

**ASSESSMENT OF THE SATISFACTION OF WORKERS REGARDING WELFARE
FACILITIES AT PROJECT SITE**

By

Frank Amankwah

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university at Kwame Nkrumah University of Science and Technology, Kumasi, or any other educational institution, except where due acknowledgement has been made in the thesis.

Frank Amankwah (PG5052818)
Student Name & ID	Signature	Date

Certified by:

Dr. De-Graft Owusu-Manu
Supervisor	Signature	Date

Certified by:

Prof. Bernard K. Baiden
Head of Department,	Signature	Date

ABSTRACT

An improved construction worker satisfaction is a major factor to sustainable productivity in the construction industry. Worker satisfaction is an imperative factor in terms of retaining the services of workers and also influencing their productivity on site. The aim of this study was to evaluate worker satisfaction with the provisions of construction site welfare necessities. In order to achieve the aim of the study, four objectives were set for the study being to establish the minimum requirements for welfare facilities on construction sites; to ascertain the key welfare facilities provision policies on construction sites; to examine the adequacy of welfare provisions on site; and to explore factors that influences worker gratification with the site welfare facilities. The study employed the use of both primary and secondary data. An extensive review was done on extant literature centred on site welfare facilities and worker gratification. The identified variables were compounded into questions and administered to respondents (clerk of works and site agents) in D1K1 – D4K4 contractor firms. Out of a total of 66 questionnaires distributed, 43 questionnaires representing 65.15 percent responded, and these were retrieved and analyzed. The data gathered was analysed with Relative Importance Index and Mean Score Ranking. The Cronbach's Alpha was used to test the internal consistency of the scale adopted for the study. The study employed quantitative research methods. It was identified from the study that drinking water, provision of changing rooms as well as uniform and protective clothing were seen as key welfare facilities. The analysis revealed that site welfare facilities that leads to worker gratification was convenience and comfort during work as well as promoting safe working behaviour among workmen.

Keywords: Construction site, Gratification, Satisfaction, Welfare Facilities

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DEDICATION

I dedicate my dissertation to Patricia Afrakomah, Grace Serwaa Bonsu and to all my children for their immense support throughout this study.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 INTRODUCTION

Chapter One discusses the background of study, the problem statement, the aim and objectives of study as well as the research question are well outlined. The scope of the study is well addressed. A brief research methodology is discussed as well as the organisation of the thesis outlined.

1.2 BACKGROUND OF STUDY

The construction industry is the largest employer in most countries worldwide (Ayessaki and Smallwod, 2017; Ameh and Shokumbi, 2013; Mee-Edoiye and Andawei, 2002) and is acknowledged as the backbone of any economy (Rameezdeen, 2005) not excepted by Ghana (Ofori, 2012). It also enhances socioeconomic growth by building infrastructure and creating employment as Ofori (2012) puts forward. The construction industry in the United States employs thousands of workers in various jobs and accounts for over \$645 billion of the US Gross Domestic Product in 2017 (Azeez et al., 2019). Per the statistics of Ghana Statistical Service (2007), the Ghanaian building sector offers employs to about 6% of the working population and contributes an average of 10.5% to Ghana's Gross Domestic Product (GDP). According to Agyakwa-Baah (2007), the Ghanaian construction industry is directly linked to the Ghanaian economy because the Government of Ghana is the biggest client in the industry. The construction industry is one of the most labour intensive industries (Rowlinson and Walker, 2002; Agapiou et al., 1995). However, productivity trends in the industry have a notable effect on national productivity and on the economy as a whole (Pekuri et al., 2011; Allmon et al., 2000). To be able to achieve an even

faster growth and development, there must be an improvement in site welfare conditions and consequently affects worker satisfaction.

The construction industry in Ghana has realized steady growth over recent years and is clearly depicted in the domestic construction sector (Agyakwa-Baah, 2007). The author continues that the sector happens to be among the quickest developing sector with about 7-8% average growth per year. Kumar and Kumar (2012) identified a number of challenges in the construction industry and most of them were linked to the unorganized characteristics of the industry. Also, Chandrasekar (2011) identified that, the nature of the construction sites and workplaces is unsafe and unhealthy. Having said that, it noteworthy that designing the site professionally is significant factor in enhancing the health and safety of the site. Construction site layout includes the designation of temporary facility locations, resources and machinery (Chau and Anson, 2002). Marquardt et al. (2002) combined the definition of site layout condition with construction worker satisfaction. The author defined it as how a construction worker feels with regards to the physical arrangement of the workplace. Construction workers have requirements and expectations and if these requirements are met, they are satisfied (Leblebici, 2012). Also, Cotton et al. (2005) stipulated that, an increase in a construction worker satisfaction has a major impact on the construction industry's productivity. A well-arranged site has a huge impact on construction success factors like cost, time, operational efficiency and construction quality (Chau and Anson, 2002). This statement was further endorsed by Grawitch et al. (2006) who argued that the circumstances for the design of the site being enhanced has proved to be more cost-effective and sustainable which supports collaborative work style.

Many Human resource experts in various organizations and their employers may decide to give higher salaries and incentives to their workers in order to retain their services but research has shown that, effective and high-quality site design circumstances also have a powerful impact on employee retention. For instance, studies undertaken by Anumba and Bishop (1997), Leblebici (2012) and Lee (2013) all highlighted the fact that quality site design circumstances enhance employee satisfaction and retention capacity, making it one of the famous study fields in latest years. Unfortunately, Ghana has little research being conducted to link work satisfaction and site layout conditions. With respect to this background, this research was being conducted to ascertain worker satisfaction with the circumstances of site welfare and suggestions for improving the condition of worker satisfaction.

1.3 STATEMENT OF THE PROBLEM

A major challenge in the construction industry is worker dissatisfaction and operational inefficiency which arise as a result of poor site layout conditions which leads to extreme immobility on site for operatives and equipment (Ning et al., 2011). Research conducted by Pech and Slade (2006) identified that, the reluctance of worker engagement in site activities due to poor site conditions is escalating and therefore it has become more significant to improve conditions on the site which has direct effect on workforce. The authors identified various symptoms with indicated reluctance of worker engagement in site activities like lack of interest, distraction, high absence as well as poor decisions. Leblebici (2012), confirmed the above assertion by postulating that, poor site conditions are a major cause of worker disengagement and also construction operatives have expectations and these operatives are happy if these expectations have been fulfilled.

Increased employee satisfaction in building is a significant factor for sustainable productivity in the construction industry, according to Cotton et al. (2005). Employee satisfaction is an imperative

factor in terms of retaining the services of workers and also influencing their productivity on site. Worker satisfaction with the circumstances of site design has therefore drawn much attention from scientists and has become one of the most common fields of research in latest years (Lee, 2013). Azeez et al. (2019) identified three aspects of occupational rewards which plays important part in motivating, retaining, and attracting workers to the industry: rewards construction workers have, rewards they want, and factors that impact their rewards perception. Nevertheless, not much attention has been paid to this area with regards to the Ghanaian construction working environment despite its huge potential significance to the industry. Therefore, with regards to its immense benefits to the industry, it is necessary to study the satisfaction of building workers and operators with the circumstances of site welfare in Ghana so as to realize the full potential of various operatives in the industry.

1.4 AIM AND OBJECTIVES OF THE STUDY

1.4.1 Aim

The aim of this research is to ascertain worker satisfaction with the site welfare conditions towards making recommendations to improve the situation.

1.4.2 Specific Objectives

In order to achieve the stated aim, the following objectives have been articulated

1. To establish the minimum requirements for welfare facilities on construction sites;
2. To ascertain the key welfare facilities provision policies on construction sites;
3. To examine the adequacy of welfare provisions on site; and
4. To explore factors that influences worker satisfaction with the site welfare facilities.

1.5 RESEARCH QUESTIONS

The various questions that this research seeks to answer includes the following;

1. What are the minimum requirements for welfare provisions on construction sites?
2. What is the adequacy of welfare provisions on construction sites?
3. What are the factors that influences worker satisfaction with site welfare conditions?

1.6 SIGNIFICANCE OF STUDY

One of the most important elements in every economy is the construction industry. However, with the industry's science and technological development, employee discontent remains common and decrease in construction productivity with can further lead to delays in construction activities (Leblebici, 2012). This research therefore creates awareness among construction managers and supervisors on the significance of quality site welfare provision especially on worker satisfaction. This helps in decreasing the challenges associated with improper site welfare provisions.

This study also added to the body of knowledge available on-site layout conditions and its impact on worker satisfaction and productivity. This research also created the avenue for various stakeholders in the construction industry especially construction managers and supervisors in making informed decisions on the provision of quality site welfare conditions for their operatives.

1.7 SUMMARY OF METHODOLOGY

In order to achieve the aim and objectives of this study, first, extensive review of pertinent literature was reviewed. This helped to identify the important paradigms and variables which were tested to achieve the aim and objectives of the research. This research adopted quantitative research methodologies. In gathering information from various construction site personnel like site supervisors and operatives using the quantitative research method, the questionnaire was used as

a data collection instrument. The quantitative research was implemented to assist define factors that influence the satisfaction of building workers with circumstances of site welfare in Ghana. The attained variables were strategically compounded into open and close ended questionnaires. Information was gathered from D1K1 to D4K4 construction firms in the Ga-West Municipal. With a high degree of confidentiality, privacy and respondent consent, they were asked to rank the variables on the Likert scale. The sample size was determined using the Yamane's formula. Nevertheless, for the desire for accuracy, and the desired reliability for the purpose of the research; simple random sampling technique was adopted. Final survey was conducted personally and through the mail. Data from the survey was collected and analysed using the Statistical Package for Social Sciences (SPSS). Inferential and descriptive statistical method was used to analyze the collected data. The tools for analysis were Frequencies, Mean Score Ranking, Relative Importance Index and the Cronbach's Alpha coefficient.

1.8 SCOPE OF THE STUDY

This study was restricted to construction firms with D1K1 to D4K4 construction firms with certificates from MWRW&H in the Ga-West Municipal. These categories of construction firms were chosen because they are well equipped with various equipment and with various construction site activities on-going and therefore were well vexed in this area of study to provide the needed information.

The study was executed within the Ga-West Municipal because of the concentration of wide range of experienced construction firms in the metropolis. This helped bring to the study more diverse and accurate responses to improve the authenticity of the outcome of this research. Also, Ga-West Municipal was chosen due to its proximity to the researcher and therefore reduce the problems that the researchers face in terms of data collection.

1.9 STRUCTURE OF THE REPORT

This research was categorized into five independent but interrelated chapters and are discussed below.

Chapter one entailed the introduction which was sub-divided into seven sections: background of study, statement of the problem, aim and objectives, research questions, significance of the study and scope of the study. Chapter two entailed the literature review followed by the chapter three which consisted of the methodological approaches to the research which included the research design, sample and sampling procedure and data collection process. Chapter four consisted of the data analysis and discussion of results. The chapter was chapter five which presented the summary of the major findings, conclusion and recommendation. Below is a conceptual diagram of the research organization.

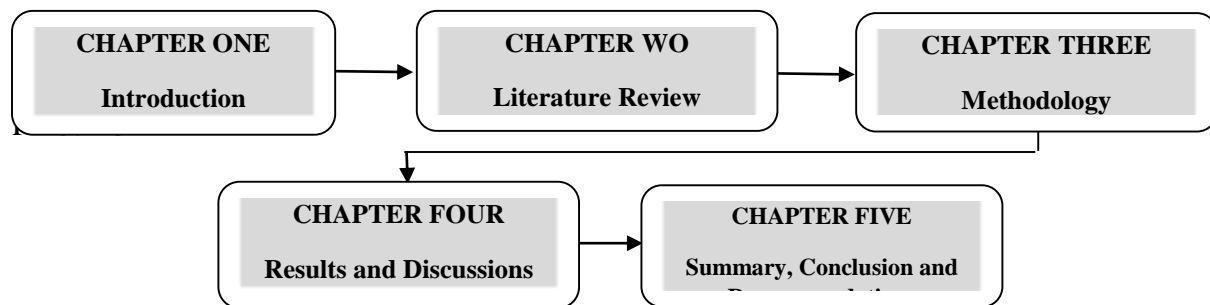


Figure 1. 1: Organisation of Thesis

Source: Author's Construct (2019)

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Chapter one discussed the general introduction and background of study to the research topic under review, the problem statement, research aim and objectives, scope of study, research methodology as well as the structure of the thesis. In a summary, this chapter revealed all the literature related to the research topic. After a careful study of this chapter, the readers would comprehend the topic. This chapter probed into the conceptual review, theories supporting the study and the empirical review of the previous literature related to the work. This chapter ended with a conceptual framework for the study.

