networking

Networking is the way of marketing business from person to person. Women, in general, are verygood at this type of marketing especially for the businesses that are traditionally associated with them like selling products that are mainly used by women, for example, beauty products and manyothers. However, comparatively, they are not as good in the construction business, which may be because they do not trust each other in the construction business. In addition, it may be difficult for women to excel in networking in

construction-related businesses because the most common and trending marketing method is through sport such as golf which is more popular with men than women. Loureiro *et al.* (2016) examined a theoretical framework and identified changes in the workplace that may lead to new career models as well as issues relating to gender and its impact on building professional trajectories.

2.8.2 Education

There is a myth especially in the African cultures that women are supposed to get married, bear children and remain at home as housewives, taking care of the children and husband who is out atwork. As a result, most girls and young women drop out of school and focus on household activities. Civilisation has led to the emergence of girls and women becoming educated and professional in their roles, leading to integration into most of the industries including construction.However, they are not as fully represented as their male counterparts. Bryad *et al.* (2016) has distinguished between two groups of employees namely – the highly skilled and the low-skilled. Using the contractors as a case study, it was discovered that the highly skilled are perceived to bewell educated and better trained than the low-skilled.

2.8.3 Experience

Almost every job title comes with a minimum experience as a requirement. Most of the time women are employed in basic positions and may not have the required experience when they are considering higher positions. The chances of promotion increase when they at least possess a higher qualification; therefore education, is important. English *et al.* (2015) mention that experienced women successfully pass through the construction

industry and make it a suitable environment for upward mobility.

2.8.4 Problem-solving

The award-winning student video from the annual Institute of Industrial System Engineering (IISE) Student Chapters 2020 Industrial Advisory Board describes the role of women in IndustrialSystems Engineering as natural problem-solvers, innovative thinkers, and dedicated professionals.Women are domestic managers as they do most problem-solving at home from children's challenges to serious family differences. Through professional development, women can possess communication skills and build-up confidence to equip to negotiate difficult workingenvironments (Worrall *et al.* 2010).

2.9 Chapter summary

This chapter deals with the review of literature related to the career development of female professionals in the construction industry. It covers the following: career opportunities and skill requirements for female professionals, factors affecting the participation of female professionals in career development in the construction industry. Also, the factors contributing to the career development of female professionals, impediments to career development programs like external funding issues, and motivational factors influencing the choice of female professionals for a career in the construction industry. The next chapter details the research methodology employed for the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes in detail the different steps and approaches undertaken in achieving the setaim and objectives of this research. As highlighted in the introduction, this research aims to determine the possible outcomes of improved career development of female professionals in meeting the expectations of the South African construction industry. Hence, this research aims to develop a strategy to improve the career development of professionals in the built environment especially the female professionals in the construction industry in South Africa to enhance qualityand to foster economic development.

This chapter presents an in-depth and robust overview of the methodological research frameworkguiding this research study. The section provides the research design and research methodology that highlights the various research procedures and justification of choices of research methods. Quantitative methods and approaches were adopted for the study through the use of a questionnairesurvey (field study) and personal observation. The adoption of this method is also explained in detail and fully justified in this chapter. The chapter is structured in the following sequence:, design, approaches, questionnaire development, target population, sample frame, sample method, sample size, data collection, data analysis, research structure and ethical considerations.

3.2 Research design

Research design pacts with the mode of data collection and data analysis and the linking

betweenempirical data and the findings, relevant conclusions and how they are linked to the initial researchquestion. (Yin, 2003; Bryman, 2004; Baiden 2006). In most cases, the research design is usually influenced by the choice of methodology (quantitative or qualitative) as well as the philosophies underpinning the research process. Hence, in quantitative design, the data collection instrument is a survey method. The research design also explains how the purpose and aim of the research, research questions and objectives, theoretical framework, research methods, and sampling approach are inter-linked (Robson, 2002). In addition, the research design considers the roles of the researcher in realising the research study. Research method for this study is structured in accordance with the following:

3.2.1 Quantitative research

When the emphasis is placed on measurement during data collection and analysis, quantitative research is deemed most suitable. Apart from its role in providing statistical measures, a quantitative research process largely adopts a natural science model to determine objective knowledge (which refers to independent knowledge despite the perspectives and values of personsinvolved). Usually, the quantitative research process relies on the deduction, which means that the

research occurs in tandem with an informed proposition or assumption and can be tested from existing theories. This implies that two or more variables can be tested for a possible relationshipor correlation. In addition, this study adopted the quantitative method of data collection that was be piloted by both academia and professionals in the construction industry. The questionnaire consisted of five sections (A, B, C, D and E). Section A

provided information on the backgroundinformation and demographics of the participants. Section B contained questions on the skill requirements of female professionals in the construction industry. Section C measured the impactof the lack of career development of female professionals. Section D was investigating factors influencing the lack of career development among female professionals. Lastly, Section E was measuring the strategies to mitigate the lack of career development among female professionals. The instructions and questions were be kept simple and direct, without using technical words.

3.2.2 Research philosophical foundations

This assists in making clear the research methodology and designs that would be adapted, and specify the kind of evidence required, data captured and their interpretation, it becomes crucial to understand the underlying philosophical background of the study relative to research methodologies (Chilipunde, 2010).

3.3 Research philosophy

3.3.1 Ontological and epistemological views

Chilipunde, 2010 discribes ontology as an assumption that individuals make about reality. Epistemology as derived from two Greek words namely ‘episteme’ ‘meaning knowledge or science and ‘logos’ meaning knowledge, information, theory or account’. According to Johnson and Duberley, 2000:2 these two words are a demonstration of how epistemology as usually understood to “being concerned with knowledge about knowledge. Likewise, the assumption of the best way of studying by focusing on opinions or facts is an epistemological assumption.

Epistemology is divided into the positivist and anti-positivist stance whereby positivist

believing that true objectivity as an external observer is possible, anti-positivist believing that the knower and known are interdependent and that social science is essentially subjective. The positivist relates to the parts of understanding the whole, they also consider regularities and causal relationships to understand and predict the social world. Okolie, (2011) concludes that the anti-positivist the social world can only be understood by occupying the frame of reference of the participant in action. According to Roux and Barry (2009), paradigm is a set of ideas, assumptions and beliefs which guide and shape how the world is perceived by the surroundings or societies.There are four main factors influencing the choice of a paradigm namely the problem, the research, the methodology, and the desired outcome. Postivistic paradigm which is associated with quantitative method, in the social science assumes that social reality is independent and exist irrespective of whether one is aware of it or not, Podges (2009). A subjective approach which investigates perceptions in order to gain better understanding of social and human behaviour is refered to as phenomenological paradigm (aslo liked to qualitative method). The phenomenological paradigm developed as a result of criticism of the positivistic paradigm. Table 3.1 outlines the differences between positivistic and phenomenological paradigms.

Table 3.1: Main research paradigms. Podges (2009) 77

POSITIVISTIC PARADIGM	PHENOMENOLOGICAL PARADIGM
Data mainly quantitative	Data mainly qualitative
Data is specific and precise	Emphasis is on quality and depth
Uses large samples	Uses small samples
Concerned with the testing of the hypothesis	Concerned with generating theories
Very reliable	Unreliable
Validity is low	Validity is high

3.4 Sampling Method

The built environment professionals mainly the registered female professionals were chosen as the sample frame during the questionnaire survey. To establish the sample frame, a list of professionals within the built environment and those working in the construction industry and the academic environment was obtained from the annual reports of the various professional bodies in South Africa as provided by the Council for the Built Environment (CBE). This study adopted the purposive sampling method which will provide an opportunity to obtain knowledgeable opinions and responses from professionals. Moreover, the sample size for this study comprised both registered and candidate members.

3.4.1 Approaches to Data Collection

Data gathering contributes to a better understanding of the research theoretical background, therefore it is important to utilize appropriate research gathering strategy to achieve the determined purpose of the study (Bernard, 2006). The process of selecting how and from whom data will be collected must be done with sound judgment, especially since no amount of analysis can compensate for improperly collected data (Tongco, 2007). Generally, there are two research data collection approaches namely, the primary data and secondary data. A researcher can utilize either or both data collection methods to reinforce the reliability of their study (Patton 2002). In this study, primary data was collected from the field survey.

3.4.2 Data Analysis

After the data collection process, the researcher cleaned, screened and edited all completed questionnaires. The data was coded and fed into Statistical Package for Social Science (SPSS) software (Version 16). The data was then analysed using both descriptive and inferential statistics. The descriptive statistics include percentages and mean. In addition, the inferential statistics will embrace Factor Analysis, Relative Importance Index, Average Index and Binary Logistic Regression.

3.4.3 Reliability of the Study

Reliability deals with issues surrounding the consistency of data collection and research results. Reliability is attained and confirmed when the same research procedures are repeated and similaroutcomes are derived. According to Eriksson (2002), reliability is adequate if another researcher carries out the same research, under the same conditions and arrives at the same conclusions. Moreover, a robust PLS-SEM analysis will be conducted to improve the reliability of this research.

3.4.4 Validity of the Study

Validity examines the degree to which the research findings are interpreted and whether the studyproduces the expected outputs as stated in the research objectives (Barrett & Sutrisna, 2009). Validity may be assessed internally or externally and can be content, construct or criterion-related. Internal validity ensures that the identified constructs or variables actually produce the expected outcomes while external validity ensures that the findings from the research can be generalised to the wider population. Over time, questionnaires have been criticised by researchers for their lack of validity because

respondents may not be honest and may also have different interpretations of questions than what was intended by the researcher (Miller & Brewer, 2003). Kaiser-Meyer- Olkin's (KMO) measure of sampling adequacy, Bartlett's test of sphericity, and Cronbach's alpha were adopted throughout the analysis to assess the validity and reliability of the data.

3.5 Approaches to data collection

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Generally, there are two research data collection approaches namely, the primary data andsecondary data. A researcher can utilize either or both data collection methods to reinforce the credibility of the study (Patton 2002). In this study, primary data was collected from the field survey. The research begins with a review of the literature to gather information on the factors to be tested (desk study). Desk study is explained below

3.5.1 Desk Survey: Secondary Data Source

Manu & Akotia, (2021) claim that using secondary data for research becomes very beneficial especially if there is limited resources available to conduct research applying primary methods, like is the case with COVID19 regulations. The review of the existing literature on the subject matter sets the pace for the development of a questionnaire that is utilised in the field to collect primary data for the study. The secondary data for this

research is collected from two sources: mainly external and internal sources. Internal sources meaning the records are kept by the institutions. Studies described external secondary sources of data gathering as primary literature sources. Accordingly,they are the most accurate sources of information as it contains the original research. Databases ofScience Direct, Francis and Taylor, and google scholar were searched for relevant information.

