KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI - GHANA

Exploring the Effect of Work Environment on Project Success in Josan Steel Industry Limited in Kumasi.

By

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MASTER OF SCIENCE

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DECLARATION

I, the under-signed do hereby declare that, this research work, under the supervision of Prof. Agyei Kumi is my own work towards the award of an MSC. Project Management and that, to the best of my knowledge, it contains no material already published by someone else nor material which has been accepted for the honour of any other degree of the University, aside from where due affirmation has been made in the content.

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ABSTRACT

The fundamental issue in project management is managing effectively the project triple constraints in the whole life cycle of project to increase productivity. At the same time, environment of work is seen as a major characteristic, which affect project management structure. The current study explored the linkage that exist between environment of work and project three dimensional constraints (Time, Cost, Scope) of projects of the Steel Company. The conceptual framework compose of remuneration and reward, satisfaction of job, security of the job, and hours of work as elements of work environment of work and project triple constraints time, cost and scope as the dependent variable. The study targeted ninety (90) employees of Josan Steel Industry Limited. The instrument for the data collection was developed by the researcher, preceded by a pilot study. The pilot study was initially conducted in a similar steel company to ascertain its validity and the reliability. The data for the study was basically from primary source in that closed-ended questionnaire was designed and distributed to the employees of Josan Steel Industry. The study used Yamane (1967), sample size calculation to arrive at seventy-three (73) respondents constituting all employees in Josan Steel Industry, with an alpha level of 5% and a confidence level of 95% to gather data for analysis. The data generated was analysed using the Ordinary Least Squares (OLS) regression technique to determine the significance the independent variables has on triple constraint variables. Descriptive statistics was used to test the data. The study concluded by saying project triple constraint – time, cost and scope are significantly determined by work environment. The study found that remuneration and reward has significant positive relationship with project triple constraints and also job satisfaction has positive relationship with project triple constraints. It was clear that without good work environment project triple constraint is affected negatively. The recommendation the study gave was that managers of project must be equipped with the practical and real areas of management of project in that all difficulties associated with project triple constraints must be known. Programs of training for teams of a project are relevant, in connection to behavioral improvement of workers. Again, the study suggested that other researchers focus on the real physical environment factors and how these influence project triple constraints.

Keywords: Work Environment and Project Success.

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DEDICATION

I dedicate this research work to God and my parents.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

In the last years several failed and troubled projects made front page headlines: The new airport of Berlin, Boeing´s 787 Dreamliner or the British Airways Terminal 5 transition are just some examples in the press (Financial Times, 2013; BBC, 2010 & BBC, 2013). The volatility of the market environment, the complexity of organization and solution, complex controlling and management tasks and many other factors are reasons that lead to failures in planning, engineering and implementation and thus endanger the complete project (Large Industrial Plant Manufacturer's Group VDMA, 2010). The described challenges also apply for projects in the steel industry

The steel companies provide engineering, construction and service of industrial - especially large-scaled – roofing, welding and steel processing (Large Industrial Plant Manufacturer's Group VDMA, 2010; U. Lowen, 2012). Engineering is a key discipline in this business - defined as all technical-oriented services, processes, and working appliances to realize a customer specific solution from definition, concept, implementation to commissioning of a project (U. Lowen, 2012). Orders in this business are processed by means of projects and contract volumes range up to several hundreds of millions of Dollars (U. Lowen, 2012). A key characteristic of projects is the integration of components and systems delivered by suppliers and contractors. The solution is developed specific to the customer´s requirements in a customer project. However, the system is technically understood in principle and is not "first-of-its-kind". Finally, the engineering of a system requires integration of different disciplines like project

management ((U. Lowen, 2012). Beside the complexity of the solution development process, project manufacturers compete in a dynamic environment. They are challenged by competition and customers to reduce costs and development time while meeting increasing expectations on innovation and quality (Large Industrial Plant Manufacturer's Group VDMA, 2010).

Defining project success in complex projects – where timeframes for completion are long and the size of the projects are substantial – remains a challenging issue (Toor and Ogunlana, 2010; Wang and Huang, 2006), project management scholars generally agree on two components that define project success: success criteria and critical success factors (Müller and Jugdev, 2012; Turner and Zolin, 2012). Success criteria focus on objective measures, such as completion timeliness, quality, and cost (Pinto and Slevin, 1987). Such objective criteria, however, have been criticised, especially in the context of defining complex project success. This is because they tend to draw on overly simplistic constructs which do not mirror the experience in large, complex projects (Toor and Ogunlana, 2010). Moreover, as Jugdev and Müller (2005) have pointed out, such criteria fail to address broader factors that can be considered as success indicators, such as behavioural skills or strategic management objective criteria.