The chapter began by reviewing the construction industry, satisfaction of construction workers, site welfare facilities and the minimum requirements. The study further delved in various theories propounded by several authors concerning welfare of workers and job satisfaction. The author then reviewed various empirical studies relating to satisfaction of workers welfare facilities. The author then developed a conceptual framework for the study. Works HSE (2010), Dok Yen et al. (2018), Adams (1963), British Standard Code 6465-1 (2006), among others provided the conceptual and theoretical basis of this research.

2.2 CONCEPTUAL REVIEW

2.2.1 The Construction Industry

Most industries are vibrant in nature and the construction industry is not different (Ofori, 2008). The construction industry is an important division especially for developing nations in the economy of each country (Hillebrandt, 2000) and a main contributor to the process of growth. Many see it as the basic sector on which the country's growth depends (Roy and Koehn, 2006). It contributes to domestic socio-economic growth by offering the structures used in: manufacturing all products in the economy, offering refuge from physical components; highways and bridges used to distribute products and services within and outside the nation (Ofori, 2012). The product of the construction industry is in the form of a building, civil engineering project, or engineering construction-type work (Asaul and Ivanov, 2013). Ibrahim et al. (2010) described construction as the activity of creating physical infrastructure and related facilities. Construction is also referred to as all types of activities related with the erection and repair of immovable structures and facilities (Ibrahim et al., 2010). The construction industry plays a chief and vital role in converting the ambitions and needs of people into reality by tangibly implementing various construction development projects. Construction projects usually encompass infrastructure, such as dams, roads, and irrigation work. Schools, hospitals, airports, houses, railways, factories and other construction work are some of the examples of the physical foundations as some form of development efforts to improve living standards.

Thus, the construction industry is undeniably essential to the growth of a nation and a key sector in the nation's economy (Ibrahim et al., 2010). A country cannot grow if there is no development and infrastructure build to spur the economy. The construction industry is an important factor in the process of development. Old ways of performing and managing construction processes face

unprecedented challenges (Ibrahim et al., 2010). The construction industry as defined by the Horvath (2004) encompasses companies mainly engaged in the construction of buildings and other structures, heavy construction, additions, alterations, reconstruction, installation, and maintenance and repairs. Companies engaged in the demolition or wrecking of buildings and other structures, clearing of building sites and sale of materials from demolished structures are also included. This industry also includes those establishments engaged in blasting, test drilling, landfill, levelling, earthmoving, excavating, land drainage and other land preparation. The industries within this sector have been defined based on their unique production processes such as earthworks and piling, sub structure and super structure, mechanical and electrical, etc. As with all industries, the production processes are distinguished by their use of specialized human resources and specialized physical capital. Construction activities are generally administered or managed at a relatively fixed place of business, but the actual construction work is performed at one or more different project sites (Horvath, 2004).

2.2.2 Satisfaction of Construction Workers

The concept of job satisfaction traditionally has been of great interest to social scientists with the problems of work in an industrial society (Spector, 1997). Job satisfaction is an affective attitude toward something, a sense of comparative like or dislike. Job satisfaction is a set of favorable or unfavorable feelings and emotions which employees view their work. Employees play significant roles in the country's industrial production. Managers of human resources are really worried with managing people at job. One of the most commonly researched topics in the field of leadership is job satisfaction (Loi et al., 2009). The term satisfaction is normally used to describe the status of people when their needs have been fulfilled. Job satisfaction is the emotional reaction to work experience (Vecchio, 2000). Job satisfaction relates to how satisfied people are with their job

situation (Chaitanya, 2014). Smith et al. (1996) endorsed this statement by describing job satisfaction as the emotions of an employee with regard to his work and rational return and what is experienced with regard to the options accessible in a specified scenario. Satisfaction is the feeling that emerges as a result of fulfilment of an employee's needs (intrinsic needs, extrinsic needs) and its strength depends on the degree of meetings individuals' expectations. Satisfaction at work controls and drives the employee's behaviour and work attitude, which may in return have an effect on the organisational functioning (Matar, 2011). Job satisfaction is closely associated with satisfaction needs. Securing worker or labour-power collaboration and increasing productivity and enhancing earnings are cogent. Workforce collaboration is only feasible if they are fully satisfied with their employer and the working circumstances of the job.

Research has shown that labour was motivated with money. However, continuous research and investigation undertaken to understand the behaviour of human beings at work and methods of improving their job satisfaction, balanced with the organizations ' goal of working with job satisfaction and improved productivity (Chaitanya, 2014). Factors such as workplace environment, peer's income and work duties influence how satisfied an employee is with the job. When job satisfaction is positive, it contributes to a better quality of working life. An individual who is satisfied with their job is more likely to experience a higher quality of working life than an employee who is dissatisfied or even resentful of the work. Employee welfare is a detailed phrase referring to the multiple services, advantages and equipment provided to staff by the employer in order to enrich the lives of staff in order to maintain them happy and contented or satisfied (Karthikeyan et al., 2011). The achievement of the welfare programs of these staff relies on the strategy adopted by the organization. Job satisfaction may either refer to an individual or a group. It results from an employee's best fit between work demands, desires, and expectations. It is used

to convey the extent to which the work expectation of the employee matches with the reward that the jobs provide. It is hard to understand how a worker feels about his work, considering job satisfaction as the general attitude of well-being with respect to work and its environment. Employment variables such as wage, type of work conducted, supervision, working circumstances, chance for development directly affect the impression of the job (Lobo, 1984).

Job satisfaction is enjoyable emotional state ensuing from appraisal of one's job and job experience (Locke, 1976). Employee satisfaction or job satisfaction is quite simply how content or satisfied employees are with their jobs. Satisfaction is an essential level of employees increases, then this will result in more returns to the organisation. The dissatisfaction of the employees has adverse effects on efficiency and effectiveness of the organisation.

2.2.3 Site Welfare

Welfare means treating fare and doing well. Welfare is very comprehensive in nature and refers to the physical, mental and cultural, moral and emotional wellbeing of an individual (Aswathappa, 2005). Welfare is basically an attitude of mind on the part of management, influencing the method in which management activities are undertaken. The constituents of labour welfare included working hours, working condition, safety, industrial health insurance, workmen's compensation, provident funds, gratuity, pension, protection against indebtedness, industrial housing, rest rooms, canteens, and crèches wash places, toilet facilities, lunch, cinemas, music, reading rooms, co-operative store, playground among others. Employee welfare refers to the measures to promote the physical, social, psychological and general well-being of the working population. Welfare work in any industry aims at improving the working and living conditions of workers and their families. Welfare actions encourage economic development by enhancing effectiveness and productivity with the fundamental concept of unwittingly giving employees their faithful services in a real spirit

of collaboration. Organisations provide welfare to their employees to keep their motivation levels high (Tiwari, 2011). Bertera (1990) asserts that naturally, welfare facilities may not relate directly to the work of a worker, but the existence or lack of facilities is noticeable through the performance, attitude, high or low turnover of staff.

The location of the work, where the employee performs his duties and daily activities such as office or site of construction is included as workplace environment. Workplace environment may have positive or negative implications on the satisfaction level of employees depending on the nature of working environment. Employees will perform better if they are provided with good environment (Dole and Schroeder, 2001). Carlopio (1996) concluded that satisfaction with workplace is optimistically related to job accomplishment.

2.2.4 Site Welfares Facilities

The concept of labour welfare is flexible and elastic and differs widely with times, regions, industry, country, social values and customs, the degree of industrialization, the general social economic development of people and political ideologies prevailing at particular moments. Malviya and Anaudan (1970) contextualized welfare facilities to mean such facilities and amenities like adequate canteens, rest and recreation facilities, sanitary and medical facilities arrangements for travel to and from, and for accommodation of workers employed at a distance from their homes, and such other services, amenities and facilities including social security measures as contribute to conditions under which workers are employed. The concept of welfare has received inspiration from the concept of democracy and welfare state. Democracy does not simply denote a form of government but a way of life based on certain values like equal rights and privileges for all. The International Labor Organization (ILO) generally classifies welfare services into two; intramural operations, such as latrines and urinals, drinking water, washing and bathing

facilities, rest rooms, canteens, health services including occupational safety, uniform and protective clothing, etc. (Nyakwara et al., 2014). According to Construction Design and Management Regulations (CDM) (2015), the accessibility of rest facilities, laundry facilities, storage facilities, drinking water as well as toilet facilities are the minimum welfare services that must be available on building sites. Section 118 of the Labor Act 651 of Ghana provides for the provision of welfare services for building site employees.

2.3 THEORETICAL REVIEW

2.3.1 Human Resource Model

Each worker has distinct and complex private requirements, such as cash, accomplishment, challenge, and recognition, according to the human resource model, and it is the responsibility of the management to know how to meet these requirements. The view on human resources has that interest in staff perception and considerate management but has changed the emphasis to consider the daily duties individuals undertake. From the point of view of human resources, jobs should be designed so that tasks are not perceived as dehumanizing or degrading, but rather allow the full potential of workers (Daft, 2003).

Industrialists and employers thought that their obligation to staff was to pay them adequate salaries and wages. As time developed, they were persuaded by psychological research to introduce the notion of human resource management that employees required something more significant. Human therapy provided to staff plays a very significant role in pursuing their collaboration in relation to offering financial advantages.

2.3.2 Equity Theory

According to Adams (1963), equity theory aims a reasonable equilibrium between what people put into their work and what they get out of it. The implication in leadership of this theory is that the manager must always guarantee that he is honest and honest. The notion of equity is a synonym for justice and equity. In the context of job, the notion is generally used to convey the positive association between one's effort and efficiency and the pay and other advantages that one gets (Steers et al, 1996). Deutsch (1985) theorized that the fundamental concept of equity theory shared by distinct equity theorists is that benefits should be distributed among employees of the organization according to their real contribution, which means that someone who contributes more should have more privileges than someone who contributes less.

The choice of the 'referent' used is a significant point linked to the equity theory. The 'referent' is the individual to whom an individual compares his or her own contribution and outcomes. This reference may include other individuals in comparable organizations such as peers, friends and peers (Dornstein, 1988). According to Summers and DeNisi (1990), when a person compares the proportion of his consequence to his contribution to his prior results, another referent may be the self-referents. Employee tenure may influence the selection of referents as it is discovered that staff with a lengthy tenure tend to select the referents from the same organization, while people with a brief tenure tend to use self-referents to judge equity theory using their own history (Oldham and Cummings, 1996). People use others as reference when evaluating extrinsic benefits (pay, working circumstances, safety) but use them when judging inherent benefits such as recognition, progress and development (Ambrose, 1996).

2.3.3 Functional Theory

Functional theory of labour welfare, also known as the theory of effectiveness, suggesting that welfare work can be used as a means of safeguarding, maintaining and developing labour effectiveness and productivity (Shekhar, 2013). The theory says that they tend to be more effective if an employer takes excellent care of his workforce. The employer has an obligation or duty towards its staff to care for their welfare according to this theory (Luthans and Sommer, 2005). Functional theory implies by saying that the facilities and benefits are being provided to worker to make them more efficient and productive. According to Mishra and Bhagat (2007), in functional theory, welfare measures to be provided on the grounds of efficiency and productivity. Welfare work is used here as a means of safeguarding, preserving and developing labour effectiveness and productivity. This is the functional element of the effectiveness of welfare as its item that improves productivity. This theory reflects modern labour welfare assistance (Singh, 2004).

2.3.4 Two-Factor Theory (Motivator-Hygiene Theory)

Frederick Herzberg's Two factor theory also referred to as Motivator Hygiene attempts to explain satisfactory and motivation in the workplace (Lucker and Alvarez, 1984). This theory says that satisfaction and discontent are driven by various variables, respectively motivation and hygiene factors. The motivation of an employee to work is continuously linked to a subordinate's job satisfaction. Motivation can be called an inherent force that drives people to achieve private and organizational objectives (Porter et al., 2007). Motivating variables are those elements of the job that make individuals want to conduct and satisfy individuals (e.g., opportunities for promotion, appreciation, work performance). These motivating factors are regarded or conducted intrinsically in the workplace (Lucker and Alvarez, 1984).