3.5.2 Field Survey: Primary Data Source

Primary sources typically provide information based on the direct observation of, or participation in, a certain subject. Field survey involves the data collection and is associated with three practical approaches; the survey approach, case study and the problem solving approach. This study used a questionnaire as a research instrument to gather relevant information from the identified potential research participants.

Data obtained through questionnaires are relatively easy to code and analyse using computer software applications and packages (Hishamuddin, 2007).

3.6 Questionnaire development

The next phase of this research involved data collection from the field by means of a well-structured questionnaire. This stage of data collection is a critical aspect of the research design, according to Sekaran and Bougie (2016). In this research study, a well-structured questionnaire was designed to obtain opinions and responses (quantitative data) from a large group of professionals within the built environment, including individuals from the academic environmentand the construction industry. Through the questionnaire survey, the generalisation of results to the wider population was made possible owing to the large

sample size. Moreover, data collection can take on various forms such as personal administering and e-mails (Sekaran & Bougie, 2016).The field survey aims at achieving the research objectives of assessing the critical success factors that contribute to improved career development among female professionals in the built environment. Based on the stated objectives, the questionnaire survey was deemed most suitable for collecting data from professionals within the built environment (construction industry). This research adopted the above-stated modes of data collection by administering them personally as well as through emails and other digital forms. The questionnaire was designed into Google forms and links were emailed to professionals who are geographically dispersed considering the large size of the study area. Also, through personal administering, several questionnaires were completed within a short period. The survey method (questionnaire) was also selected for this study based on several factors such as population type, sampling technique, manner of questions,cost and duration of data collection. Furthermore, this study adopted the questionnaire survey forthe following reasons:

1. Based on the literature review a questionnaire survey was deemed most appropriate toreach a wider population within a short time;
2. A structured questionnaire allows a relatively large number of research questions to beanswered by respondents within a stipulated time frame;
3. Generalisations can easily be drawn when questionnaires are used for data collection (Bell,1996);
4. Questionnaires are relatively cheap to design;

5. Through the use of questionnaires, specific information about perspectives,

perceptions, and attitudes can be measured easily as opposed to when observational techniques are adopted (Yuen, 2007); and

6. Data obtained through questionnaires are relatively easy to code and analyse usingcomputer software applications and packages (Hishamuddin, 2007).

3.6.1 Questionnaire Survey Instrument

A questionnaire is a pre-designed set of questions that aims to obtain views and responses from research participants (Sekaran & Bougie, 2016). This study considered the overall design of the questionnaire by checking the grammatical structure (wording) of the questions, ensuring the right measurement scales were used and informing participants of the purpose of the study (Creswell, 2013; Sekaran & Bougie, 2016). All questions designed in this study's questionnaire were the same for all the respondents (Brace, 2008). This research study was designed to obtain objective facts; hence an ordinal and categorical scale was adopted. Simple sentences were formulated throughout the questionnaire while complex terminologies were avoided. The questionnaireavoided double-barreled questions and adopt questions that will be close-ended in nature. This provided the opportunity for participants to rank the level of importance of factors contributing tolack of career development based on their knowledge and experience. Participants were also askedto provide personal information with regard to their education and professional qualification as well as their years of experience in construction.

The questionnaire for this study considered measurement scales. The Likert scale was adopted over other scales owing to its high-reliability coefficients and a high likelihood of responses that adequately reflect the opinions under focus (Zikmund, 2000). Likert scales were also adopted in this research owing to their tendency to increase the variance of

responses which ensures strongermeasures of association (Weng & Cheng, 2000). Over time, five to seven-point scales have been used by researchers to capture opinions (Malhotra, 1999). The majority of past studies also suggested that a five-point scale is adequate for any study and indicated that an increase in the number of scales does not improve the reliability of the ratings or rankings (Elmore & Beggs, 1975; Malhotra, 1999; Sekaran, 2000). Hence a five-point Likert scale of 'not important, 'low importance', 'moderate importance', 'important' and 'high importance' and 'to no extent', 'smallextent', 'moderate extent', 'large extent' and 'very large extent' was adopted for this questionnaire. The questionnaire consisted of five sections (A, B, C, D and E). Section A provided information on the background information and demographics of the participants. Section B contained questions on the skill requirements of female professionals in the construction industry. Section Cmeasured the impact of the lack of career development of female professionals. Section D investigated factors influencing the lack of career development among female professionals. Lastly, Section E measured the strategies to mitigate the lack of career development among femaleprofessionals. Throughout the questionnaire, instructions and questions will be kept simple and direct, and technical words will not be used.

3.7 Target Population

For this research, the population refers to the entire group of individuals that were relevant to thisstudy (Neuman, 2006). According to Creswell (2013), A research study must state the size and themeans of identifying who makes up the population. The target population for this study involves relevant professionals from the South African Council for Project and Construction Managers Profession (SACPCMP) from the academic environment and

the construction industry (including architects, builders, construction managers, construction project managers, engineers and quantitysurveyors). In achieving this study aim, the total number of registered and candidate members of the SACPCMP was obtained from the annual reports as provided by the Council website. This implies that prequalified members of professional bodies were also allowed to participate in the study.

Table 3.2 Total Population for this Study

SACPCMP	South African Council for Project and Construction Management Professions	158

3.8 Sample frame for the study

According to Sekaran and Bougie (2016), the sample refers to the subsection (individuals or institutions) of the population that is relevant to the study and is considered for data collection. Asampling frame is also referred to as the ‘working population’. Based on the fact that a study cannot conveniently consider the entire population, a sample is often adopted, as in the case of thisresearch. Nonetheless, the outcome of the research study is generalised to represent the population.However, the general population can be studied if a bigger sample is considered (Neuman, 2006).For this study, professionals within the built environment from the academic environment and construction industry alike were chosen as the sample frame. To establish the sample frame, a listof professionals within the built environment (registered and candidate members) was obtained from various professional bodies in South Africa.

3.9 Sample Method

Generally, two forms of sampling methods are used in research, namely probability and non- probability sampling (Neuman, 2006). Probability sampling (random sampling) provides an opportunity for each element in each subsection of the entire population to be represented in drawing the samples. In this sampling method, each member of the population has an equal opportunity of being selected to participate in the research study (random selection) (Cooper & Schindler, 2006). There are several sampling techniques peculiar to probability sampling including cluster, simple, stratified and systematic sampling. Concerning cluster sampling, a large area is divided into smaller and similar clusters with each one comprising an equally heterogeneous mixof people. In the case of simple random sampling, everyone within the population has same opportunity of being chosen to participate in the research study (simple random selection). For

populations that comprise different groups or strata, stratified random sampling is usually considered. In this case, equal samples were selected from each group or strata based on certain characteristics to obtain an equal representation.

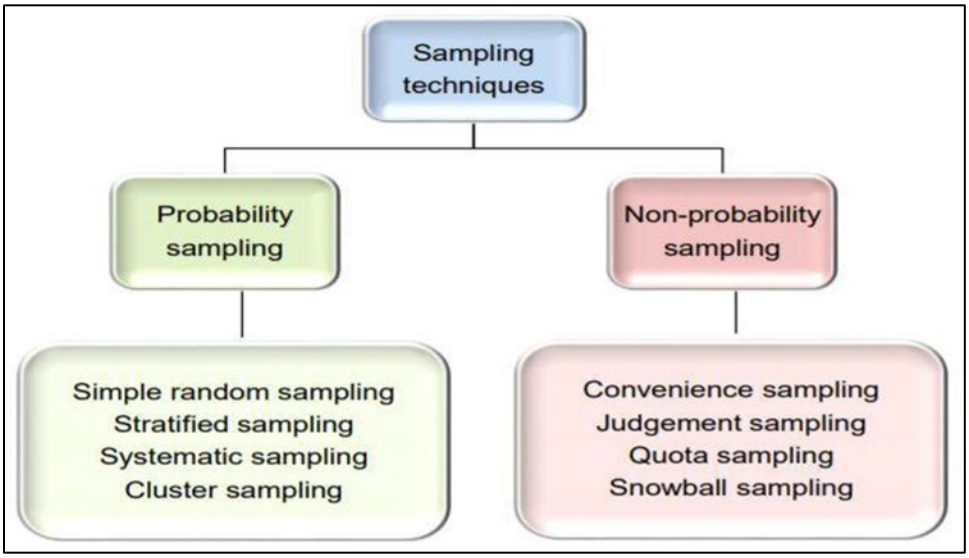

Figure 3.1: Differerent sampleling techniques.

Depicted from Wiid & Diggines (2013)

Figure 3.1 Reflects two types of sampling techniques namely probability sampling technique and nonprobability sampling technique. In non-probability sampling (non-random), samples are not selected by probability theories but by a mathematically random process (Neuman, 2006). In this sampling process, the selection is carried out based on the personal judgement of the researcher and not by mere chance (Clow & James, 2014). There are several sampling techniques peculiar to non-probability sampling, including convenience, judgement, quota and snowball sampling. With regard toconvenience sampling, samples are drawn from a population segment owing to the ease of accessibility. This implies that only respondents who are within the location of the researcher at that time can be considered for the study (Wiid & Diggines, 2013). In the case of judgement sampling, the researcher draws up a criterion list and only individuals who meet such criteria are included in the study (Hair *et al.,* 2013). Quota sampling involves the selection of individuals (divided into subgroups) based on certain

control characteristics (such as biographical information) that are postulated by the study (Malhotra, 2015). In the case of snowball sampling, however, a group of individuals randomly selected by the researcher, are requested to identify otherlikely individuals who can contribute to the actualisation of the study (Malhotra, 2015).

From the foregoing discussion and owing to the nature of this research, a non-probability sampling technique is adopted. The issue of career development remains a highly contested issue and has generated numerous opinions over time; hence this study was never conducted based on merechance (as per the probability method).

Since this is a case study then from non-probability a convenience sampling is adopted for the study.

3.10 Sample size

Leedy & Ormond (2012) documented that as a guideline for selecting a sumple size. For small populations with fewer than 100 people or other units, there is little point in sampling, survey the entire population. The following category from this is that; if population size is around 500 then 50% of it should be sampled.