1.2 PROBLEM STATEMENT

The steel market in the Ghana continues to remain in a limbo because of fierce competition from the developed economies. The demand continues to remain lackluster, coupled with steady stream of supply leading to a lack of recovery in steel prices. With the Ghana economy growing at only 8.5% in 2017, this is not making any relevant and desired recovery of Ghana steel industry. Besides this fastest growth, with a net import of about 23 million metric tons of steel in 2017, the Ghana steel market faced an estimated surplus of 2 million metric tons in 2017. Monetary policies, global economic conditions, raw material cost pressure and Chinese steel industry's influence have all contributed to the current state of the Ghana steel industry, leading to: falling revenues for steel producers, lack of recovery in steel prices and cautious procurement and minimization of inventory among consumers. Apart from the aforementioned challenges of the steel industry market in Ghana, there are serious micro level factors especially work environment factors that stampede individual steel companies in Ghana to achieving increased productivity. It is against this relevant background information that the current study explores the relationship between work environment factors and project success in Josan Steel Industry Limited in Kumasi.

1.3 RESEARCH QUESTIONS

The study sought to answer the following questions:

1. What critical work environment factors affect project success?
2. To what extent do these factors affect project success?

1.4 RESEARCH AIM AND OBJECTIVES

The overall **aim** for the study was to explore the effect of work environment factors on project success.

Specifically, the study sought to achieve the following objectives:

1. To explore the critical work environment factors the affect project success.
2. To identify the extent to which these factors affect project success.

1.5 OVERVIEW OF RESEARCH METHODS

The study used quantitative research method. Primary source of data was collected. Questionnaire Instrument was used to collect the data. Collected data was quantitatively analysed using descriptive statistics. The collected data was initially edited to remove mistakes and then accordingly coded. The data obtained was analysed using SPSS version 21.

1.6 STUDY SIGNIFICANCE

Gap exist in literature on work environment factors and project success and that the study will become good source of material for other researchers. Again, the findings from this work will enable project management organisations on the management of good working environment. Government and project management professionals' will benefit from the issues in work environment and its impact on project success.

Moreover, the recommendations given to work environment issues, it will be a significant guide, knowledge source and work of reference for good makers of policy. Generally, the study offers both managerial and theoretical understanding on the link between work environment and triple constraints.

1.7 ORGANISATION OF THE STUDY

The investigation was introduced in five sections. Part one displayed the foundation of the investigation, expressing the targets, inquire about issue, destinations, inquiries and others. Part two chats on writing, whiles section three spotlights on the technique of the investigation. Once more, Chapter four manages the introduction and investigation of information. At long last, the fifth part contains rundown of discoveries, end and suggestions of the investigation.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 INTRODUCTION

This chapter focuses on the overview of work environment of work and project triple constraints. The past and the current research on the specific factors of environment of work impacting on cost, scope and schedule of a project. The review also touches on the theoretical and empirical review as well as conceptual framework and hypothesis development.

2.2 OVERVIEW OF WORK ENVIRONMENT AND PROJECT SUCCESS

The workplace make out of two measurements - work and setting. Work typifies the uncommon characteristics of the activity like the manner in which work is done and finished. It involves the task exercises, for example, preparing, control, desire of performance resulting from work, and the cost inherent in undertaking. Numerous research works center on the cost inherent factor of the activity pride and outcomes demonstrate the brilliant linkage that exist in workplace and the component activity fulfillment. Measurement includes the physical environment requirements and the social environment conditions (Sousa-Poza et al., 2000; Gazioglu et al., 2006; Skalli et al.,2008).

Spector (1997), sets that lion's share of partnerships does not take cognizance of the workplace inside their organization following poor impact on the general implementation of their representatives.

According to him, workplace compose of cognizance for reasonable execution, professional stability, security to representatives, alluring relatives with collaborators, inspiration for executing pleasantly investment of making strategy for the firm.

Again, he contends that once representatives think about thought on the firm observe them imperative, they show extreme desire of agreement and an affair of oneness for their association. Assortments of variables - compensation, working hours, self-governance given to representatives, authoritative shape and discussion inside the workplace affect work pride (Lane, Esser, Holte, and Anne, 2010). Arnetz (1999) contend that bosses in many partnerships do now not supply respect to representatives. Directors additionally show brutal activities to employees. However, he argues that best management bind workers to their activities then again than creating experience of responsibility in representatives by method for making they work in gatherings to increase unnecessary execution.

Petterson (1998), contends that right interaction between specialists in a business undertaking is basic for achieving hierarchical objectives. Assist he shows the simple walking around the business endeavor depends on suitable correspondence of data. Conflict among associates makes it extremely difficult to acquire associations the goals.

2.3 WORK ENVIRONMENT IN PROJECT MANAGEMENT

The regular method of reasoning for a workplace to be triumphant is the assignments continuous in an association. This amasses individuals, advancements, forms, and the physical condition. Gummer, (2001), contends that the manner in which laborers end up being beneficial through gathering work, their execution are assessed are the impression of the workplace that pass on profession movement, advancement and dynamism in individuals. Aside from the authoritative structure, draw and highlights identifying with advertising, assembling and HR framing the base of the real condition, other auxiliary viewpoints like representatives' impression of work which are a piece of the elusive workplace as inferred by utilizing the Scale of Work Environment (Insel et al., 1975). With regards to an association, work abilities, innovation and offices, work fulfillment, colleagues, laborer welfare bundles, work quality, compensation, administration, and business related focal points and motivators are the substances that framework the workplace. Review it from administration and representatives' point of view, there are no workplace estimations specific models as being legitimate or terrible. Distinctive methods are utilized through organizations to manage how functioning environment can relate to undertaking administration. A portion of the guidelines are estimating person's execution and increment activity, overseeing of constructive ventures, working more prominent hours, point achievement, and handle of employer stability.