Hygiene factors include work environment elements such as pay, supervisory methods, working conditions and other policies of the business (Luckier and Alvarez, 1984). The hygiene factors are also referred to as the maintenance factors and comprise of psychological, safety and love needs from Maslow's hierarchy of needs. They are factors that are not directly related to job but the conditions that surround doing the job. They operate primarily to dissatisfy employees when they are not present however the presence of such conditions does not necessarily build strong motivation (Gibson, 2000).

2.4 EMPIRICAL REVIEW

2.4.1 Requirements for Welfare Facilities on Construction Sites

Builders need appropriate services such as bathrooms, laundry facilities, places to eat and clothing storage, among others. (Dok Yen et al., 2018). According to Health and Safety Executive (HSE) (2010), the provision of welfare facilities plays a significant role in worker's welfare and health. Welfare services assist build allegiance to the organization among employees. They tend to be pleased with the worker. These measures include workplace convenience and comfort, retirement hours, drinking water supply, canteen facilities, transport facilities, health insurance, provident fund, gratuity, rewards and incentives among others. Labour welfare aims at providing such service facilities and amenities as would enable workers to work in a healthy congenial atmosphere to maintain good health and high spirits (Chaitanya, 2014). The Labor Welfare Committee pointed out that labor welfare covers services, equipment and amenities such as appropriate canteens, rest and recreation facilities, health and medical facilities, arrangements for traveling to and from job and accommodating distant employees for their housing, and such other services, and equipment to enhance the working circumstances.

It is possible to classify statutory welfare measures into two components. Those to be supplied regardless of the size of the organization or the number of individuals in it such as washing, storing and drying clothes, first aid, drinking water, latrines and urinals. Subject to jobs of a defined number of individuals such as canteens, rest houses (Sills, 1968), there are also those that should be supplied. There are two kinds of welfare centres that can be categorized: intra-mural and extra-mural. Intramural operations consist of services supplied within organizations or sites, including water supply, sick bays, changing rooms, washing and bathing facilities, security measures, canteens, tasks that help improve working circumstances, among others (Suresh and Vijayarani, 2015).

2.4.2 Key Welfare Facilities Provision Policies on Construction Sites

Construction workers need adequate toilet and washing facilities, a place to warm up and eat their food and somewhere to store clothing. Clients must guarantee that their contractors have arranged appropriate welfare services for building employees through their advisors. If the job is notifiable (this will last more than 30 days or require more than 500 working days) then they must guarantee that building work (including demolitions) is not started until adequate welfare facilities are in place (CDM, 2007). At the planning and preparation phases of each building job, the availability of welfare equipment and their place on site and periodic maintenance must be regarded. When planning building site welfare measures, it is imperative to consider the scope of job to be undertaken as well as the health risk factors connected with the provision of showers where the project includes hazardous substances or very dirty work (sewer maintenance, dusty demolition, contaminated land or concrete pouring work, for instance), proximity of welfare centres to employees, length of the project and number of places, amount of individuals required for the project, cleaning and maintenance of welfare equipment, among others (CDM, 2007).

According to CDM (2015), the minimum welfare services needed for building locations were divided into five (5) primary components, namely: sanitary facilities, laundry facilities, drinking water, changing rooms and lockers, and lastly rest facilities (CDM, 2015).

2.4.2.1 Changing Rooms and Lockers

Every site should have arrangements for securely storing personal clothing not worn on site and for protective clothing needed for site. Men and women should be able to change separately. Separate lockers might be needed, although on smaller sites, the site office may be suitable storage area provided it is kept secure. Where there is a risk of protective site clothing contamination, everyday clothing items should be kept separately. Provision should be made to allow wet clothing to be dried. As a basic rule, clothing should not be placed directly on heaters due to the risk of fire. If electrical heaters are used, they should be properly ventilated and if possible, fitted with a high temperature cut-out device.

2.4.2.2 Drinking Water

A supply of wholesome drinking water should be readily available. Where possible, it should be supplied from the mains. If water is stored, protect it from possible contamination and make sure it is changed often enough to prevent it from becoming stale or contaminated. Where possible and necessary, mark the drinking water supply to prevent it being confused with hazardous liquids or other drinking vessels at the outlets, except in the upstream jet, which can be readily drunk like a drinking fountain. The outlet should provide cups and other drinking vessels (HSE, 2010).

2.4.2.3 Toilets

Toilets in a clean condition must be properly ventilated, illuminated and maintained. The cleaning speed will rely on the utilization frequency. The British Standard (BS) 6465 Code of Practice for the Design of Sanitary Facilities and Scales of Provision of Sanitary and Associated Appliances

proposes that on-site arrangements for toilets should be sufficient. The number of facilities, however, will always depend on the total number of on-site workers, the type of facilities provided and the rate of emptying. The BS 6465 code (2006) proposes that the proportion of one toilet to seven people be emptied once a week for mobile toilets. There should be separate toilets for men and women unless a lockable room with partitioned from urinals then. The same toilet facilities can be used by males and females. However, appropriate toilet paper supplies should always be given (HSE, 2010). Workplace proximity of toilet facilities should be as close as possible for employees to visit without traveling miles from their workplace. Similarly, the average amount of toilets at an active site should be within 1:10 ration (thus, one toilet facility should be provided for at least every ten employees) (Anon, 2010).

2.4.2.4 Showers

The Building Site Draft Facilities proposes that at least one shower should be supplied for each workplace at a pace of twenty-five to one shower (1:25) (Anon, 2010). However, for demolition, tunneling or filthy nature works, a greater percentage should be given, as this would mostly lead to frequent on-site use of shower. Nevertheless, care should be taken to guarantee that for the exclusive use of males or women, distinct appropriate shower facilities are supplied with privacy. Nevertheless, each cubicle should have a shower curtain or door, soap holder, and warm and cold water where both men and women are employed (HSE, 2010).

2.4.2.5 Washing Facilities

Sites should have Washing facilities nearer to the toilet and changing rooms. If these are far from changing or toilet equipment, it is advisable to position them next to rest fields. Also it is necessary to include a supply of clean, cold and hot or warm water, detergent or soap or other suitable means or cleaning like towels, sinks large enough to wash face, hands and forearms, suitable means of

drying, lighting for building site employees in instances where employees are subjected to infectious substances, adequate ventilation, toxic skin or filth, oil or grease contamination (ILO, 1992 and HSE, 2010). Men and women can share sinks used to wash their hands, arms, and face. Unisex shower facilities can also be produced accessible where they can be used by one individual at a moment in distinct lockable rooms (HSE, 2010). In addition, whenever practicable, basins or wash trough points should be produced accessible with warm water in a ratio of 1:10. Water taps should be at least 500 mm apart over a trough (Anon, 2010).

2.4.2.6 Rest Facilities

Rest facilities should provide shelter from wind and rain. The rest facilities should have adequate numbers of tables, seating with backs, a means for heating water for drinks and warming up food (example – a gas or electrical heating ring or microwave oven) and be adequately heated. Rest areas are not to be used to store plant, equipment or materials

2.4.3 Adequacy of Welfare Provisions on Site

Hiba (1998) asserts that although welfare facilities like places for eating meals and snacks, visiting a washroom, washing and cleaning hands, a place to relax to recover from stress among others can lead to increased productivity, can have an adverse impact on employees if they are not properly supplied and kept in good condition.

2.4.4 Factors that Influences Worker Satisfaction with Site Welfare Facilities

Nanda and Panda (2013) proposed that worker welfare services make a significant contribution to improving an employee's self-confidence and mental level. This will eventually boost the productivity of employees in the workplace, leading to increased motivation, which will challenge the worker to take on more daunting duties and duties. Adequate welfare facilities can affect the

productivity of employees and profit on building sites. It can, however, result in low production and loss of profit (Dok Yen, 2018). Opatha (2009) suggested that employee welfare management is one of the functions of HRM. Employee welfare packages help attract and retain suitably qualified employees for the organisation. Baghaei (2011) is of the view that employees who are dissatisfied are the biggest liabilities whilst employees who are satisfied are the biggest asset of an organisation. Mendis (2016) thus discussed employee satisfaction as any combination of psychological, physiological and environmental circumstances that cause a person to truthfully say I am satisfied with my job.

Welfare facilities is defined as an indirect compensation. Almost all organisation offer some form of indirect compensation also referred to as fringe benefits or supplemental compensation (Mendis, 2016). According to Punekar et al. (1999), welfare facilities refer to anything done for the comfort and improvement, intellectual and social, of the employees over and above the wages paid, which is not a necessity of the industry. However, Opatha (2009) argued that employee welfare implies the setting up to minimum desirable standards and provisions of facilities like health, food, clothing, housing, medical assistance, education, insurance, job security, recreation and such facilities that enable the worker and his family to lead a good work life, family life and social life. Wehigaldeniya et al. (2018) agreed that welfare facilities are significant to the enhancement of human performance because human performance is dependent on how human resource department take care of employee's attitudes and health. Employee's welfare facilities contribute to the morale of employee's welfare, influences employee's attitude towards work and work environment to maintain harmony (Wehigaldeniya et al., 2018). Chye Koh and Boo (2004) viewed that employee facilities enable workers to live richer and more satisfactory to work and life. Sindhu (2012) stated that the employee welfare measures increase the productivity of organization and promote healthy

industrial relations thereby maintaining industrial peace. Organisations provide welfare facilities to their employees to keep their motivation levels high.

2.5 CONCEPTUAL FRAMEWORK

A conceptual framework is a system of concepts, assumptions and expectations, beliefs, and theories that supports and informs research (Robson, 2011). Conceptual frameworks provide a model for relationships between variables that may or may not imply a particular theoretical perspective, with the purpose of describing phenomenon (Berman and Smyth, 2003). A conceptual framework is a graphical or narrative explanation of the main things to be studied thus the key concepts, variables or factors and how they are associated. A conceptual framework guides and provide coherence to the research questions. Solar & Irwin (2010) corroborated previous authors that a conceptual framework is an interrelated set of theories (ideas) about how a particular phenomenon functions or is related to its parts. The framework serves as the basis for understanding the casual or correlational patterns of interconnections across events, observations, concepts, knowledge, ideas, interpretations and the other components of experience. Conceptual frameworks influence how we interpret events as well.

From Figure 2.1 that the conceptual framework of the studies was based on the fact that provision of welfare facilities on construction sites leads to job satisfaction or satisfaction. Proponents of the Human Resource Model, Functional theory and the Hertzberg Theory agree that provision of welfare facilities or good working conditions on site leads to job satisfaction and hence enhanced productivity on site.