Two major factors informed the sample size for this study, one is the cost of data collection, and two is the quest to gain adequate statistical power to validate the conceptual model for this study. Because the sample size for this study is based on the entire population of SACPCMP, it is inferred that the sample size for this study must equal to the population size. The sample size also depends on three characteristics, namelythe nature of data analysis for the research, the accuracy of the sample, and the features of the population (Neuman, 2006). Several mathematical formulae were considered to

achieve the required sample size. The formula proposed by Yamane (1967) is adopted for this study andstates thus:

$$n = \frac{N}{1+N\ (e^2)}$$

From the equation, N represents the population size for the study, n is the sample size required, and e is the level of precision adopted (error limit).

3.11 Date collection process

The data collection process involved the dissemination of the questionnaire using earlier stated modes such as personal administering and through emails. The Google Form link was emailed soon after obtaining ethic clearance from the university to the SACPCMP through their education administrator who then circulated it to all the relevant members for completion at their convenience. Similarly, known and reliable professionals in the industry and at project sites were contacted, including, construction managers, construction project managers, and site quantity surveyors. After the data collection process of the questionnaires, the Google Forms were exported to the Microsoft Excel sheet for coding.

3.12 Data Analysis

After the data collection process, all completed questionnaires were cleaned, screened and edited.The choice of the statistics analysis tool is dependent on a comprehensive

evaluation of available statistical and analytical tools. The decision for statistical consideration is to choose between parametric or non-parametric statistical tests. The choice between the two tests depends largely upon the level of measurements achieved in the study and the type of variables (Kothari, 2003). The data was first coded and fed into Statistical Package for Social Science (SPSS) software (Version 16). The data was thereafter analysed using both descriptive and inferential statistics.

Data analysis method adopted in this study comprises of descriptive and inferential statistics. Where possible, the data analysis includes using multiple analytical techniques to facilitate simplicity of communicating the results, whilst improving the validity. The following data analysis methods were adopted in this study: Descriptive statistics, that includes frequencies, means, and mean scores (MSs). This to analyse the data obtained from respondents sharing their experience in the construction industry. The next method being the T-T-test has been used to test for the presence of significance between variables, linear regression concluded and comparison being made regarding the relationship between variables. Percentage delays of the twelve main problems also being computed.

3.12.1 Descriptive statistics

Descriptive statistics involve means and MSs, which are used to interpret the data that has been attained as background information.

Montgomery and Runger, (2007) describes the mean as a measure chosen such that the sum of deviation from it is zero.The MS is obtained by allocating numerical values to respondents' rating of factors, which can be, for example: very high (5 points), high (4

points), moderate (3 points), low (2 points), and very low (1 point). The mean score (MS) for each factor is then calculated using the following equation:

$$MS = \sum \frac{(fxs)}{N} 1 \leq MS \leq 5 \ldots\ldots\ldots\ldots (i)$$

Where: MS = mean score

N = the total number of responses concerning that factor

S = the score given to each factor by the respondents and ranges depending on the ordinal scale in use (1 – 5).

F = the frequency of respondents rating (1 – 5) for each factor

In order to test for any agreement in the ranking of the individual factors between various groups of variables, the t-test was used to test the postulated hypothesis at a 5% level of significance.

3.12.2 Inferential statistics

The inferential analysis was utilised to analyse summated scores of the responses from the primary survey respondents to reflect the actual support for topics.

Given that an ‘unsure’ response was regarded as a legitimate response, it was decided that placing this response at the midpoint of the Likert scale will give it value among the numerators and denominators in the calculation of mean scores. The placement of ’unsure’ responses in the midpoint of the scale may be justified in that the respondents are deemed to be neither certain or uncertain nor negative or positive. It could be assumed that they are neutral.

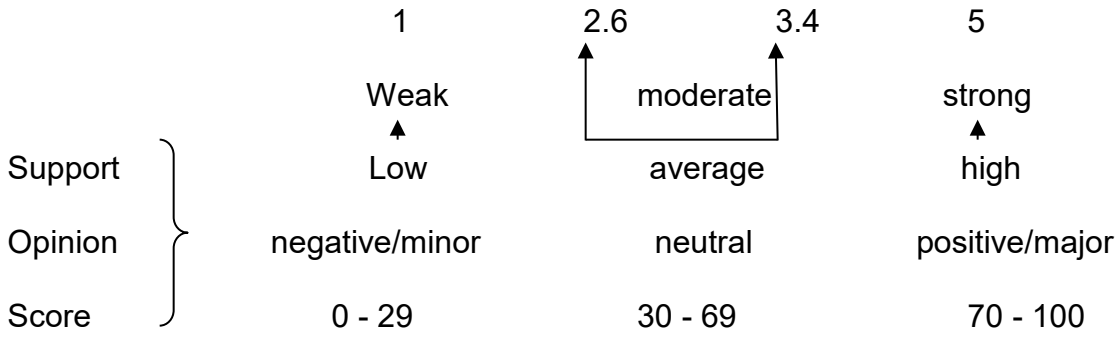

Figure 3.2: Scoring of responses on the Likert scale

Figure 3.2 is an example of how the summated score of one of the sub-problems responses was calculated.

[(4 responses x 1) + (4 responses x 2) + [(4 responses x 3) + (3 responses x 4) +(3 responses x 5) + (3 responses x 6) + (5 responses x 7) + (5 responses x 8) + (3 responses x 9) +(2 responses x 10)+ (4 responses x 11) + (3 responses x 12) + (2 responses x 13) + (0 unsure responses x 2.5)]

41 responses x 13

= 56%

By comparing this score to the categories of scoring responses in Figure 3.1, it is ascertained that it will fit into the neutral category. Therefore built environment practitioners may be deemed to be neutral regarding the impact of natural hazards (fire, flood) on construction delays.

In addition, statistical inference techniques enable judgments, conclusions, estimations and predictions to be made from the data collected. To test the consistency of observed frequencies, the Pearson Moment Correlation test was conducted.

Given that proof of an acceptable level of consistency is required to ratify the findings, Gravetter and Wallnau (2008) explain the effect of the percentage variance. To facilitate interpretations of R^2 or r^2, a range for practical significance was suggested regarding the effect of different values on the consistency of responses.Table 3.3 presents the range against which the test results can be compared:

Table 3.3: Interpretation of R^2 or r^2 for practical significance

Range	Effect
< 0.099	No effect
.01 to .089	Weak effect
.09 to .249	Moderate effect
.25 >	Strong effect

Table 3.4: Interpretation of Cronbach's alpha values (Nunally, 1978)

Values	Reliability
< .5	Poor
.5 to.7	Sufficient
> .7	Good

Cronbach's alpha coefficient is greater than .70. The recommended minimum value for reliability (Nunally, 1978) was observed for most values. Nunally points out that in the early stages of research, reliability of .50 to .60 is sufficient. For this study, a reliability of .60 was used as a cut-off value to indicate the reliability of the individual measuring instrument. Thus the internal reliability of the measures relating to the indices all exceeded this cut-off point and are regarded as acceptable.

3.12.3 Assessing stastical significance

A factor loading represents the correlation between an original variable and its factors. In determining a significance level for the interpretation of loadings, an approach similar to determining the statistical significance correlation coefficients could be used. Factor loadings and sample size needed for significance are presented in Table 3.4:

Table 3.5: Significant factor loadings based on sample size (Hair *et al.*, 2004)

Factor loadings	**Sample size needed for significance**
.30	350
.35	250
.40	200
.45	150
.50	120
.55	100
.60	85
.65	70
.70	60
.75	50

T-test is a method that permit us to compare the overage values of the two sets of data and determine whether they came from the same population. For example, if we were to take a sample of students from class A and another sample of students from class B, we would not expect them to have the same mean and standard deviation Beer, Brown and Hayes (2021).

T-test formula

The formula shown below is for the two-sample t-test (a.k.a. the Student's t-test).

$$t = \frac{\overline{x}_1 - \overline{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

Interpretation of the T-test formula: t represents the t-value, x_1 and x_2 are the means of the two compared groups, s^2 is the pooled standard error of the two groups, and n_1 and n_2 are the number of observations in each of the groups.

A bigger t-value shows that the difference between group means is greater than the pooled standard error, indicating a more significant difference between the groups (Aiyetan, 2011).

The null hypothesis (H0) is that there is no significant mean difference between male and female GPA scores. The alternate hypothesis (Ha)is that there is a significant mean difference between male and female GPA scores.

Confidence Interval

Confidence intervals measure the degree of uncertainty or certainty in a sampling method. They can take any number of probability limits, with the most common being a 95% or 99% confidence level. Confidence intervals are conducted using statistical methods, such as a t-test.

- A confidence interval displays the probability that a parameter will fall between a pair of values around the mean.
- Confidence intervals measure the degree of uncertainty or certainty in a sampling method.
- They are most often constructed using confidence levels of 95% or 99%.

99% Confidence interval means that there is possibility that sample population mean will fall within 2.92 and 5.62, with a P-value equal to 0.0001 acceptable level.

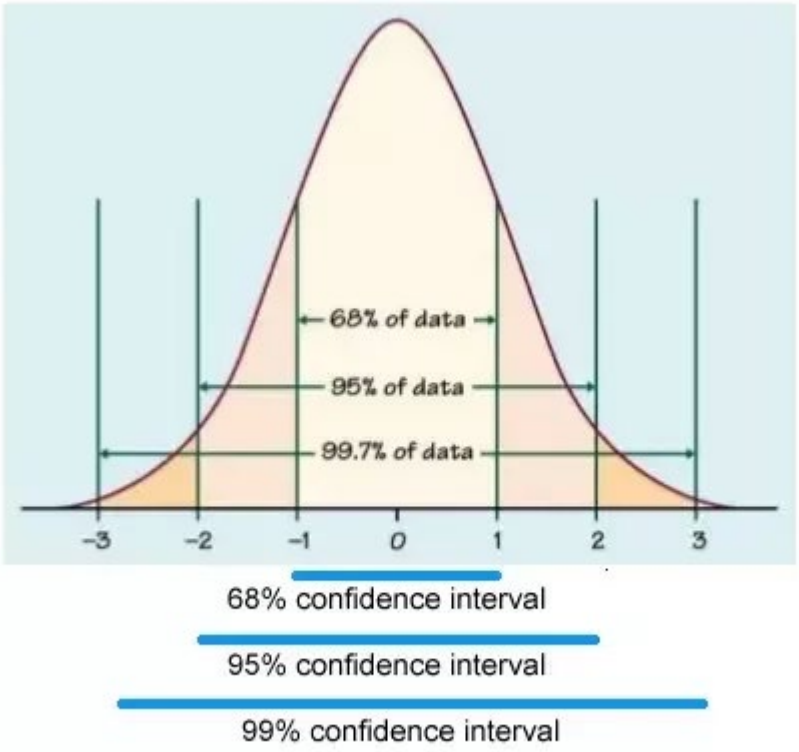

FIGURE 3.3: Confidence intervals for 68%, 95% and 99%

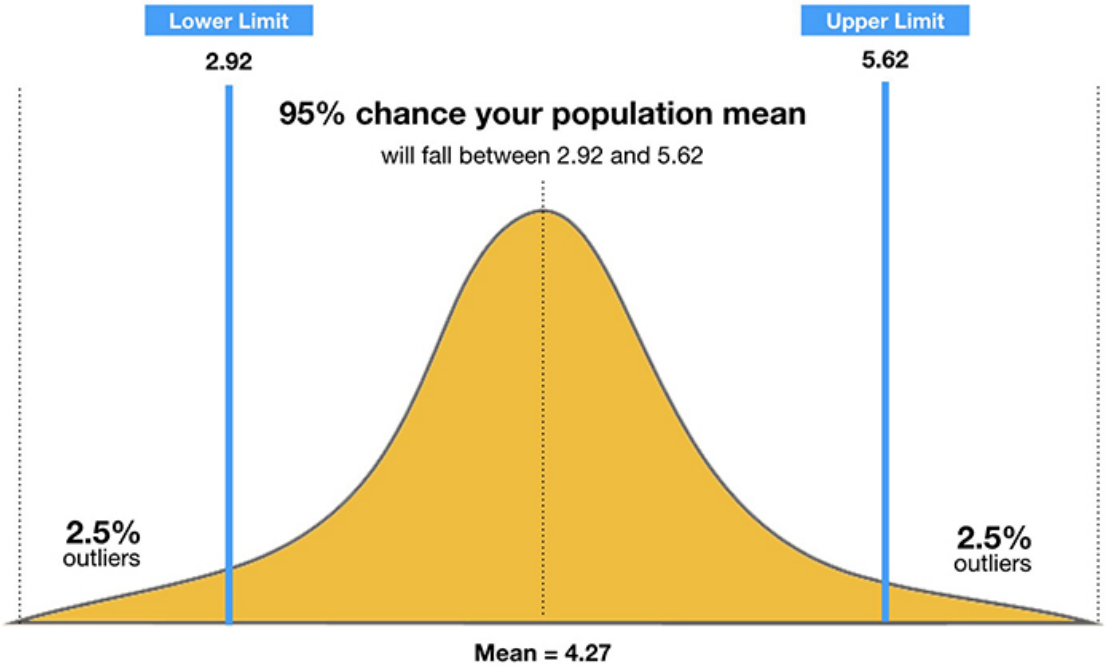

FIGURE 3.4: Confidence intervals 95%

Interpretation of P-Value?

In statistics, the p-value is the probability of obtaining results at least as extreme as the observed results of a statistical hypothesis test, assuming that the null hypothesis is correct. The p-value serves as an alternative to rejection points to provide the smallest level of significance at which the null hypothesis would be rejected. A smaller p-value means that there is stronger evidence in favor of the alternative hypothesis.

3.13 Research strategy

This section explained the direction the researcher took in conducting the research. Research strategy can be defined as the investigation of research objectives (Naoum 1998). There are two established research strategies namely: quantitative and qualitative methods. Any of these strategies can be employed. However, a researcher may opt to utilise either quantitative, qualitativeor both approaches. If both approaches are utilised, it is referred to as the mixed-method approach.

Whichever method that is chosen will depend on the purpose of the study and the type of information sought (Baiden, 2006). In this study, a quantitative research strategy was adopted andthe questionnaire was used as the main data collection tool. This method allowed the researcher toask all respondents the same questions with predetermined responses, which also permitted objective data to be collected throughout the study.

3.13.1 Quantitative Strategy

Quantitative research measures quantity or amount and involves statistical manipulation orhypothesis testing. It deals with numbers and their manipulation to gain insight into that which is being studied (Naoum, 2007). Kothari (2003) referred to quantitative research as the generation of data in a quantitative form, followed by a formal, rigorous quantitative analysis. This approach(quantitative) is adopted for this current research work. Similarly, researchers in the positivist paradigm adopt a quantitative methodology to understand the possible connections and potential correlations between research variables. Under this methodology, the presentation of findings adopts certain procedures that highlight exactness, explicitness, and formality (Sarantakos, 2005).In this case, statistical rhetoric (validity, reliability, correlation amongst others) plays a vital role in the scientific presentation of results (Greenawalt, 1999), thereby ensuring the neutrality of the research process. The adoption of quantitative methodology follows several steps. These include understanding the research problem, defining variables, conducting sampling, collecting and analysing data, presenting findings and backing these findings with necessary theories for a robustunderstanding (Greenawalt, 1999). For scientific research studies that emphasise explicitness, exactness, and formal approaches (procedures), the adoption of the quantitative methodology is appropriate (Sarantakos, 2005).

3.14 Ethical consideration

All ethics issues as laid down by the university policy were carefully adhered to in this research. The letter of full ethical approval by the University Institutional Research and Ethics Committee is included in the appendix

3.15 Chapter Summary

This chapter details the research methodology employed. It covers the research design, the development of the questionnaire instrument as well as the selection of the target population for the study. It also explains the composition of the sample frame, the sample size, data collection process, data analysis as well as ethical considerations.

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter presents the results of the data analysis and interpretation which is in line with the aim of the study. Data was collected through questionnaires that were distributed to the female professionals mostly registered with SACPCMP. These were distributed via the link where the participants answered unanimously and the response received immediately. Analysis from the received questionnaires was done through reliability statistics, principal component analysis and Kaiser – Meyer – Olkin (KMO) values for each construct.

4.2 Response to questionnaires

4.2.1 Questionnaire

Table 4.1 Response rate

Questionnaire			
Respondent category	Sample Size	Responses	Response Rate %
Females	158	67	42,41

The questionnaire response rate for the survey is 42.41%. On the basis of the number of questionnaires received, the response rate of 42.41% can be deemed sufficient for statistical analyses to be made.

4.2.3 Response rate

To improve the response rate, the following steps were taken:

- A humane request was made to respondents by means of a covering letter;
- The respondents were assured of their anonymity;
- The questionnaire length was kept to a minimum, and
- Emails were sent to the respondents as reminders to complete the questionnaire.

4.2.4 Missing values

Missing values by the respondents in the questionnaires are usually unavoidable even though not desired, as some of them may not clearly understand all the factors. In that case, the questionnaireallows for a respondent to tick an option indicated as “unsure”. This is necessary to prevent the respondents from rating incorrectly a factor of which they are not sure about.

4.3 Demografic data of respondents to the questionnaire

This section describes the demographics of the respondents surveyed in this research. It reveals their experience, expertise, age, the kind of organisation they work for, and their status.

4.3.1 Sector

The sector distribution of respondents reflects that there is more or less the same number of respondents from the public sector as those in the private sector. The statistics reveal 50.7% of therespondents work with the public sector and others i.e. 49.3% work in private sectors.

4.3.2 Organisations' number of years in existence

Figure 4.1 Reflects that most organisations have been in existence for more than 50 years. This indicates that these organisations have undertaken several projects and have experienced personnel capable of answering the questions on the industry in this questionnaire.

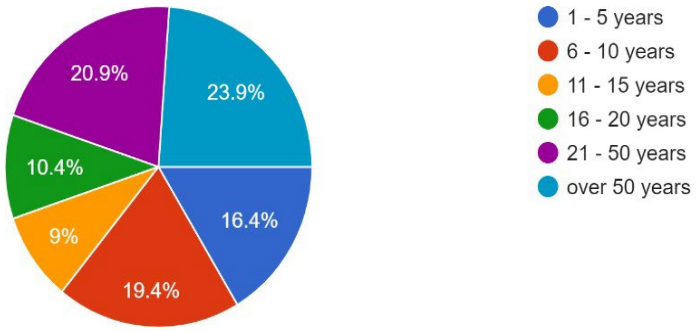

FIGURE 4.1 Number of years the organisations have been of existence.

4.3.3 Age of respondents

Figure 4.2 reflects that 46.3 % of the respondents are within the ages of 31 to 40 followed by 32.8% of 41 to 50 then 17.9 of 25 to 30 this implies that this group of respondents are mature andresponsible as well with relevant experience.

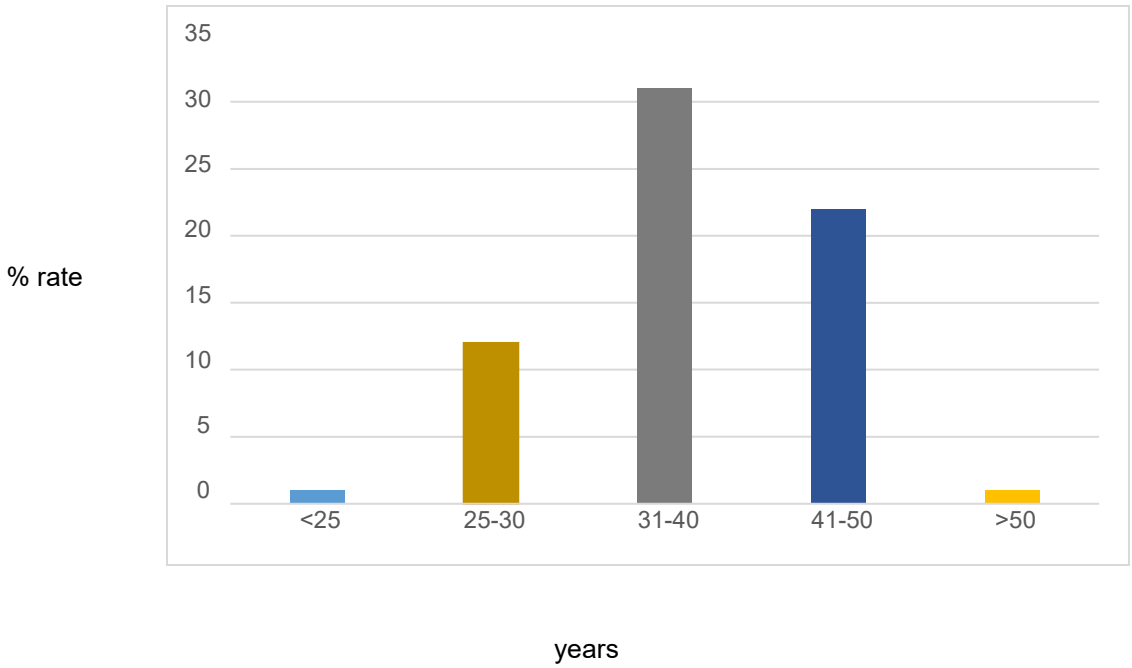

FIGURE 4.2 Distribution of respondents' age

4.3.4 Catergory of respondents' qualification

The pie diagram in Figure 4.3 reflects the highest academic qualification of the respondents; 20.9

% of them own the B-tech degree followed by 19.4% with diplomas, and 14.9 % with honours degrees. These statistics imply the reliability of the collected data and indicate that they occupy the position to provide reasonable input to the research.