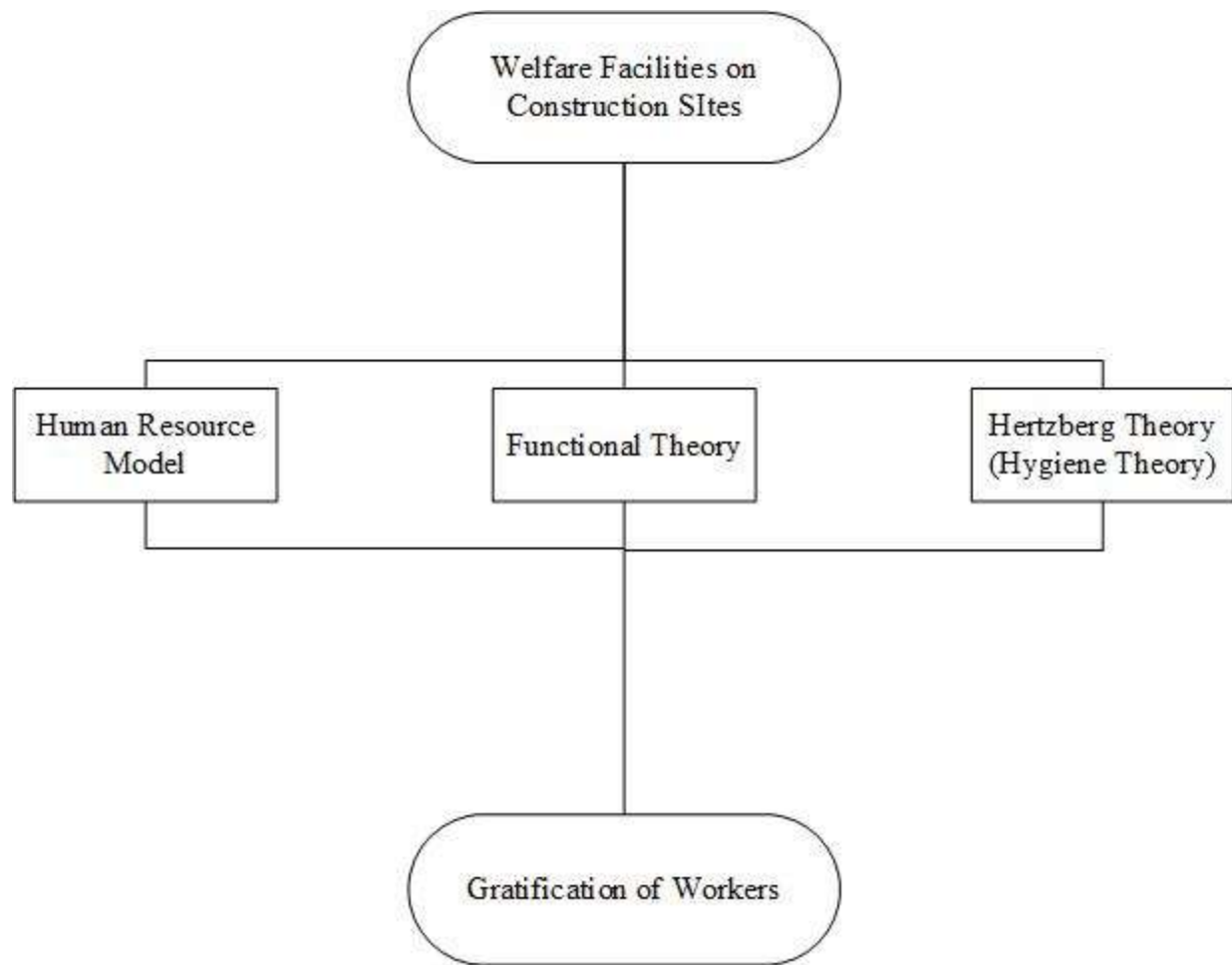


Figure 2. 1: Conceptual Framework of Studies

Source: Author (2019)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter gave a description of how the research was conducted. This section tested the research approach, research design, information collection techniques and ways to analyze the collected information to accomplish the goal and goals. This chapter reflected all the methods and procedures for conducting this research work; the research design, study population, research sample and sampling techniques, procedure for data collection, standard document used for data collection and tools as well as the software for data analysis.

Creswell and Poth (2017) explained research methodology as a plan to communicate and provide suitable answers to questions in an appealing way and good to conscience in a logical design procedure and sequence. Research methodology as a chapter discusses the various research methods used in finding answers to the research questions (Crano et al., 2014). Research methodology is defined as the processes, ways, methods and techniques used to collect and collect all the data required for the study problem (Ayyash et al., 2011). Kothari (2004) characterized research methodology as the techniques that are used for the conduction of the research (Kothari, 2004).

3.2 RESEARCH STRATEGY

Dinnen (2004) described the research strategy as a step-by-step action plan that ensures direction for your ideas and efforts, allowing you to perform scientifically and scheduled research to generate quality outcomes and extensive reporting. A research strategy for a thesis is developed by adopting a route through which the study goals are met (Saunders, 2011). There are three

primary strategies taken worldwide in studies, according to Bryman (2003)-quantitative, qualitative, and triangulation or mixed method. Discussed below are the various strategies adopted in scientific researches.

3.2.1 Qualitative Research Strategy

Kothari (2004) asserts that qualitative research strategy is mainly concerned with subjective assessment of attitudes, opinions and behaviour. Research in such a situation is a function of researcher's insights and impressions. Qualitative research involves quality; thus, how and why decision-making is engaged (Rajasekar et al., 2006). Qualitative research is concerned with a quality of information. Qualitative methods attempt to gain an understanding of the underlying reasons and motivations for actions and establish how people interpret their experiences and the world around them. Qualitative methods provide insights into the setting of a problem, generating ideas and/or hypothesis (Macdonald and Headlam, 2008).

3.2.2 Quantitative Research Strategy

Quantitative research strategy as the name implies tries to quantify things; ask questions like 'how many', 'how long' or 'to what extent'. Quantitative methods seek to quantify data and generalize results from a sample of the population of interest (Macdonald and Headlam, 2008). As Kothari (2004) maintained, quantitative approach also involves the generalisation of statistics in a quantitative format by using a large-scale survey study using means like questionnaires or structured interviews. From the point of view of Babbie (2015), Quantitative study methods emphasize objective measurements and statistical, mathematical or numerical analysis of information gathered through polls, questionnaires and surveys, or by using computing techniques to manipulate pre-existing statistical information. It focuses on collecting and generalizing numerical data across groups of individuals or explaining a phenomenon. According to Macdonald

and Headlam (2008), quantitative research looks to measure the incidence of various perspectives and opinions in a chosen sample for example or aggregate results.

3.2.3 Triangulation

Creswell (2014) posited that one of the three recognized techniques of conducting scholarly studies worldwide is mixed research or triangulation. It is a research method that makes use of both qualitative and quantitative research methods in the compilation and assessment of research information in a single study that prioritizes information collection either simultaneously or sequentially with one of the approaches and incorporated into the study process at one or more stages (Creswell, 2013). Thurmond (2001) furthered that triangulation is the use of at least two or more of theoretical perspectives, methodological approaches, data sources, investigators, or data analysis methods. Triangulation intends to decrease, negate, or offset the deficiency of a single strategy, thereby improving the ability to interpret the findings (ibid).

3.2.4 Research Strategy Adopted

From the foregoing, quantitative research strategy was adopted for this research because it was the best approach for a research where the researcher had information of his population which is familiar to this study. The study adopted the quantitative research strategy in the assessment of the satisfaction of construction workers on welfare facilities at their site. This was because most of the variables were existing in literature and this study made use of the quantitative strategy to measure these findings with the employment of questionnaires and using mathematical tools to analyse them.

3.3 RESEARCH PROCESS

There are two approaches in research, deductive and inductive approaches to study reasoning (Hyde, 2000; Trochim, 2006; Sutrisna, 2009). The two are two extreme ends, clearly. Discussed below are the two extremes.

3.3.1 Inductive Reasoning

Trochim (2006) explained that Inductive reasoning shifts from particular generalizations and theories to wider theories. The investigator begins with particular observations and plans in inductive reasoning, begins to notice trends and consistencies, and builds some unclear hypotheses that can be further investigated, and lastly the investigator draws some general findings or propounds theories. Hyde (2000) asserted that inductive reasoning is open-ended in nature and more probing especially at the initiation stage Trochim (2006) referred to inductive reasoning as a theory building process, which is also called the bottom up approach. Inductive research seeks to learn about the phenomena in question by adopting less-structured methodology to gain richer and more insightful information. Explanations and theories are developed from observations based on data collected in an inductive reasoning approach (Glaser, 1978).

3.3.2 Deductive Reasoning

Deductive reasoning starts with generalization and reduces it to specifics (Trochim, 2006; Hyde, 2000). Hyde (2000) conjectured that deductive reasoning attempts to determine whether a particular theory applies to a particular scenario or case. From the perspective of Trochim (2006) it is restrictive and narrow in nature and more focused on testing hypotheses, theories and laws. Hyde (2000) refer to deductive approach as theory testing approach whiles Trochim (2006) refers to it as top-bottom approach. A deductive research entails the development of a conceptual and theoretical structure prior to its testing through empirical observation (Loose, 1993).

3.3.3 Research Approach Adopted

Deductive reasoning was used in this study because theories and empirical studies of satisfaction of construction workers and welfare facilities at construction sites already existed. The study thereby tested and evaluated worker satisfaction with the provisions of construction site welfare necessities through empirical observations.

3.4 RESEARCH DESIGN

The objective of this study is to assess the impact of stakeholder engagement on project success. Research design as the name implies are the decisions regarding what, where, when, how much, by what means concerning a research (Kothari, 2004). Urquhart (2012) emphasised that the research design gives the detailed process used in the entire research work. It gives a comprehensive logical sequence approach from the very start of the research to the presentation and conclusion of the study. Kothari (2004) further states that the main purpose of a research design is to help the researcher to retrieve important evidence with less effort, time and money. According to Walliman (2015), the research procedure is not a specified pattern of processes and there is no universally accepted scientific methodology. Rajesakar et al. (2006) then posit that it is of immense significance to prepare a research design for a scientific study. Some of research designs are case study, experiment, action research, ethnography, cross-section, longitudinal, survey, focus group, participant observation among others (Creswell, 2014).

3.4.1 Research Design Adopted for the Study

The research took the form of the descriptive survey. The way items are determined and reported by a descriptive study design (Creswell and Poth, 2017). The purpose of the descriptive study is to describe, observe and document an aspect of a scenario as it happens naturally and not to explain

it (Polit et al., 2001). Babbie (2015) suggested the descriptive study generalizes from a sample to a population in order to make inferences about some population features, attributes, or behaviour.

3.5 STUDY POPULATION AND SAMPLE FRAME

Population is defined as the composition of all persons to be measured (Cooper and Schindler, 2008). The population was selected to include all D1K1 to D4K4 contractors in the Greater Accra region of Ghana for the purposes of this research. A list of licensed local contractors was acquired and used for studies with the Ghana Association of Building Contractors and Civil Engineering Contractors (Association of Building Contractors and Civil Engineering Contractors (ABCECG, 2017). The list acquired was recorded with the association in the Greater Accra Region of Ghana for a total of one hundred and twenty-five contractors in good standing. Of these, thirteen were contractors from D1/K1, twenty-four were contractors from D2/K2 and the other eighty-eight were contractors from D3/K3 and D4/K4 (Konadu, 2017).

3.5.1 Sample and Sampling Technique Adopted

According to Passer & Smith (2004), the "operational definition of the population" reflects a sample frame. The population must constitute the sample frame (Taherdoost, 2016). Molenberghs (2010) defines a sample frame as the set of units (people) with non-zero selection likelihood. Sampling relates to the method of choosing a sample from a defined population as a tiny part or subset to represent a population (Ritchie et al., 2003). Sampling provides practical methods to ensure that elements of studies are collected and processed while ensuring that the sample is a real demographic reflection (Fowler Jr, 2013). The research used the methods of probability sampling to arrive at the study sample size. In determining the sample size for the research, stratified and simple random sampling method was used.

Probability sampling implies that each product in the population has the same opportunity of being included in the sample (Zikmund and Babin, 2006; Alvi, 2016). Taherdoost (2016) claimed that probability or random sampling is the most bias-free. A benefit of stratification, according to Kumekpor (2002), is that each stratum of the population is more homogeneous with regard to the features being studied compared to the entire population. This means that sampling units are more prevalent in each stratum compared to units in the entire population. The stratification therefore depended on the prevalent features within a group, the contractors D1K1 – D4K4 in the Greater Accra region of Ghana. According to Ahmed (2009), every component has the same opportunity of being chosen as a list of all population units in simple random sampling.

It was appropriate to use a statistical formula to determine the size of a sample in a given population. There was, however, no single formula for calculating a population size. The two fundamental variables from the statistician's view are that the bigger the sample size, the more precise a population can be described. The survey population was 125 building companies with thirteen were contractors of D1/K1, twenty-four were contractors of D2/K2 and the remaining eighty-eight were contractors of D3/K3 and D4/K4 (Konadu, 2017). As the population size is known, the formula of the Yamane is used to determine the sample size (Ernest, 2012).

The formula is
$$n = \frac{N}{1 + Ne^2}$$

Where n is the sample size

N = Population of study

e = Limit of tolerance error (using 10%)

1 = Theoretical constant

(Yamane, 1973)

The sample size would be calculated as follows when assigning values to these values

$$N = \frac{125}{1 + 125(0.1)^2} = 55.55 = 56$$

A sample size of 66 was determined by adding 10 more questionnaires to cater for questionnaire uncertainties and loss. The questionnaire allocation was 7 D1K1, 12 D2K2 firms, 20 D3K3 firms and 27 D4K4 firms.