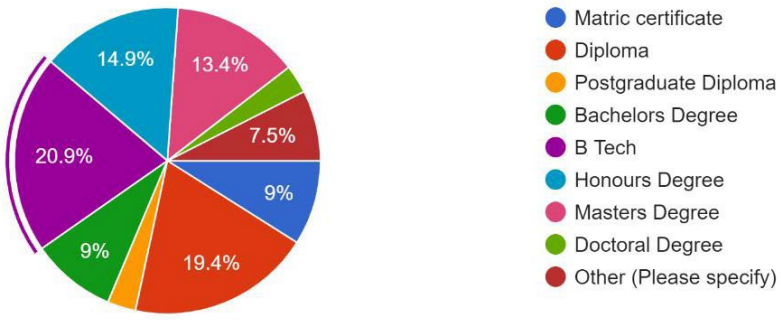

FIGURE 4.3 Highest formal qualification of the research participants

4.3.5 Catergory of respondents' professions

Figure 4.4 below indicates that project managers take the lead at 52.2% followed by theconstruction managers at 23.9 % then engineers at 17. 9 % and lastly builders at 6%.

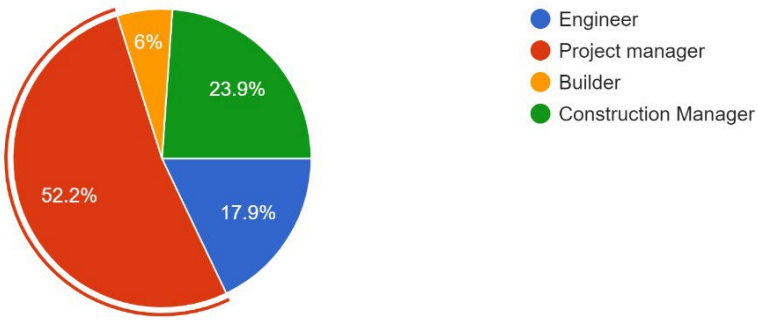

FIGURE 4. 4 Classification of respondents' profession

4.3.6 Status in the organisation

Figure 4.5 reflects managers at 31.3% and senior staff at 23.9% predominate among other respondents. This indicates that the respondents are indeed professionals and their participation inthe survey can be relied upon.

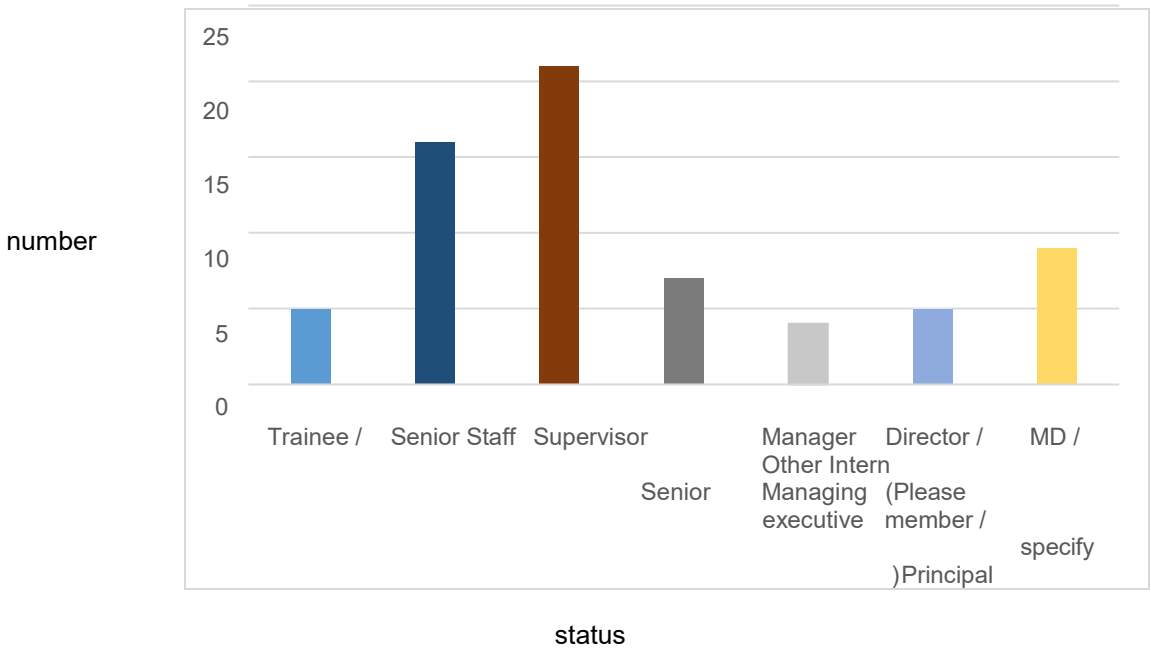

FIGURE 4.5 Status of Category of respondents'

4.3.7 Nunber of respondents' years of experience

Respondents with 6 to 10 years of experience, dominate at 32.8% followed by 1 to 5 at 26.9% theleast being 21 to 40 years at 9%. This reflects well-experienced respondents which creates a lot ofconfidence in using data collected from them.

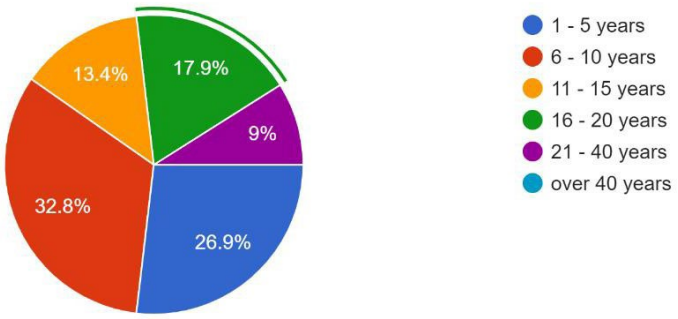

FIGURE 4.6 Respondents' years of experience

4.4 Analysis of main questions in the questionnaire

4.4.1 Reliability statistics

Reliability of the factors that constitute each construct were tested. The Cronbach's alpha values for each construct are given in Table 4.2. For acceptability construct's alpha values must be >0.70.For all the study construct the Cronbach alpha values were greater than 0.70. This implies that thefactors on each construct adequately describe the construct and the data is reliable.

Table 4.2 Cronbach alpha values for each construct

S/No.	Construct	Cronbach Alpha value
1	Factors influencing the female's professionals'participation in SA	0,960
2	Factors contributing to career development for female professionals in the Building Construction Industry.	0,925
3	Impediments on CD for female professionals in SABuilding Construction Industry	0,925
4	Motivational factors influencing the interest and choice of female professionals for a career in the Building Construction Industry.	0,95
5	Qualities that enhance the success of female professionals in the Building Construction Industry.	0,941

4.4.2 Presentation of factor analysis (Principal component analysis) result

- Three tests were performed to ascertain the significance of each factor in the constructs.

  These tests are the Kaiser - Meyer – Olkin (KMO) measure of sampling adequacy, the Communalities and Significance test.

- KMO measure values >0.7 are adequate for constructs.
- A significance test of <0.05 is acceptable, revealing that a factor has significant influence.
- Communalities factors >0.6 are influential.
- For the construct factor that influences the participation of female professionals in theConstruction Industry the KMO value is 0.784 which is an average rate

for the construct. The factors that have significant value < 0.05 indicate that the factors influence female participation in the construction industry. The communalities test reveals that all factors, except the two which are: fear of competition within men as well as recruitment policies and procedures, are factors <0.60 and are not factorable.

Table 4.3 Kaiser – Meyer – Olkin (KMO) values for each construct

S/No.	Construct	KMO value
1	Factors influencing the female's professionals'participation in SA building construction	0,784
2	Factors contributing to career development for a female professional in the building industry.	0,817
3	Impediments on career development for femaleprofessionals in South African Building Construction Industry	0,587
4	Motivational factors influencing the interest and choice of female professionals a for career in the Building Construction Industry.	0,708
5	Qualities that enhance the success of female professionals in the Building Construction Industry.	0,882

4.5 Discussion on results of main study

Findings from the questionnaire (refer to section 4.1) are discussed below:

The factor with the highest ranking on influencing female participation in career development is gender discrimination with an MS of 3.61. This was also confirmed in the secondary data as per the following: Jahn (2009) affirmed that women working on-site, nowadays, are victims of unfair treatment, discrimination and disrespect. Powell *et al.* (2010) found that women usually leave their organisations due to outright discrimination and limited CD opportunities. Worrall *et al.* (2010) also discovered that one of the challenges facing the professional women is discrimination and this constitute barriers to their CD goals.

With an MS of 3.91 primary data has confirmed that training and continuing education also has a significant contribution to the career development of females in the construction industry. Fernando, Amaratunga, and Haigh (2014) suggested that there should be training programs designed to develop team skills. He also suggested that seminars and workshops should be organised for project team members to develop their communication and professional skills. Further, Worrall et al (2010) noted efficient training and CD programs as an additional and proven strategy to develop the career of employees in an organisation. (Worrall et al., 2010).

Family and social commitments are another significant factors impeding career development for female professionals in the construction industry with an MS of 3.47. Professional jobs like managerial positions can be too demanding and require a lot of support in addition to the domestic chores of being a mother and a wife. It is then

challenging to balance a career with these family and social expectations.

Primary data has confirmed passion to be the most significant factor attracting women to the construction field. In deep rural areas of the Eastern Cape Province in South Africa, women can make traditional building blocks from their houses. The same women and those in Limpopo and other regions possess another skill of domestic painting in their communities. Therefore, from thecombination of these skills, namely stokvels, domestic painting, and building block manufacturing, their passion for construction is developed.

Education has been ranked as the highest quality that enhances the success of female professionalsin the construction industry, with an MS of 4.22. In addition to the primary data, Bryad *et al.* (2016) argue that the distinction between the two groups of workers is that highly skilledcontractors are more likely to be highly educated and trained than lowly skilled contractors.

4.6 Findings and discussions

Table 4.4 Significance test for factors influencing female professionals' participation in theBuilding Construction Industry in South Africa.