3.6 DATA SOURCES AND DATA COLLECTION TECHNIQUES

3.6.1 Data Sources

Kothari (2004) states that due to the inadequate data available when dealing with real-life problems, it becomes necessary and very significant to gather appropriate data. Williaman (2011) tells us that data consists of information that is used by scientists as a raw material for defining and concluding the object being studied. The task of data collection starts right after a research problem has been defined and the research design spelt out. There are two major approaches to getting information when conducting a research study being primary and secondary sources (Kumar, 2019). Saunders et al. (2009) describe primary data as newly collected data mainly to answer the research question or to meet the research objectives. Primary data can be collected either through experiment or through surveys like interviews, questionnaires etc. (Jha, 2014). Kothari (2004) on the other hand, describes secondary data as that which have already been collected by someone else and which have already been passed through the statistical process.

The data collection was done in two major ways that is through literature reviews and the distribution of questionnaires. Literatures on previous studies was one of the major ways in which data was collected which is secondary data collection. Literature reviews brings about the combination of various ideas into summary of what is known and what is not known (Easterby-Smith et al., 2012). According to him, literatures enlightens areas of disagreement or interest which may occur in the research study. With regards to the above sentence, a comprehensive literature exploration was made through journals, articles, textbooks, magazine, standard operating document, etc. The sources were reviewed to get information on the theories and ideas relating to the study. Primary data was gained through the distribution of closed ended questionnaires (knowledge gained during field study).

3.6.2 Instrument for Data Collection

Williaman (2011) boldly says that the most appropriate tool for data collection in a quantitative research approach is a questionnaire. A questionnaire consists of several questions printed or typed in a definite order on a form or a set of forms (Kothari, 2004). ibid (2004) further explained questionnaire as a systematic compilation of questions that are submitted to a sampling of population from which information is desired. The questionnaire adopted the close-ended format. In a close-ended questionnaire, participants are limited to choosing from alternatives that are already resolved. A close-ended questionnaire provides participants with a set amount of answers to select a reply (Lavrakas, 2008).

There were two primary components in the questionnaire: Part One and Part Two. Part 1 discussed the respondent's demographic information. In this section, there were questions like; gender, age, educational, type of firm you belong to, category of work etc. etc. Ahadzie (2007) highly argues that the respondent's demographic information is necessary to authenticate the data's legitimacy.

The questionnaire was intended in Part Two to assess employee satisfaction with the building site welfare requirements clauses. Using a five-point Likert scale, each respondent's reaction has been evaluated. According to Chinzou (2014), Likert scale is a psychometric response scale mostly adopted in questionnaires; it aids the researcher to easily ascertain the degree to which a respondent agrees with a statement. The research instrument for data collection were the means of the item through which information or data is made clear pertaining to the data collection method selected for the research investigation or study. For the purpose of this study, the tool used for information compilation using adoptive self-administering technique was a research questionnaire. To assist enhance the response rate, this ensured that the intended recipients finished the questionnaires. Also, the advantages of delivering questionnaire personally are that the researcher can clarify any ambiguity with the questions and the respondents can be persuaded and reminded in order to get a high response rate (Williaman, 2011).

3.7 INSTRUMENTS FOR DATA ANALYSIS

After using questionnaires to collect the data, there exist an enormous data that needs to be presented to the audience. Analysis of information relates to ways of finding responses by interpreting the information collected (Guest et al., 2011). Burnham et al. (2008) claimed that data processing could continue once the data were obtained; it involved coding the information gathered for effective results assessment. The accessible analytical and statistical instruments must be considered when choosing analytical instruments. It is dependent on you to consider the sort of factors you have when choosing which test is suitable for a specific research (i.e., whether your variables are categorical, ordinal or interval and whether they are normally distributed). Data analysis involves a number of tightly associated activities such as category setting, applying these categories to raw information by coding, tabulating, and then drawing statistical inferences. For

further analysis, the unfavourable data should necessarily be condensed into a few manageable groups and tables. Researchers should therefore classify the raw information into categories that are purposeful and usable (Kothari, 2004).

According to Miller (2013), excellent tables must assist the public in finding and understanding the figures in the table and the design as well as labelling must be straightforward and unobtrusive in order to draw substantive attention to the data which is conveying information to audience. In addition, the sort of assessment suitable for a research relies on the measurement rates taken in the tool for information collection (nominal, ordinal, interval and proportion) and the number of instances to be studied (Williaman, 2011). The data collected from the survey were coded and analysed using the Statistical Package for Social Sciences (SPSS) windows version 21 software and the Microsoft Excel 2016. The recognized variables were analyzed for the adoption of descriptive statistics, Relative Importance Index, Mean Score Ranking as the analytical instruments.

Relative Importance Index (RII) or weight is a type of relative important analyses. RII is used because it fits the purpose of the study. Relative Important Index aids in finding the contribution a particular variable makes to the prediction of a criterion variable both by itself and in combination with another predictor variable (Johnson and LeBreton, 2004). Badu et al. (2013) employed the use of RII in their study using the calculation below.

$$RII = \frac{\sum W}{A * N}$$

Where W- weighting given to each statement by the respondents and ranges from 1-5; A- Higher response integer (5 in this case); and N – total number of respondents.

3.7 CHAPTER SUMMARY

This section addressed research methods and gave reasons for the chosen alternatives for achieving the research goal and goals. For this study subject, the section also outlined the research design and methodology, study strategy and research design adopted. Also provided were the methods and techniques used in information collection and analysis. The section concluded with the study method and addressed problems such as the questionnaire study scope, information sources, determination of sampling and sample size, questionnaires, creation, questionnaire content, distribution of questionnaires, and data analytical instruments.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

This chapter deals with the analysis of the data received and the discussion of the results of the analyzed data. The literature review helped identify fourteen (14) minimum construction sites requirements, fourteen (13) factors that determine the adequacy of welfare facilities provision on construction sites, eleven (11) key welfare facilities provision policies on construction sites and nine (9) factors that influence worker satisfaction with site welfare facilities. The data were collected using closed-ended questionnaires. The data collected provide information which would help us to achieve the aim of the study. This section is basically grouped into two. Part one deals with the respondent profile, which is analyzed in frequency tables and charts with the help of SPSS window version 20. The part two deals with the objectives of the study. More importantly, to establish the minimum requirements for welfare facilities on construction sites. On the extent of indicators, the rating required the respondents to determine whether the variable was “not satisfactory (1)”, “less satisfactory (2)”, “satisfactory (3)”, “moderately satisfactory (4)” or “very satisfactory (5)”. Respondents were asked to indicate using the scale provided the minimum requirements for satisfactory welfare facilities are in construction sites Respondents were also asked to ascertain the key welfare facilities provision policies on construction sites using the Likert scale “not at all influential (1)”, “slightly influential (2)”, “moderately influential (3)”, “very influential (4)” or “extremely influential”. In ranking the adequacy of welfare provisions on site, the scale adopted was “not at all significant (1)”, “slightly significant (2)”, “moderately significant (3)”, “very significant (4)” or “extremely significant”. The same scale above was used to explore factors that influences worker satisfaction with the site welfare facilities.

Out of a total of 66 questionnaires distributed, 43 questionnaires representing 65.15 percent responded, and these were retrieved and analyzed. The high response rate of 65.15% can be characterized by strict adherence to the techniques used to distribute the questionnaires and constant follow-ups to complete the questionnaires. It took about 6 weeks to finish the entire survey process.

The data were evaluated using the Index of Relative Importance and Mean Score Ranking as the Cronbach's Alpha Coefficient test, etc. was also adopted to test the internal consistency of the scale adopted for the study.

According to Baruch and Holtom (2008), a response rate of approximately 35% is satisfactory for most academic studies targeting top management or organizations' representative. This shows that, the response rate of 70% is acceptable. Besides, the response rate achieved was liken to that of Owusu and Badu (2009) who recorded 53.7% and Ahadzie (2007) who also achieved a response of 45% therefore justifying the sufficiency of the response rate for this study.

4.2 ANALYSIS OF THE DEMOGRAPHIC DATA OF RESPONDENTS

An understanding of the respondents' background places confidence in the information gathered on a research work and makes the responses more credible. The gender of respondents, highest level of education, age of respondent, category of work, years of experience and contractor classification they belong to formed the demographics of the study. For easy to assimilation, the demographic data of the respondents were analyzed and summarized pictorially with graphs and tables.

4.2.1 Gender of Respondents

In order to make the analysis easy for grasping, respondents were asked to confirm their gender. This analysis helped to identify the distribution of gender in the survey. From Figure 2.1, it can be seen that 21% of the respondents were females and 79% were males. This shows that males were highly represented in the survey. However, both sexes were represented in the study. This is so because the Ghanaian construction industry is highly dominated by men.

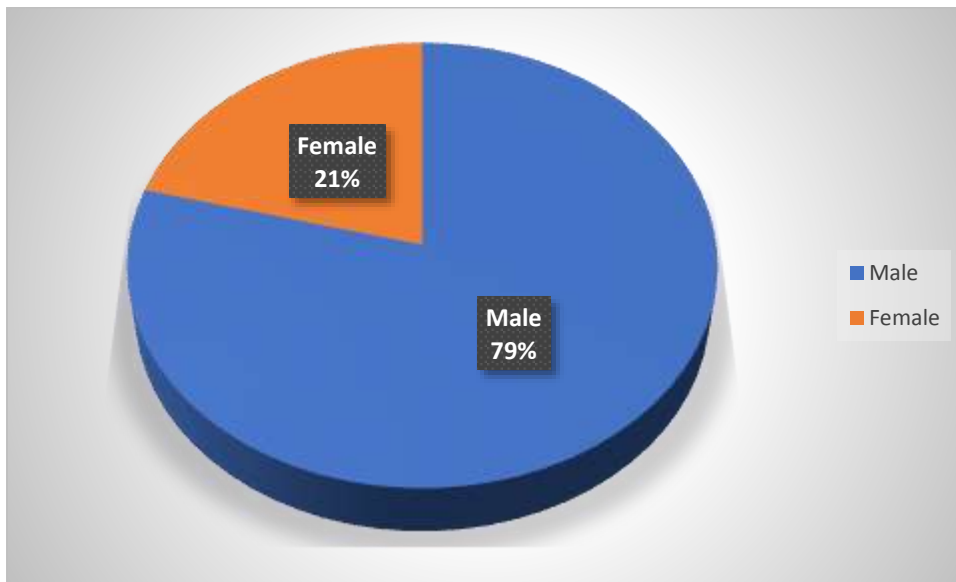


Figure 4. 1: Gender of Respondents

Source: Field survey, 2019

4.2.2 Level of Education

It can be identified from Table 4.1 that 20.9% (9) of the respondents have senior high school education, 34.9% had attained a tertiary education and 32.6% have attained an education at the polytechnic and 11.6% had just basic education (junior high school education).

Table 4. 1: Level of Education of Respondents

Level of Education	Frequency	Percent
Junior High School	5	11.6
Senior High School	9	20.9
Polytechnic	14	32.6
University	15	34.9
Total	43	100.0

Source: Field survey, 2019

Majority of the respondents have attained at least a tertiary form of education. The highest level of education of the respondents made it easy to understand the survey and give suitable responses for the study. This shows that all of the respondents are well educated and capable of understanding the purpose of the study. Also, the deduction from the above statistics is that most of the respondents have higher degrees; hence in a good capacity to understand the dynamics of the survey to elicit good responses to ensure a credibility of the analysis.

4.2.3 Age of Respondents

From Table 4.2 below, 53.5% of the respondents were between 21-30 years, 30.2% were 31-40 years and 2.3% (1) was above 40 years and 14% were less than 20 years. It can be identified that majority of the study respondents were between 21-30 years. The construction industry is characterized by a lot of youth and energetic people hence that age category recording the highest response.

Table 4. 2: Age of Respondents

Age	Frequency	Percent
<20 years	6	14.0
21-30 years	23	53.5
31-40 years	13	30.2
>40 years	1	2.3
Total	43	100.0

Source: Field survey (2019)

4.2.4 Years of Experience

Respondents were asked as shown in Table 4.3 to specify the years they worked in their respective organisations. 53.5% indicated 1 to 5 years whilst 32.6% indicated that they had worked with their present organisation between 6 to 10 years. Whilst 11.6% indicated that they have been working in their present organisation between 11 to 15 years only 2.3 percent indicated they had worked in their present occupation for above 15 years. Since the study was about the assessment of the satisfaction of construction workers on welfare facilities at their site, the majority of the respondents' haven't worked in their present occupation for 1 – 5 years as well as the minority of the respondent being above 15 years were in a better position to answer the questionnaire. The short or longer stay could be attributed to their satisfaction with site welfare facilities or otherwise which the study sought to determine.

Table 4. 3: Role of Respondents in the Municipality

Years of Experience in Organisations	Frequency	Percent
1 to 5 years	23	53.5
6 to 10 years	14	32.6
11 to 15 years	5	11.6
Above 15 years	1	2.3
Total	43	100.0

Source: Field survey, 2019

4.2.5 Category of Work of Respondents

Figure 4.2 shows the category of respondents. 44% of the respondents were clerk of works. In this category of work the researcher contacted both skilled and unskilled personnel at the various construction sites including masons, carpenters and labourers. Also, constituting 56%

of the respondents were site agents including site supervisors and engineers. It can be agreed that the various respondents had the needed information of the satisfaction of site welfare facilities and were in the capacity to adequately respond to the survey

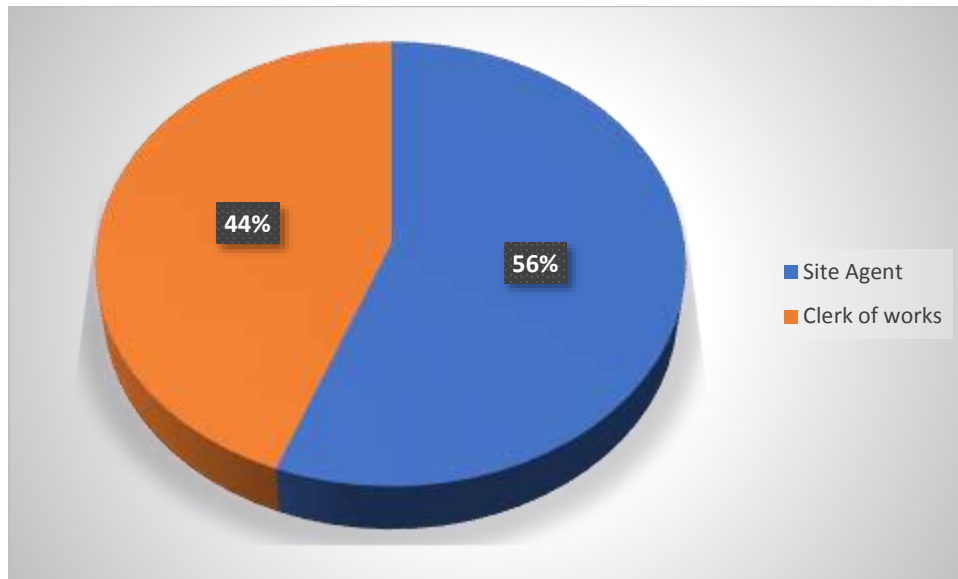


Figure 4. 2: Category of Work

Source: Field survey, 2019

4.2.5 Contractor Classification of Respondents

Respondents were asked to specify the classification of the contractor to which they belong. It was clear that 39.54% of the respondents belonged to the D4K4 contractor whilst 32.56% belonged to the D3K3 contractor. 16.28% and 11.62% of the respondents belonged to the D2K2 and D1K1 contractor respondents. It was concluded from Table 4.4 that all category of contractor classification was duly represented in the study.

Table 4. 4: Contractor Classification of Respondents

Contractor Classification	Frequency	Percent
D4K4	17	39.54
D3K3	14	32.56
D2K2	7	16.28
D1K1	5	11.62
Total	43	100.0

Source: Field survey, 2019

4.2.6 Level of Satisfaction with Site Welfare Facilities

Respondents were asked to indicate how satisfied they were with the welfare provision of site welfare facilities. From Table 4.5, 2% of the respondents said they were dissatisfied with the provision of site welfare facilities whilst 28% stated that they were partially satisfied. 47% of the respondents were satisfied with the provision of site welfare facilities and 23% of the respondents were strongly satisfied.

Table 4. 5: Level of Satisfaction with Site Welfare Facilities

Contractor Classification	Frequency	Percent
Dissatisfied	1	2
Partially satisfied	12	28
Satisfied	20	47
Strongly satisfied	10	23
Total	43	100.0

Source: Field survey, 2019

4.3 MINIMUM REQUIREMENTS FOR WELFARE FACILITIES ON CONSTRUCTION SITES

The literature revealed are some minimum requirements for welfare facilities on construction sites. Respondents were asked to rank the five-point Likert scale; identifying the minimum requirements for welfare facilities on construction sites. The Likert scale which ranges from 1 – 5 as follows: 5= very satisfactory; 4= satisfactory; 3 = moderately satisfactory; 2 = less satisfactory; 1= not satisfactory (See Appendix A). The Relative Importance Index was used to weight the importance of the responses given. The RII has been preferred over the mean and standard deviation as they are not credible and reliable tools for examining the overall ranking of key attributes (Chan and Kumaraswamy, 1997). The Cronbach's Alpha was used as shown in Table 4.5 to evaluate the consistency of the items on the scale. Cronach's Alpha was, therefore, used to test reliability of the instrument. A coefficient of 0.7 and above shows high reliability of data (Saunders et al., 2007). The mean, Standard deviation, RII, and standard mean error were calculated for each variable and shown below in Table 4.7.

A reliability test was performed using Cronbach's alpha coefficient to verify the internal consistency of the items on the scale before the assessment was performed for the received questionnaire. One of the fundamental components of assessment is validating the accuracy of the measuring tool (Tavakol and Dennick, 2011). Reliability deals with the extent to which a measuring instrument will produce the same results on repeated trials (Carmines and Zeller, 1979). From the table 4.6 it can be seen that the Cronbach's Alpha coefficient is 0.700 which is the most important thing to consider for this test. The Cronbach's Alpha coefficient should exceed 0.700 for a scale to be accurate (Howland and Wedman, 2004). The 0.700 coefficient showing our scale is very reliable from table 4.6.

Table 4. 6: Reliability Statistics

Cronbach's Alpha	N of Items
.700	14

Source: Field survey (2019)

4.3.1 Findings and Discussions

The following were regarded and understood before analyzing the data. First the significance level was set at 95% confidence interval, thus, based on the five-point Likert scale rating, a success criterion deemed significant if it had a mean of 2.0 or more. Where two or more criteria have the same mean, the one with the lowest standard deviation assigned the highest significance ranking (Ahadzie, 2007). The standard error is the standard deviation of sample means as well as a measure of how likely a sample is to represent the population, according to Ahadzie (2007). A big standard error (relative to the sample mean) therefore indicates that there is a great deal of variation between distinct sample means (ibid). A small standard error indicates that most sample means are comparable to the mean population; hence, the sample is likely to be a precise population reflection (Ahadzie, 2007). The standard error associated with all the mean is comparatively near to zero, implying that the sample selected reflects the population accurately.

Looking at the various requirements of site welfare facilities as shown in Table 4.7, Drinking water was ranked first with an RII of 0.63. Out of the 43 responses received, it recorded a mean of 3.16, the highest for that section. The standard deviation was 1.194, standard error mean of 0.182. Changing room came second with an RII of 0.53 and a mean of 2.63, a standard deviation of 1.215, standard error mean of 0.185. Rest facility was ranked third, with a standard deviation of 1.2, mean of 2.58, RII of 0.52.

Provision of uniform and protective clothing, soap, transportation arrangement, worker accommodation, dustbin, sanitary facility (WC), first aid box and washing facility (wash hand basin) ranked 4th, 5th, 6th, 7th, 8th, 9th and 11th respectively with each having an RII between 0.52 and 0.47 whilst their means were 2.58 and below.

Drying facility placed twelfth with an RII of 0.46, mean of 2.3, standard error of 0.171, and standard deviation of 1.124. Ranking thirteenth was provision of medical facilities on site with an RII of 0.45.

The least ranked minimum requirement of site welfare facility was the provision of adequate canteen on site. It had the lowest RII of 0.44, a mean of 2.19, an SE of 0.189 and an SD of 1.239.

The findings of the study agree with The International Labour Organisation (ILO) who established that facilities as latrines and urinals, drinking water, washing and bathing facilities, rest shelters, canteens, health services including occupational safety, uniform and protective clothing (Nyakwara et al., 2014). According to Construction Design and Management Regulations (CDM) (2015), Minimum welfare services such as appropriate toilets and laundry facilities, drinking water, storage and rest facilities must be easily accessible on building sites. A supply of wholesome drinking water should be readily available. Where possible, it should be supplied from the mains. The outlet should provide cups and other drinking vessels (HSE, 2010). The BS 6465 code (2006) proposes that the proportion of one toilet to seven people be emptied once a week for mobile toilets. There should be distinct bathrooms for males and females unless it is feasible for men and females to use the same toilet equipment with a lockable space partitioned from urinals. However, sufficient supplies of toilet paper should always be given (HSE, 2010)

Table 4.7: RII of the Minimum Requirements of Site Welfare Facilities

Minimum Requirements	N	Sum	Mean	Std. Error	Std. Deviation	RII	Rank
Drinking water	43	136	3.16	0.182	1.194	0.63	1
Changing room	43	113	2.63	0.185	1.215	0.53	2
Rest facility	43	111	2.58	0.183	1.2	0.52	3
Uniform and protective clothing	43	111	2.58	0.208	1.367	0.52	4
Soap	43	104	2.42	0.17	1.118	0.48	5
Transportation arrangement	43	103	2.4	0.186	1.218	0.48	6
Worker accommodation	43	104	2.42	0.186	1.22	0.48	7
Dustbin	43	104	2.42	0.192	1.258	0.48	8
Sanitary facility (WC)	43	103	2.4	0.197	1.294	0.48	9
First aid box	43	101	2.35	0.179	1.173	0.47	10
Washing Facility (wash hand basin)	43	100	2.33	0.207	1.358	0.47	11
Drying facility	43	99	2.3	0.171	1.124	0.46	12
Medical facilities	43	97	2.26	0.197	1.293	0.45	13
Adequate canteen	43	94	2.19	0.189	1.239	0.44	14

Source: Field survey, 2019

4.4 KEY WELFARE FACILITIES PROVISION POLICIES ON CONSTRUCTION SITES

Respondents were asked to rate the key welfare facilities provision policies on construction sites.

Eleven variables were identified through the literature review. The five-point Likert scale was

ranked by respondent, ascertaining the key welfare facilities provision policies on construction sites. A rating scale of 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree was adopted for this section. (See Appendix A). The mean score ranking comprising the mean, standard deviation and standard mean error were calculated for each variable and shown below in Table 4.9.

4.4.1 Finding and Discussion

A reliability test was performed using Cronbach's alpha coefficient to verify the internal consistency before the assessment was performed for the 43 answers obtained. One of the fundamental components of assessment is validating the accuracy of the measuring tool (Tavakol and Dennick, 2011). Reliability deals with the extent to which a measuring instrument will produce the same results on repeated trials (Carmines and Zeller, 1979).

Table 4.8: Reliability Statistics

Cronbach's Alpha	N of Items
.775	11

Source: Field survey, 2019

Cronbach's Alpha was, therefore, used to test reliability of the instrument. A coefficient of 0.7 and above shows high reliability of data (Saunders, 2007). From the Table 4.8 the Cronbach's Alpha coefficient is 0.775, the most important thing to consider for this test. Ideally, the coefficient Alpha of Cronbach should exceed 0.700 for a scale to be accurate (Howland and Wedman, 2004). A Cronbach's Alpha Coefficient of 0.775 showed, drawing from the table above, that the scale adopted for the research was very accurate.

In calculating the mean for the responses received, the level of importance was set at 95% before analysing the data. Also, based on the five-point Likert scale score, if a variable had an average

mean of 3.5 or more, a success criterion was considered. Where two or more criteria have the same mean, the highest importance ranking was allocated by the one with the smallest standard deviation (Ahadzie 2007). The standard error is the standard deviation of sample means as well as a measure of how likely a sample is to represent the population, according to Ahadzie (2007). A big standard error (relative to the sample mean) therefore indicates that there is a great deal of variation between distinct sample means (ibid). A small standard error indicates that most sample means are comparable to the mean population; therefore, it is probable that the sample will be a precise population reflection (Ahadzie, 2007; Field, 2005). The standard error connected with all means is comparatively near to zero, implying that the selected sample is a precise population reflection.