Attributes	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Rank
Nature of the industry	66	3.35	1.364				**3**
Social-cultural perceptions andorientation	66	3.47	1.581	19.939	65	.000	**2**
Poor image of the constructionindustry.	67	2.87	1.696	17.831	65	.000	**13**
Gender discrimination	67	3.61	1.576	13.832	66	.000	**1**
Discouragement due to maleattitude	67	3.31	1.635	18.761	66	.000	**4**
Fear of competition within men	66	2.94	1.466	16.589	66	.000	**12**
Masculine nature of the jobrequirement	67	3.07	1.511	16.285	65	.000	**11**
Family commitments	66	3.27	1.687	16.659	66	.000	**5**
Recruitment policies andprocedures	65	3.12	1.615	15.756	65	.000	**9**
Lack of career progression	67	3.13	1.413	15.587	64	.000	**8**
Female preference for some jobsto others	67	3.10	1.539	18.156	66	.000	**10**
Lack of mentoring	66	3.18	1.616	16.514	66	.000	**7**
Salary and wages compared to other jobs	66	3.21	1.473	15.992	65	.000	**6**
Other							

The t-test was performed to ascertain the significant influence on factors for the construct. From the calculation made, it is worth noting that all factors have significant values < 0.05. This impliesthat all factors have a significant influence on female participation in the Building Construction Industry. This will enable the ranking of factors as indicated in table 4.5.

Table 4. 5 Factors influencing female professionals' participation in the Building Construction Industry in South Africa.

S/N	Attributes	N	Mean	Std. Deviation	Rank
1	Gender discrimination	67	3.61	1.58	1
2	Social-cultural perceptions and orientation.	66	3.47	1.58	2
3	Nature of the industry	66	3.35	1.36	3
4	Discouragement due to male attitude	67	3.31	1.64	4
5	Family commitments	66	3.27	1.69	5
6	Salary and wages compared to other jobs	66	3.21	1.47	6
7	Lack of mentoring	66	3.18	1.62	7
8	Lack of career progression	67	3.13	1.41	8
9	Recruitment policies and procedures	65	3.12	1.62	9
10	Female preference for some jobs to others	67	3.10	1.54	10
11	Masculine nature of the job requirement	67	3.07	1.51	11
12	Fear of competition within men	66	2.94	1.47	12
13	Poor image of the construction industry.	67	2.87	1.70	13
	Other				

Table 4.5 presents the respondents' perceptions regarding the influencing factors for female professionals participating in the Building Construction Industry. It is noted that all these factors have an MS that is >2.5 which means they raise serious concerns in terms of participation of the female professionals in the construction industry. The factor with the highest ranking is Gender discrimination with a mean item score of 3.61. It is perceived that the building construction industry is male dominant. Therefore, females are often not expected to cope and even excel in this field.

The second highest factor is socio-cultural perceptions and orientation with an MS of 3.47. The girl child is already associated with some particular jobs based on stereotypes which include cleaning, cooking, and domestic work. Sangweni, (2015) also considered the

poor representation

of women as well as the impact of wrong cultural beliefs as challenges that impede the CD of female professionals in the industry.

The least significant factor is the poor image of the construction industry with an MS of 2.87. It isranked the least important an MS greater than 2.5 means it is still important. English *et al.* (2006)indicated that the image of the industry discourages participation by women such as inflexible working environments.

Table 4.6 Significance test for factors that contribute to career development for femaleprofessionals' in the Building Construction Industry in South Africa.

Attributes	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Rank
Training and continuing education	65	3.91	1.284	5.324	66	.000	1
Promotion	65	3.74	1.266	24.544	64	.000	3
Mentoring	67	3.81	1.294	23.810	64	.000	2
Networking	67	3.55	1.283	24.079	66	.000	5
Motivation	67	3.61	1.314	22.671	66	.000	4
Job sharing programs	62	3.50	1.277	22.504	66	.000	6
Realistic job previews	60	3.28	1.367	21.578	61	.000	9
Dependent Care Services	62	3.37	1.382	18.611	59	.000	8
Flexible work schedules	65	3.42	1.333	19.209	61	.000	7
Work-family programs	60	3.25	1.385	20.651	64	.000	10
Other:	29	2.97	1.546	18.170	59	.000	

The t-test was performed to ascertain the significant contribution of factors for the construct. Fromthe calculation made, it is worth noting that all factors have significant values < 0.05. This implies that all factors have a significant contribution to career development for female participation in theBuilding Construction Industry. This will enable the ranking of factors as indicated in table 4.7.

Table 4.7 Factors that contribute to career development for female professionals' in the BuildingConstruction Industry in South Africa.

S/N	Attributes	N	Mean	Std. Deviation	Rank
1	Training and continuing education	65	3.91	1.28	1
2	Mentoring	67	3.81	1.29	2
3	Promotion	65	3.74	1.27	3
4	Motivation	67	3.61	1.31	4
5	Networking	67	3.55	1.28	5
6	Job sharing programs	62	3.50	1.28	6
7	Flexible work schedules	65	3.42	1.33	7
8	Dependent Care Services	62	3.37	1.38	8
9	Realistic job previews	60	3.28	1.37	9
10	Work-family programs	60	3.25	1.39	10

Table 4.7 presents the respondents ranking of factors that contribute to career development for female professionals in the construction industry. The most significant factor is training and continuing education with the highest rank of 3.91. Training and continuing education should be occurring all year round to equip workers with the latest models of programs to improve from onelevel to another.

Following this factor is mentoring with an MS of 3.81. Mentoring seems to be very significant toattract more females in the construction industry, specifically from a young age. While mentoringcan be perceived as an important element, Francis (2017) has noted that mentoring only performsthe secondary function of retaining women in their chosen field and does not significantly promotecareer development.

The least significant factor is work-family programs, with an MS of 3.25, which although minimalcompared to the rest of the ranking in the table is still not very low.

Table 4.8 Significance test for factors impeding career development for female professionals inthe South African Building Construction Industry.

Attributes	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
External funding issue: Lack of industry driven-support for further or higher education.	65	3.25	1.335	10.326	28	.000
Apathy: Lack of career development focus	65	3.20	1.337	19.604	64	.000
Access: Limited access to education and training	62	2.95	1.234	19.297	64	.000
Institutional issues: No suitable courses are available.	62	2.63	1.346	18.837	61	.000
Financial constraint on the part of the employer	64	3.14	1.355	15.383	61	.000
Time constraint due to the intrinsic nature of the industry	61	3.21	1.266	18.537	63	.000
Bureaucratic structures that hinder access to further education and training	64	3.25	1.403	19.816	60	.000
Family and social commitments	64	3.47	1.272	18.532	63	.000
Traditional and religious restrictions of females to certain work types	61	2.93	1.448	21.816	63	.000
Abscondment:	52	2.40	1.257	15.832	60	.000
Other	29	2.69	1.228	13.796	51	.000

The t-test was performed to ascertain the significant impediments on factors for the construct. From the calculation made, it is worth noting that all factors have significant values < 0.05. This implies that all factors have significant influence on female participation in the Building Construction Industry. This will enable the ranking of factors as indicated in Table 4.9.

Table 4.9 Factors impeding career development for female professionals in the South AfricanBuilding Construction Industry.

S/N	Attributes	N	Mean	Std. Deviation	Rank
1	[Family and social commitments]	64	3.47	1.27	1
2	11 [External funding issue: Lack of industry- driven support for further or higher education.]	65	3.25	1.34	2
3	[Bureaucratic structures that hinder access tofurther education and training]	64	3.25	1.40	3
4	[Time constraint due to intrinsic nature of theindustry]	61	3.21	1.27	4
5	[Apathy: Lack of career development focus]	65	3.20	1.34	5
6	[Financial constraint on the part of the employer]	64	3.14	1.36	6
7	[Access: Limited access to education andtraining]	62	2.95	1.23	7
8	[Traditional and religious restriction of female tocertain work types]	61	2.93	1.45	8
9	[Institutional issues: No suitable courses areavailable.]	62	2.63	1.35	9
10	[Abscondment:]	52	2.40	1.26	10
	[Other]	29	2.69	1.23	

Table 4.9 indicates the respondents' perception with regards to the factors impeding career development for female professionals in CI, in terms of the MS ranging between 1.00 and 5.00, based on the percentage responses to a scale of 1 (Minor) and 5 (Major). It is, therefore, worth noting that all factors impeding the career development of female professionals have an MS that is > 2.35 which indicates that the efficiency of these factors is moderate to even a major extent. The highest-ranked factor is family and social commitments with an MS of 3.47. Higher positionslike managerial positions come with a lot of responsibility and are much demanding, so are thefamily and social commitments especially for the females. This, therefore, calls for someone who

can manage to balance these. Cultural expectations are also perceived to limit women's interactionswith men, which is such a challenge in this field as it is a male dominant industry. Adogbo *et al.* (2015) mentioned that it is impossible to work in construction without interacting with men, and for some married women, that is the source of conflict with their spouses.

The second-highest ranked factor is the external funding issue with an MS of 3.25. Higher education fees are quite expensive such that not everyone can afford them. In as much as there is a government subsidy as well as other firms who provide for this funding, these are not sufficientenough as they still cannot meet the demand. Chinomona (2015) also mentioned that female entrepreneur in South Africa, some of which form part of the construction industry, lacks education and training. This could be a result of failure to access funding for some individuals who are fromless privileged backgrounds.

The least ranked factor that impends the career development of female professionals was abscondment, with an MS of 2.40. Employers sometimes fear employees eloping after getting a better qualification thereafter expecting some recognition in terms of promotion and in the event the promotion is not forthcoming, the newly qualified employees might decide to resign and join another company where their qualifications will be appreciated and will be offered better benefits. According to Norwood *et al.* (2006), undergraduate students have their own perception of the salary range in connection with their qualifications.

Table 4.10 Significance test for the motivational factors that influence the interest and choice offemale professionals in the Construction Industry.

Attributes	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Passion	64	4.11	1.323	11.797	28	.000
The money	66	3.77	1.379	24.853	63	.000
Career progression	65	3.66	1.350	22.228	65	.000
Because of the impact, the industry has on the world	64	3.41	1.365	21.875	64	.000
Job security	65	3.42	1.391	19.959	63	.000
Travel opportunities	63	3.17	1.351	19.799	64	.000
Image of the industry	62	3.21	1.295	18.658	62	.000
Career knowledge	64	3.56	1.233	19.518	61	.000
Culture and working environment	64	3.63	1.291	23.118	63	.000
Discrimination	65	3.54	1.300	22.463	63	.000
Glass ceiling	59	3.22	1.204	21.945	64	.000
Encouragement from young	61	3.49	1.260	20.538	58	.000
Sexist attitudes	63	3.33	1.391	21.645	60	.000
Male-dominated culture and environment	63	3.65	1.427	19.018	62	.000
Other						

The t-test was performed to ascertain the significant motivation on factors for the construct. Fromthe calculation made, it is worth noting that all factors have significant values < 0.05. This impliesthat all factors have significant influence on female participation in the building construction industry. This will enable the ranking of factors as indicated in Table 4.11.