Table 4.9: Mean Score of Key Welfare Facilities Provision

Key Welfare Provision Policies	N	Sum	Mean	Std. Error	Std. Deviation	RII	Rank
Supervising Workmen	43	164	3.81	.126	.824	0.763	1
Effective Planning	43	155	3.60	.157	1.027	0.721	2
Effective Communication	43	154	3.58	.177	1.159	0.716	3
Adequate Information	43	151	3.51	.146	.960	0.702	4
Promoting Safe Work Behaviour Among Workmen	43	149	3.47	.157	1.032	0.693	5
Enactment of Strict Safety Rules	43	147	3.42	.174	1.139	0.684	6
Involvement of Management	43	143	3.33	.165	1.085	0.665	7
Reduction of Work Pressure	43	142	3.30	.165	1.081	0.660	8
Attractive Work Place	43	139	3.23	.162	1.065	0.647	9
Minimum Number of Facilities	43	137	3.19	.177	1.160	0.637	10
Minimum Workers on Site	43	124	2.88	.177	1.159	0.577	11

Source: Field survey, 2019

Drawing from table 4.9 above it could be seen that respondents strongly agreed that key to welfare provision was the supervision of workmen. This was ranked first with an RII of 0.763, a mean score of 3.81 and a standard deviation of 0.824. Ranking second was effective planning with an RII of 0.721, a mean of 3.60 and a standard deviation of 1.027. With an RII of 0.716, a standard deviation of 1.159 and a mean score of 3.58, effective communication ranked third. Adequate information, promoting safe work behaviour among workmen, enactment of strict safety rules, involvement of management, reduction of work pressure, and attractive work place ranked fourth to tenth with their RII between 0.702 and 0.637, and their mean scores ranging 3.51 and 3.23. Minimum number of facilities and Minimum workers on site were the least ranked key welfare provisions on construction sites recording an RII of 0.577, a mean of 2.88, an SD of 1.159 and an SE of 0.177.

The findings of the study agree various authors in their previous study. Suresh and Vijayarani (2015) recognized welfare facilities supplied by organizations or sites, including water supply, sick bay, changing rooms, laundry and bathing facilities, security measures, canteens, assignments that help improve working circumstances, among others.

4.5 ADEQUACY OF WELFARE PROVISIONS ON SITE

Respondents were asked to rate the following adequacy of welfare facilities provided on construction sites as identified through the literature review. The five-point Likert scale was used by respondent to rank the adequacy of welfare facilities provided on construction sites. A rating scale of 5= extremely influential; 4=very influential; 3=moderately influential; 2=slightly influential; 1= not at all influential (See Appendix A).

A reliability test was performed using Cronbach's alpha coefficient to verify the internal consistency before the assessment was performed for the 43 answers obtained. One of the fundamental components of assessment is validating the accuracy of the measuring tool (Tavakol and Dennick, 2011). Reliability deals with the extent to which a measuring instrument will produce the same results on repeated trials (Carmines and Zeller, 1979). Cronbach's Alpha was, therefore, used to test reliability of the instrument. A coefficient of 0.7 and above shows high reliability of data (Saunders et al., 2007). From the Table 4.7 the Cronbach's Alpha coefficient is .700, the most important thing to consider for this test. Ideally, the Alpha coefficient of the Cronbach should exceed .70 for a scale to be accurate (Howland and Wedman, 2004). A Cronbach Alpha Coefficient of .705 showed from the table below that the scale adopted for the research was very accurate.

Table 4. 10: Reliability Statistics

Cronbach's Alpha	N of Items
.705	14

Source: Field survey, 2019

4.5.1 Findings and Discussions

The following were regarded and understood before analyzing the field data. First the significance level was set at 95% confidence interval, thus, based on the five-point Likert scale rating, a success criterion deemed significant if it had a mean of 2.0 or more. Where two or more criteria have the same mean, the one with the lowest standard deviation assigned the highest significance ranking (Ahadzie, 2007). The standard error is the standard deviation of sample means as well as a measure of how likely a sample is to represent the population, according to Ahadzie (2007). A big standard error (relative to the sample mean) therefore indicates that there is a great deal of variation between distinct sample means (ibid).

Table 4. 11: Mean Score Ranking of the Adequacy of Welfare Provisions on Site

Adequacy of Welfare Provisions on Site	N	Sum	Mean	Std. Error	Std. Deviation	RII	Rank
Drinking Water	43	136	3.16	.188	1.233	0.633	1
Uniform and Protective Clothing	43	132	3.07	.189	1.242	0.614	2
Provision of Dustbin	43	112	2.60	.189	1.237	0.521	3
Provision of Sanitary Facility (WC)	43	112	2.60	.200	1.312	0.521	4
Provision of Soap	43	109	2.53	.161	1.054	0.507	5
Worker Accommodation	43	108	2.51	.174	1.142	0.502	6
Transportation Arrangement	43	108	2.51	.192	1.261	0.502	7
Rest Facility	43	107	2.49	.171	1.121	0.498	8
First Aid Box	43	107	2.49	.192	1.261	0.498	9
Changing Room	43	107	2.49	.192	1.261	0.498	10
Drying Facility	43	105	2.44	.167	1.098	0.488	11
Washing Facility (Wash Hand Basin)	43	103	2.40	.177	1.158	0.479	12
Adequate Canteen	43	102	2.37	.188	1.235	0.474	13
Medical Facilities	43	101	2.35	.179	1.173	0.470	14

Source: Field survey, 2019

A small standard error indicates that most sample means are comparable to the mean population; hence, the sample is likely to be a precise population reflection (Ahadzie, 2007).

The standard error associated with all the media is comparatively near to zero, implying that the sample selected reflects the population accurately.

Drinking water was ranked highest as the on-site welfare facility with an RII of 0.633, a mean score of 3.16 and a standard deviation of 1.233. The next ranked provision for welfare was to provide on-site uniform and protective clothing with an RII of 0.614, a mean score of 3.07

and a normal deviation of 1.242. Recording an RII of 0.521, a mean score of 2.60 and a standard deviation of 1.237, providing dustbins on site was the third highest ranked welfare facility or provision that was adequate on site.

Provision of sanitary facilities (WC), soap, worker accommodation, transportation arrangement, rest facility, first aid box, changing room, drying facility and wash facility (wash hand basin) ranked fourth to twelfth respectively. They recorded an RII between 0.521 and 0.479, mean scores between 2.60 and 2.40. Although provision of dustbins and sanitary facilities recorded the same mean score of 2.60 and RII of 0.521, dustbins ranked higher than sanitary facilities due to a lower standard deviation and standard error recorded by dustbins (Ahadzie, 2007). Adequate canteen and medical facilities were the least ranked variables with RII of 0.474 and 0.470, mean scores of 2.37 and 2.35 respectively. They recorded standard deviations of 1.235 and 1.173 as well as standard errors of 0.188 and 0.177 respectively.

The finding here agrees with the assertion of CDM (2007) who maintained that construction workers need adequate toilet and washing facilities, a place to warm up and eat their food and somewhere to store clothing. Clients must guarantee that their contractors have arranged appropriate welfare services for building employees through their advisors. If the job is notifiable (thus will last more than 30 days or require more than 500 working days) then they must guarantee that building work (including demolitions) is not started until appropriate welfare facilities are installed. According to CDM (2015), the minimum welfare services needed for building locations were divided into five (5) primary components, namely: sanitary facilities, washing facilities, drinking water, changing rooms and lockers, and lastly rest facilities (CDM, 2015). Adequate welfare facilities can affect the productivity of employees and profit on building sites. It can, however, result in low production and loss of profit (Dok Yen, 2018).

4.6 FACTORS THAT INFLUENCES WORKER SATISFACTION WITH SITE WELFARE FACILITIES

Respondents were asked to rate identified factors that influences worker satisfaction with Site Welfare Facilities. Nine (9) factors were identified through the literature review. The five-point Likert scale was ranked by respondent, identifying factors that that influences worker satisfaction with Site Welfare Facilities. A rating scale of 5= extremely significant; 4=very significant; 3=moderately significant; 2=slightly significant; 1= not at all significant (See Appendix A). The mean score ranking comprising the mean, standard deviation and standard mean error were calculated for each variable and shown below in Table 4.13

4.6.1 Findings and Discussion

Before the analysis was done for the 43 responses received, a reliability test was conducted using Cronbach's alpha coefficient to check the internal consistency. Validating the reliability of the measuring instrument is one of the basic elements in evaluation (Tavakol and Dennick, 2011). Reliability deals with the extent to which a measuring instrument will produce the same results on repeated trials (Carmines and Zeller, 1979). Cronbach's Alpha was, therefore, used to test reliability of the instrument. A coefficient of 0.750 and above shows high reliability of data (Saunders et al., 2007).

Table 4. 12: Reliability Statistics

Cronbach's Alpha	N of Items
.750	9

Source: Field survey, 2019

From the Table 4.12 the Cronbach's Alpha coefficient is .750, the most important thing to consider for this test. Ideally, the Alpha coefficient of the Cronbach should exceed .70 for a scale to be accurate (Howland and Wedman, 2004). A Cronbach Alpha Coefficient of .750 showed from the table below that the scale adopted for the research was very accurate.

Before analysing the data gathered, the significance level was set at 95%. Also, based on the five-point Likert scale rating, a success criterion deemed significant if it had a mean of 3.0 or more. Where two or more criteria have the same mean, the one with the lowest standard deviation assigned the highest significance ranking (Ahadzie, 2007). The standard error is the standard deviation of sample means as well as a measure of how likely a sample is to represent the population, according to Ahadzie (2007). A big standard error (relative to the sample mean) therefore indicates that there is a great deal of variation between distinct sample means (ibid). A small standard error indicates that most sample means are comparable to the mean population; hence, the sample is likely to be a precise population reflection (Ahadzie, 2007). The standard error associated with all the media is comparatively near to zero, implying that the sample selected reflects the population accurately.

Table 4. 13: Factors that Influences Worker Satisfaction

Factors that Influences Worker Satisfaction	N	Sum	Mean	Std. Error	Std. Deviation	RII	Rank
Convenience and comfort during work	43	157	3.65	.156	1.021	0.730	1
Promoting safe work behaviour among workmen	43	151	3.51	.161	1.055	0.702	2
Promote healthy congenial atmosphere	43	150	3.49	.180	1.183	0.698	3
Cooperation of employee and labour force	43	147	3.42	.186	1.220	0.684	4
Welfare facilities makes employees happy	43	143	3.33	.184	1.210	0.665	5
Workplace environment	43	143	3.33	.148	.969	0.665	6
Reduction of work pressure	43	141	3.28	.177	1.161	0.656	7
Welfare programmes for employee	43	138	3.21	.171	1.125	0.642	8
Attractive workplace	43	136	3.16	.163	1.067	0.633	9

Source: Field survey, 2019

Drawing from table 4.13 above it could be seen that convenience and comfort during work was highly ranked among the factors with an RII of 0.730, a mean score of 3.65, standard deviation of 1.021 and a standard error of 0.156. Ranking second was the promotion of safe work behaviour among workmen with an RII of 0.702, a mean score of 3.51, standard deviation of 1.055 and a standard error of 0.161. Promoting healthy congenial atmosphere at the construction site ranked third. It recorded an RII of 0.698, a mean score of 3.49 and a standard deviation of 1.183. Cooperation of employee and labour force, welfare facilities makes employees happy, workplace environment, reduction of work pressure ranked fourth (4th) to seventh (7th) respectively. Welfare

programmes for employee and attractive workplace were the least ranked variables with means of 3.21 and 3.16 respectively. They recorded RII of 0.642 and 0.633.

The findings of this study agree with several authors in their previous study on employee satisfaction on construction sites. Karthikeyan et al. (2011) posited that staff welfare is a detailed word referring to multiple services, advantages and equipment provided to staff by the employer in order to enrich the lives of staff in order to maintain them happy and contented or satisfied. Dole and Schroeder (2001) stated that employees will perform better if they are provided with good environment.

4.7 CHAPTER SUMMARY

In this chapter, the data collected from the survey was strategically analysed using several tools of analysis as it best fit the questionnaire at hand. Firstly, the respondent profile was analysed using frequency tables and charts. The first objective which was to establish the minimum requirements for welfare facilities on construction sites was analysed using RII, Cronbach's Alpha coefficient was used to test the reliability of the scale. The second objective, which was to ascertain the key welfare facilities provision policies on construction sites was also analysed using Mean Score Ranking and the reliability tested with Cronbach's Alpha coefficient. The mean score ranking was used to analyse the third and fourth objectives as well.