Table 4.11 Motivational factors influencing the interest and choice of female professionals forcareer development in the Building Construction Industry.

S/N	Attributes	N	Mean	Std. Deviation	Rank
1	Passion	64	4.11	1.32	1
2	The money	66	3.77	1.38	2
3	Career progression	65	3.66	1.35	3
4	Male-dominated culture and environment	63	3.65	1.43	4
5	Culture and working environment	64	3.63	1.29	5
6	Career knowledge	64	3.56	1.23	6
7	Discrimination	65	3.54	1.30	7
8	Encouragement from young	61	3.49	1.26	8
9	Job security	65	3.42	1.39	9
10	Because of the impact, the industry has on theworld	64	3.41	1.37	10
11	Sexist attitudes	63	3.33	1.39	11
12	Glass ceiling	59	3.22	1.20	12
13	Image of the industry	62	3.21	1.30	13
14	Travel opportunities	63	3.17	1.35	14
	Other_____				

Table 4.11 Indicates the motivational factors that influence the interest and choice of female professionals in the construction industry, in terms of the mean score (MS) ranging between 1.00and 5.00, based on the percentage responses to a scale of 1 (Minor) and 5 (Major). The mean scorefor all these factors is above 3 which gives the impression that the respondents perceive them to be very effective. The most highly ranked factor was passion with an MS of 4.11. Gannett (2019)revealed that rural women's entrepreneurship is a job creator, a means for local economicdevelopment, and a source of empowerment for women seeking stability and independence. In addition to stokvels and agricultural projects, women from townships and rural areas also exploreanother talent of painting their houses as well as manufacturing building blocks for domestic use.Therefore, from

the combination of these skills, for example, stokvels and domestic painting together with building blocks manufacturing, their passion for construction is developed. The second highest factor was money with an MS of 3.77. Greene (1997) mentioned that typical low paying with low-status jobs, like clerical, retail and service sectors are associated with or referredto as “female jobs”. Yet, the male-dominated occupations are traditionally high paying and high status than the female intensive occupations and these are labelled “male jobs”. Amongst other things, females are attracted to money as well to this industry. The least ranked factor was travel opportunities with an MS of 3.17 which means even though it is ranked the least, it is above an MS of 3 which indicates that it is still of the higher value. It is said to be an opportunity in the sense that one has to explore and see many areas due to the construction projects being all over even out of the local radius.

Table 4. 12 Significance test for the qualities that enhance the success of female professionals inthe Building Construction Industry

Attributes	N	Mean	Std. Deviation	t	Df	Sig. (2-tailed)
Good organisational skills	65	4.18	1.117	10.524	27	.000
Networking	65	4.14	1.059	30.216	64	.000
Education	65	4.22	1.053	31.511	64	.000
Experience	64	4.20	1.086	32.270	64	.000
Problem-solving	64	4.09	1.178	30.950	63	.000
Other:	31	3.58	1.285	27.799	63	.000
Valid N (listwise)	20			15.513	30	.000

The t-test was performed to ascertain the significant qualities of factors for the construct. From thecalculation made, it is worth noting that all factors have significant values < 0.05. This implies thatall factors have a significant influence on female participation in the building construction industry. This will enable the ranking of factors as indicated in Table

4.13.

Table 4. 13 Qualities that enhance the success of female professionals in the BuildingConstruction Industry

S/N	Attributes	N	Mean	Std. Deviation	Rank
1	Education	65	4.22	1.05	1
2	Experience	64	4.20	1.09	2
3	Good organisational skills	65	4.18	1.12	3
4	Networking	65	4.14	1.06	4
5	Problem-solving	64	4.09	1.18	5
	Other:				
	Valid N (listwise)	20			

Table 4.13: denotes the qualities that enhance the success of female professionals in the buildingconstruction industry, in terms of the mean scores ranging between 1.00 and 5.00, based on the percentage responses to a scale of 1 (Minor) and 5 (Major). It is worth noting that the mean scoresfor all these factors are above 4 which gives the impression that the respondents perceive them tobe very effective. The most highly ranked factor is education with a mean score of 4.22. Similar to education, experience is of importance when one is looking for job opportunities and it is ranked quite high with an MS of 4.56 as the quality that enhances the success of female professionals. Findings further indicate that previous construction knowledge and experience places the applicant for the job in a better position than someone who has never worked in this industry before. It creates an even better opportunity when combined with education meaning theapplicant meets both educational qualifications as well as working experience. Females, in general, are perceived to have good organisation skills, which if explored in the construction industry couldbring a lot of improvement. Although the respondents have ranked this quality lower, it is still quite high considering that its MS is 4.21. Most construction projects are time-

sensitive and if things are done hastily and there is a lack of organisational skill, it could lead to some informationgetting lost.

4.7 Chapter summary

This chapter outlines and discusses data received for the study. The chapter begins with the demographical information of the research participants. The background information of the research participant as indicated in section 4.2 shows that the research participants are knowledgeable and the information received from them is reliable. Section 4.3 of this chapter explains the method employed to deal with missing values to ensure the accuracy of the data collected. The remaining section of this chapter details the results of the data received using different statistical analyses appropriate for each section of the work. Thereafter, issues related to how the reliability of the research finding was addressed. Finally, a robust discussion on the findings of the research in relation to the existing literature was provided.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises the findings and conclusions of the study, it further outlines the recommendations based on these findings for future research work. These conclusions are made based on the outcome of the analysis. Recommendations are based on the conclusions.

5.2 Conclusions

Based on the analysis of the received data the following conclusions have been reached.

- Gender discrimination has the most significant influence on female participation in careerdevelopment within the South African construction industry.
- Training and continuing education also contribute significantly to the career developmentof female professionals in the construction industry.
- It is also concluded that family and social commitments have a huge impact in hindering the career development of female professionals in the construction industry.
- Passion has been discovered to be the most significant motivational factor that influences the interest and choice of female professionals for CD in the Building ConstructionIndustry.
- Education: is one of the qualities that can enhance the success of female professionals inthe Building Construction Industry. Those with a better or higher level of education seem to gain more recognition than the ones with less.

5.3 Recommendations

The following recommendations have been made based on the conclusions reached from the dataanalysis.

- Policies should be put in place to ensure that women are placed at all levels within an organisation and the opportunities are granted fairly to ensure that females are not discriminated against.
- Provisions should be made for training programs like team building, workshops andseminars as well as communication skills development programs. In other words, organisations should look at investing in training programs and ensure that opportunities are granted fairly and on merit.
- Regarding family and social commitments, salaries should somehow mitigate the challengeof a full-time mother and wife who might not be able to balance the work and family responsibilities. It is then, that she requires a salary that could cater for additional support

  like a good and reliable babysitter or domestic assistance and another option would be to enrol children in boarding schools but all these require additional financial support to caterfor such services, such as support from a children's fund.
- Respondents have confirmed that most of them are in this industry because of the passion they have for their jobs. Therefore if this could be closely considered together with good salaries then obviously workers could be retained and further assisted in career development.
- Females should pursue or obtain higher degrees in CD in construction studies. These degrees are such that these females could be placed in managerial

positions. Therefore, some of the postgraduate programs recommended for pursuing higher degrees include Construction Management, Human Resource Management and Industrial Psychology.

- Lastly higher learning institutions should also through their marketing strategy have femalemarketing representatives who are professional and can visit secondary schools to recruit young females to pursue careers in this field. This will then mitigate the lack of mentorshipas well promoting education on another hand.

5.4 Chapter summary

This chapter outlines the conclusion and the recommendations of the study. It is concluded that gender discrimination has an impact on career development. Also, passion is seen as the motivational factor for the career development of females in this industry. The chapter highlights the need for the policies to include fair granting of opportunities whereby women are not discriminated against. Organisations should consider investing in training programs and granting opportunities on merit. Salaries should match the ones for their counterparts males or even adjusted to cater for additional domestic responsibilities, which requires an assistance and or day care facilities for babies and small children.

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APPENCDICES

Appendix B

LETTER OF INFORMATION

Title of the Research Study: (APPRAISAL OF CAREER DEVELOPMENT AMONG FEMALE PROFESSIONALSIN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY)

Principal Investigator/s/researcher: (Hlumela Theodocia Zungu, B-Tech Construction Management)

Co-Investigator/s/supervisor/s: (DR A O Aiyetan, PhD / DR MC Mewomo, PhD)

Brief Introduction and Purpose of the Study: The purpose of the study is to appraise the careerdevelopment among female professionals in the South African Building Construction Industry.

Greeting (Good Day).

Introduce yourself to the participant (I am an MBE candidate at DUT doing research for my Master'sdegree in Construction Studies.)

Invitation to the potential participant (I would like to invite you to participate in the research)

What is Research (Research is a systematic search or enquiry for generalised new knowledge)

(In the regard I am asking for your precious time, and effort to answer all the questions in thequestionnaire that are important and helpful for the completion of the study.

Outline of the Procedures: (The aim of the study is to appraise career development among female professionals in the South African building construction industry with a view to providing strategies toimprove career development of female professionals.

- The research intends to accomplish the following objectives:

1. To identify and assess factors influencing career development of women in the Construction Industry.

2. To identify and assess impeding factors to career development of woman in the ConstructionIndustry.

3. To identify and assess factors influencing career choice of female professionals in the ConstructionIndustry.

4. To identify and assess factors contributing to career development of females in the ConstructionIndustry.

5. To identify and assess motivational factors that influence the interest of female career developmentin the Construction Industry.

6. To identify and assess qualities that affects the success of female professionals in the ConstructionIndustry.

This survey or questionnaire can be answered anywhere in your office or at the comfort of your home. The questionnaire may be accessed through the link provided and automatically you get to it. Most of the question are in the multiple choice format, where you should choose the answer that best suit your response to the question. You will also be required to answer all the questions, as you will not be able toproceed to the next question if you have not responded to the previous question. Only once you have answered all of them then you can choose submit.)

Risks or Discomforts to the Participant: (Kindly be assured that all the data gathered from you will bekept in the highest level of confidentiality. Your positive response in this request will be valuable contribution for the success of the study will is highly appreciated.

Explain to the participant the reasons he/she may be withdraw from the Study: (Kindly be advised thatyou are entitled to withdraw from the study at any time should you wish to do so and will not be penalised or be ill-treated what so ever.

Benefits: (This research as explained before is mainly for academic purpose and therefore there is noguarantee of immediate change or improvement of the situation at your workplace as a result of thisstudy straightaway.)

Remuneration: (Please be advised that there will be no monetary or any compensation for participatingin this research.)

Costs of the Study: (You are as well not expected to fund or pay for this research)

Confidentiality: (Kindly be assured that all the data gathered from you will be kept in the highest level ofconfidentiality. As well as your own identity will also the protected and treated with respect and high confidentiality.)

Results: (The research as it is for academic purchase, the results will be used to populate the findings forthe study which will be made available in the library for the future researchers to refer)

Research-related Injury: (As this research is not health related study that doesn't need the physicalcontact or laboratory experiment either it doesn't come with any potential injury to anyone participating in it.)

Storage of all electronic and hard copies including tape recordings (To protect the confidentiality ofyour responses, they will be locked up carefully for the period of 5 years for academic reference purposes and thereafter will be shredded away.)

Persons to contact in the Event of Any Problems or Queries: (Please contact myself the researcher(Hlumela Zungu on 082 4981837.), my supervisors (Dr AO Aiyetan tel: 074 842 6297 as well as Dr Mewomo tel: 0744870101) or the Institutional Research Ethics Administrator on 031 373 2375.
Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031373 2577 or researchdirector@dut.ac.za.

General:

A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g.isiZulu.

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwm Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

9 November 2021

Mrs H T Z Zungu
72 Ashley Drive
Gillitts
3610

Dear Mrs Zungu

APPRAISAL OF CAREER DEVELOPMENT AMONG FEMALE PROFESSIONALS IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY
Ethics Clearance Number: 210/21

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

We are pleased to inform you that the data collection tool has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Prof J K Adam
Chairperson: IREC

SACPCMP

The South African Council for the Project and Construction Management Professions

— CONSTRUCTING NEW PERSPECTIVES —

72 Ashley Drive
Gillitts
Durban
3610

05 November 2021

Dear Hlumela Zungu

APPROVAL NOTICE FOR PERMISSION TO CONDUCT RESEARCH

The South African Council for the Project and Construction Management Professions (SACPCMP) has reviewed your request to conduct a research project involving the participation, in an online survey, of our Registered Persons, in order to collect and utilize data related to your research project titled "Appraisal of career development among female professionals in the South African construction Industry."

I am pleased to inform you that you have been granted approval to conduct an online survey on the Council's Registered Persons.

This approval notice is valid for two years as stipulated in Section 7.7 of the Application for Permission to Conduct Research Standard Operating Procedure.

SACPCMP's Stakeholder Relations and Communication Department will distribute the invitation to participate in the online survey, to the Registered Persons, upon receipt of this approval notice.

By signing the Applicant Declaration Form, as part of your application, you will undertake to use the data collected in a responsible manner and you have agreed to adhere to the conditions stipulated therein.

As part of the conditions of this approval you will be required to supply the SACPCMP with your final research dissertation or thesis for information purposes.

Kind Regards

SMC Kwenaite
Acting Manager: Education

QUESTIONNAIRE TYPE I
Section 1: DEMOGRAPHIC

DATAA

ORGANISATIONAL

1. **In what sector do you work?**
   □ Private sector □ Public sector:
2. ……
3. Please indicate the actual number of years your organisation has been involved in construction?
   □ 1 - 5 years □ 16 - 20 years
   □ 6 - 10 years □ 21 - 50 years
   □ 11 - 15 years □ over 50 years

B *PERSONAL*

4. **Please indicate your age:**
   □ Under 25 years □ 41-50 years
   □ 25 - 30 years □ over 50 years
   □ 31 - 40 years

5. **Please indicate your highest formal qualification**:

Matric certificate		Honours Degree	
Diploma		Masters Degree	
Postgraduate Diploma		Doctoral Degree	
Bachelors Degree		Other (Please specify)	
B Tech		Other (Please specify)	

6. **Kindly indicate from below the category of construction profession you belong to.**

Engineer		Builder		Client	
Project manager		Construction Manager			

7. **Please indicate your status in the organisation**:

MD / Managing member / Principal		Senior Staff	

Director / Senior executive		Supervisor	
Manager		Trainee / Intern	
Other (Please specify)			

8. Kindly indicate your actual years of experience in the building construction industry

□ 1 - 5 years
□ 6 - 10 years
□ 11 - 15 years
□ 16 - 20 years
□ 21 - 40 years
□ over 40 years

9. Section B: Factors influencing the female's professionals' participation in the building construction industry in South Africa
On a scale of 1 (minor) to 5 (major), rate these factors as they influence the career development of female professionals in the Building Construction Industry (Please note the 'unsure' and 'Does not' options).

	Factor	Unsure	Does not	Minor .....Major				
				1	2	3	4	5
9.1	Nature of the industry	U	DN	1	2	3	4	5
9.2	Social-cultural perceptions and orientation.	U	DN	1	2	3	4	5
9.3	Poor image of the construction industry.	U	DN	1	2	3	4	5
9.4	Gender discrimination	U	DN	1	2	3	4	5
9.5	Discouragement due to male attitude	U	DN	1	2	3	4	5
9.6	Fear of competition within men	U	DN	1	2	3	4	5
9.7	Masculine nature of the job requirement	U	DN	1	2	3	4	5
9.8	Family commitments	U	DN	1	2	3	4	5
9.9	Recruitment policies and procedures	U	DN	1	2	3	4	5
9.10	Lack of career progression	U	DN	1	2	3	4	5
9.11	Female preference for some jobs to others	U	DN	1	2	3	4	5
9.12	Lack of mentoring	U	DN	1	2	3	4	5
9.13	Salary and wages compared to other jobs	U	DN	1	2	3	4	5
9.14	Other:_____			1	2	3	4	5
9.15	Other:_____			1	2	3	4	5

10. Section C:
On a scale of 1 (minor) to 5 (major), rate these factors as they contribute to career development for female professional in the Building Construction Industry.

	Factor.	Unsure	Does not	Minor..... Major				
				1	2	3	4	5
10.1	Training and continuing education	U	DN	1	2	3	4	5
10.2	Promotion	U	DN	1	2	3	4	5
10.3	Mentoring	U	DN	1	2	3	4	5
10.4	Networking	U	DN	1	2	3	4	5
10.5	Motivation	U	DN	1	2	3	4	5
10.6	Job sharing programs	U	DN	1	2	3	4	5
10.7	Tuition refund programs	U	DN	1	2	3	4	5
10.8	Incentive for late retirement	U	DN	1	2	3	4	5
10.9	Paid and unpaid leave bonuses	U	DN	1	2	3	4	5

10.10	Realistic job previews	U	D N	1	2	3	4	5
10.11	Dependent Care Services	U	D N	1	2	3	4	5
10.12	Flexible work schedules	U	D N	1	2	3	4	5
10.13	Work-family programs	U	D N	1	2	3	4	5
10.14	Other:_____			1	2	3	4	55
10.15	Other:_____			1	2	3	4	

11. Section D:

On a scale of 1 (minor) to 5 (major), please rate the following factors influencing / impediments on career development for female professionals in South African Building Construction Industry

	Factor	Unsure	Does not	Minor ..... Major				
				1	2	3	4	5
11.1	External funding issue: Lack of industry driven support for further or higher education.	U	DN	1	2	3	4	5
11.2	Apathy: Lack of career development focus	U	DN	1	2	3	4	5
11.3	Access: Limited access to education and training	U	DN	1	2	3	4	5
11.4	Institutional issues: No suitable courses are available.	U	DN	1	2	3	4	5
11.5	Financial constraint on the part of the employer	U	DN	1	2	3	4	5
11.6	Time constraint due to intrinsic nature of the industry	U	DN	1	2	3	4	5
11.7	Bureaucratic structures that hinder access to further education and training	U	DN	1	2	3	4	5
11.8	Family and social commitments	U	DN	1	2	3	4	5
11.9	Traditional and religious restriction of female to certain work types	U	DN	1	2	3	4	5
11.10	Abscondment:	U	DN	1	2	3	4	5
11.11	Other:_____			1	2	3	4	5
11.12	Other:_____			1	2	3	4	5

12. Section E:

On a scale of 1 (minor) to 5 (major), rate the following motivational factors influencing the interest and choice of female professionals for career in the Building Construction Industry. (Please note the 'unsure' and 'Does not' options).

	Factor	Unsure	Does not	Minor .....Major				
				1	2	3	4	5
12.1	Passion	U	DN	1	2	3	4	5
12.2	The money	U	DN	1	2	3	4	5
12.3	Career progression	U	DN	1	2	3	4	5
12.4	Because of the impact, the industry has on the world	U	DN	1	2	3	4	5
12.5	Job security	U	DN	1	2	3	4	5
12.6	Travel opportunities	U	DN	1	2	3	4	5
12.7	Image of the industry	U	DN	1	2	3	4	5
12.8	Career knowledge	U	DN	1	2	3	4	5
12.9	Culture and working environment	U	DN	1	2	3	4	5
12.10	Discrimination	U	DN	1	2	3	4	5
12.11	Glass ceiling	U	DN	1	2	3	4	5
12.12	Encouragement from young	U	DN	1	2	3	4	5
12.13	Sexist attitudes	U	DN	1	2	3	4	5
12.14	Male-dominated culture and environment	U	DN	1	2	3	4	5
1215	Other_____			1	2	3	4	5
12.16	Other:_____			1	2	3	4	5

13. Section F:

On a scale of 1 (minor) to 5 (major), rate these qualities as they enhance the success of female professionals in the Building Construction Industry. (Please note the 'unsure' and 'Does not' options).

	Factor	Unsure	Does not	Minor.....Major				
				1	2	3	4	5
13.1	Good organisational skills	U	DN	1	2	3	4	5
13.2	Networking	U	DN	1	2	3	4	5
13.3	Education	U	DN	1	2	3	4	5
13.4	Experience	U	DN	1	2	3	4	5
13.5	Problem-solving	U	DN	1	2	3	4	5
13.6	Other:_____			1	2	3	4	5
13.7	Other:_____			1	2	3	4	5

14 Do you have any comments in general regarding ways of improving female professional career development in the Building Construction Industry?

……
……
……
……
……
……
……

Thank you for your contribution to efforts directed towards improving the career development of female professionals in the South African ConstructionIndustry.