CHAPTER FIVE

SUMMARY OF FINDINGD AND CONCLUSION

5.1 INTRODUCTION

This dissertation was carried out to evaluate worker satisfaction with the provisions of construction site welfare necessities. The report was carefully divided into five chapters which enabled the presentation of the research in a knowledgeable structure for easy assimilation. The first chapter discussed the background to the research. Here, the researcher identified the problem, stated his aims and objectives, presented the significance of the study, identified the research methodology, determined the scope of the study, and lastly, showed how the thesis would be organised. Next was the second chapter being the literature review which delved into extant literature to help the researcher to see what other scholars, authors, academicians and authorities are discussing around his objectives. This took the researcher through several relevant thesis, books, and journals. The minimum requirements for welfare facilities on construction sites, key welfare facilities provision policies on construction sites, adequacy of welfare provisions on site and factors that influences worker satisfaction with the site welfare facilities were assessed.

Subsequently, the third chapter dealt deeply into research methodology geared towards meeting the research objectives; thus: how questionnaires were to be designed, the approach for collecting the data, the sample size, coding of data when questionnaires are received and the tools of analysis. The chapter four discussed the analysed data into details using various tools of analysis as it deems fit to the objective under consideration. This last chapter encompassed the main issues that have been discussed in the study. The study concluded with the recommendation for the and direction for future research based on the limitations and conclusion of the study.

5.2 REVIEW OF OBJECTIVES

The aim of this research is to ascertain worker satisfaction with the site welfare conditions towards making recommendations to improve the situation. To achieve the critical aim of this research, four objectives were expressed. The realization of these four important objectives was discussed below.

5.2.1 Objective One - To Establish the Minimum Requirements for Welfare Facilities on Construction Sites.

To achieve this objective, which is aligned to satisfying the aim of the study, several relevant and extensive literature were reviewed to see what scholars, and authors were discussing around minimum requirements for welfare facilities on construction sites. After an extensive literature has been gathered on the minimum requirements for welfare facilities on construction sites, the variables identified were propounded into a close ended questionnaire. For the objective to be achieved, respondents were asked to rank the indicators using the Likert Scale ranging 1 – Not satisfactory 5 – Very satisfactory. After the data analysis using Relative Importance Index (RII), it was seen that the respondents ranked the provision of drinking water as the highest minimum requirement for welfare facilities on construction sites. Provision of changing was ranked closely to drinking water as a minimum requirement of welfare facilities on construction sites.

5.2.2 Objective Two – Key Welfare Facilities Provision Policies on Construction Sites

For this second objective to be achieved, important literature relating to key welfare facilities provision policies were reviewed. The identified variables were structured into questionnaires. With a Likert scale ranging from 1 – Strongly disagree to 5 – Strongly agree, the mean score ranking was used to analyse the data gathered from 43 respondents out of the 66 questionnaires

distributed. After analysing the data using the mean score ranking, supervision of workmen and effective planning were seen as the key welfare facilities provision policies on construction sites.

5.2.3 Objective Three – Adequacy of Welfare Provisions on Site

For this objective to be achieved, the necessary pertinent literature was reviewed. Variables obtained from literature were neatly compounded into understandable and answerable questionnaires, where respondent were asked to rate the key welfare facilities provision policies on construction sites. With a Likert scale ranging from 1 – not at all influential to 5 – extremely influential, respondents were asked to rank the key welfare facilities provision policies on construction sites. The retrieved responses were analyzed using mean score ranking, after analysis provision of drinking water as well as uniform and protective clothing on site were the highest ranked variables.

5.2.4 Objective Four – Factors that Influences Worker Satisfaction with Site Welfare Facilities.

For this objective to be achieved, the necessary appropriate literature was reviewed. Variables obtained from literature were neatly compounded into simple and answerable questionnaires, where respondent were asked to rate the factors that influences worker satisfaction with site welfare facilities. With a Likert scale ranging from 1 – not at all significant to 5 – extremely significant, respondents were asked to rank the factors that influences worker satisfaction with site welfare facilities. The retrieved responses were analyzed using mean score ranking. It was discovered after analysis the most important factor that influenced worker satisfaction with site welfare facilities was convenience and comfort during work as well as promoting safe working behaviour among workmen.

5.3 CONCLUSIONS

The aim of this study was to evaluate worker satisfaction with the provisions of construction site welfare necessities. In order to achieve the aim of the study, four objectives were set for the study being to establish the minimum requirements for welfare facilities on construction sites; to ascertain the key welfare facilities provision policies on construction sites; to examine the adequacy of welfare provisions on site; and to explore factors that influences worker satisfaction with the site welfare facilities. The study employed the use of both primary and secondary data. An extensive review was done on extant literature centred on site welfare facilities and worker satisfaction. The identified variables were compounded into questions and administered to respondents (clerk of works and site agents) in D1K1 – D4K4 contractor firms. The data gathered was analysed with Relative Importance Index and Mean Score Ranking. The Cronbach's Alpha was used to test the internal consistency of the scale adopted for the study. The study employed quantitative research methods. It was identified from the study that drinking water, provision of changing rooms as well as uniform and protective clothing were seen as key welfare facilities. The analysis revealed that site welfare facilities that leads to worker satisfaction was convenience and comfort during work as well as promoting safe working behaviour among workmen.

5.4 RECOMMENDATIONS

From the analysis of the study, the researcher made the following recommendations for the study. It is encouraged that future studies should look at how the worker satisfaction impacts productivity with site welfare facilities. Also, a case study of a typical site on welfare facilities and worker satisfaction should be evaluated. Moreover, it is also suggested that future research should incorporate online platforms like Google forms when distributing questionnaires to help eliminate the difficulties in retrieving data in person and improving upon the responsiveness of

questionnaires. Below are some of the recommendations that can improve worker satisfaction with site welfare facilities.

- Site welfare facilities should be taken into consideration the convenience and comfort during work
- Managers must ensure safe behaviour among workmen on site to promote the welfare of the workers on site.
- Site managers must promote a healthy congenial atmosphere at work and ensure cooperation among employees and labour force.

5.5 LIMITATION OF RESEARCH

Every research has its own setbacks. For this study, the limitations were seen in the form of the collection of data and determination of the population. In the collection of data aspect, it was difficult retrieving data from respondents. Most of the respondents of the questionnaires were most of the time were busy and hence did not have time to even look at the questionnaire than to even respond. Although this challenge was faced, the few who made time out of their busy schedules did an excellent job. Nonetheless, this limitation did not affect the credibility of the work done, because all the preliminary test justified that the response rate was accurate for further analysis. due to their daily plans. Nonetheless, it has little or no effect on the outcome of the result. This study was limited to the site agents and clerks of work.

5.6 DIRECTION FOR FUTURE RESEARCH

This research open opportunities for further investigations. These further researches could provide prolific results. The following directions for future studies are therefore proposed:

1. An assessment of worker satisfaction on the productivity of workers.

2. The improvement of site welfare facilities to promote the productivity of construction workers.

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APPENDIX
QUESTIONNAIRE

Kwame Nkrumah University of Science and Technology
Department of Construction Technology and Management
Kumasi

Dear Sir/Madam

An invitation to partake in a research survey

I am undertaking a research study in KNUST as part of my partial fulfillment of the award MSc. Project Management on the assessment of the gratification of construction workers on welfare facilities at their site.

The main objectives of the research are:

1. To establish the minimum requirements for welfare facilities on construction sites;
2. To ascertain the key welfare facilities provision policies on construction sites;
3. To examine the adequacy of welfare provisions on site; and
4. To explore factors that influences worker gratification with the site welfare facilities.

Attached is a copy of my questionnaire. I will be very grateful if you could answer this questionnaire to aid the study. **All information collected will be confidential and would be used only for academic purposes.** Thank you for your time and contribution in advance.

Yours faithfully

Mr. Frank Amankwah

Kwame Nkrumah University of Science and Technology

Department of Construction Technology and Management

Email:

Mobile:

Dr. De-Graft Owusu-Manu

Project Supervisor

Kwame Nkrumah University of Science and Technology

Department of Construction Technology and Management

Private Mail Bag

Kumasi

Section A: Background Information

Please provide the correct information by ticking [☐] the appropriate box and fill in the blank spaces where necessary.

Q1. Gender

- ☐ Male
- ☐ Female

Q2. Age

- ☐ < 20 years
- ☐ 21 – 30 years
- ☐ 31 – 40 years
- ☐ > 40 years

Q3. Educational level

- ☐ Junior High School (JHS)
- ☐ Senior High School (SHS)
- ☐ Polytechnic
- ☐ University
- Other (please specify)

Q4. Category of work

- ☐ Site agent (including site supervisors, engineers, etc.)
- ☐ Clerk of work (including masons, carpenters, labourers, etc.)
- Other (please specify)

Q5. Please indicate how long have you been working in your organization.

- ☐ 1 to 5 years
- ☐ 6 to 10 years
- ☐ 11 to 15 years
- ☐ Above 15 years

Q6. Which classification of contractor does your firm belong to?

- ☐ D1K1
- ☐ D2K2
- ☐ D3K3
- ☐ D4K4

Section B: Considering main objectives

Q7. How satisfied are you with the welfare provision on site?

- ☐ Strongly satisfied
- ☐ Satisfied
- ☐ Partially satisfied
- ☐ Dissatisfied
- ☐ Strongly dissatisfied

Minimum Requirements for Welfare Facilities on Construction Sites

Q8. Please indicate using the scale provided the minimum requirements for satisfactory welfare facilities are in construction sites. Scale: 5= *very satisfactory*; 4= *satisfactory*; 3 = *moderately satisfactory*; 2 = *less satisfactory*; 1= *not satisfactory*.

NO.	FACILITIES	levels of influence				
		1	2	3	4	5
1	Sanitary facility (WC toilets)					
2	Washing facility (hand wash basin,)					
3	Drinking water					
4	Changing room and locker					
5	Rest facility					
6	Adequate Canteen					
7	First aid boxes					
8	Soap					
9	Worker accommodation					
10	Drying facility (towel)					
11	Dustbin					
12	Medical facilities (first aid kits)					
13	Transportation arrangements on and off site					
14	Uniform and Protective Clothing					
	<i>Others (please specify)</i>					
15						
16						
17						

Q9. Adequacy of Welfare Provisions on Site

Please kindly rate on the scale the following adequacy of welfare provisions construction sites

5= *extremely influential*; 4=*very influential*; 3=*moderately influential*; 2=*slightly influential*; 1= *not at all influential*

NO.	FACTORS	levels of influence				
		1	2	3	4	5
1						
2	Clean and hygienic environment (canteen, washroom, changing rooms and lockers, rest facilities)					
3	Clean drinking water					
4	Management Commitment					
5	Management Involvement in Safety					
6	Adequate space					
7	Labor management relations					
8	Humanistic management practices					
9	Worker/management communication and cooperation					
10	Facility easily accessible (location appropriate)					
11	Facility regularly maintained					
12	Separate sanitary facilities for ladies and gents					
13	First-aid facilities readily available with required and adequate content					
	Others (please specify)					
14						
15						

Q10. Key Welfare Facilities Provision Policies on Construction Sites

Please kindly rate the key welfare facilities provision policies on construction sites

5= *extremely significant*; 4=*very significant*; 3=*moderately significant*; 2=*slightly significant*; 1= *not at all significant*

NO.	Key Policies	levels of influence				
		1	2	3	4	5
1	Effective planning					
2	Enactment of strict safety rules and procedures					
3	Involvement of management					
4	Effective communication					
5	Supervising workmen					

6	Reduction of work pressure					
7	Promoting safe work behavior among workmen					
8	Adequate information					
9	Attractive work place					
10	Minimum number of facilities					
11	Minimum workers on site					
	<i>Others (please specify)</i>					
12						
13						
14						

Q11. Factors that Influences Worker Gratification with Site Welfare Facilities

Please kindly rate the following factors that can influences worker gratification with Site Welfare Facilities. 5= *extremely significant*; 4=*very significant*; 3=*moderately significant*; 2=*slightly significant*; 1= *not at all significant*

NO.	FACTORS	levels of influence				
		1	2	3	4	5
1	Cooperation of employee and labour force					
2	Workplace Environment					
3	Welfare Programmes for Employees					
4	Welfare facilities makes employee happy					
5	Convenience and comfort during work					
6	Reduction of work pressure					
7	Promoting safe work behavior among workmen					
8	Promotes healthy congenial atmosphere					
9	Attractive work place					
	<i>Others (please specify)</i>					
11						
12						
13						

THANK YOU!