As indicated by Wright, (2001), these components set up together wind up powerful in estimating activities' prosperity. Woolfolk and Davis, (2006), set that task triple limitations have been influenced decidedly by method for the execution based pay models as one of the intangibles. This is seen alongside work fulfillment and professional stability, which are for the most part on-screen characters in the workplace. In the perspective of Oshagbemi, (2000), the uncommonly delicate nature of mission identified with data innovation, venture directors feel exact in the condition the place activities are conceivable and moneymaking because of the reality reasonable condition is a basic for them to be fulfilled. In such manner, Akinyele, (2007) attests that healthy work environment and flourishing proficiency relating to improved triple imperatives is attractive. The center trouble for associations to have their central goal organization objectives finished is representatives' activity fulfillment. To keep an energizing domain, offices preserve their staff content material upbeat by giving sound relevant condition to them (James et al., 2004). Therefore, errands end up gainful and beneficial because delighted endeavor directors start conveying by comparing their abilities to the obligations (Reichers, 2006). There is no specific definition for workplace. It is define in different ways. Opperman (2002), isolates work surroundings into three remarkable regions. Specialized, Human, and Organizational. Once more, he contends that the zones of work surroundings investigated and produced for gatherings to exercise and delight in the genuine qualities and theory of workplace keeping in mind the end goal to make a feeling of ownership in embraced chiefs. Accordingly, directors shape a significant feeling of alliance with their workplace, which influences their abilities and systems emphatically. Looking at organizations as being static or dynamic, the people who are

segment of static offices are significantly less gainful and imaginative, though people working in powerful associations are more inventive and have a clear system (Scotter, 2000).

2.4 DETERMINANTS OF WORK ENVIRONMENT

Work is comprehended as the connection between the work environment and satisfying business. The revelations of a Danish report suggest that a firm can extend its benefit through the difference in physical estimations of work environment and may decidedly influence firms' effectiveness (Buhai, et al., 2008).

2.4.1 Job satisfaction

Brief (1998) defines job satisfaction as “an attitude toward one's job. As such, job satisfaction encompasses cognitive and affective components. Previous studies (Locke, 1969; Weiss, 2002) have shown that both affective and cognitive components contribute to overall attitude and behaviour. Scholars have studied job satisfaction as both an independent and a dependent variable (Chen et al., 2011; Judge et al., 2005). Job satisfaction as an independent variable has been shown to be associated with a variety of workplace behaviours such as project managers' performance and turnover intention, as well as project success (Bowling, 2007; Judge et al., 2001). For example Parker and Skitmore (2005) found that job satisfaction is a significant predictor of a project manager's turnover intention. Moreover, Pheng and Chuan (2006) found that a project manager's performance is affected by job satisfaction, especially in complex projects.

2.4.2 Reward and Remuneration

A properly designed remuneration policy has a significant impact on the ability of organizations to attract and retain quality and key employees who are critical to organization's competitiveness in the market (Bassette, 2014). The area of remuneration is a challenging HR area that must follow trends (Prasad, 2015). A reward system shows the benefits an employee may get in return of performance of his/her job (Wang, 2004). It also plays a critical role in employee satisfaction (Brief et al., 2002). The adequate reward system is critical for employee motivation both for high achievers and low achievers (Dewhurst et al., 2009). One of the most important factors in rewarding employees for organization performance is through recognition and appreciation (Ajila et al., 2004). For an organization is need to carefully set reward system that fairly appraises the performance of employees at all levels and in return provides them rewards in accordance with their needs and expectations (Pinder, 2014). The main objective of rewards is to attract and retain employees, by motivating them to pursue higher performance levels (Peters et al., 2010). Reward is the compensation which an employee receives from an organization for exchanging for the service offered by the employee or as the return for work done (Lin, 2007). Rewards are all forms of financial return, tangible services and benefits an employee receives as part of an employment relationship (Malhotra et al., 2007). The effective reward system and adequate recognition of performance in an organisation creates favourable working conditions for employees and serve as key motivator for employees to maximise productivity (Danish et al., 2010). It is a relationship between remuneration and profitability of an organisation (Bidwell et al., 2013).

2.4.3 Job Security

A growing body of empirical research supports a link between individual perceptions of job insecurity and safety outcomes. A large-scale, multi-national review by Quinlan (2005) offered initial evidence that precarious work was predictive of safety outcomes (e.g. safety compliance, injury rates, and safety knowledge). Subsequent studies have examined occupational health and safety risks in temporary workers, a workforce which is constantly at risk for job loss and re-assignment (Fabiano et al., 2008; Saloniemi and Salminen, 2010; Seo et al., 2015). In the first study to directly test this link, Probst and Brubaker (2001) demonstrated that job insecurity perceptions were longitudinally associated with low compliance with safety policies and reduced safety motivation. Additionally, low compliance and safety motivation were related to more workplace injuries and accidents. In a follow-up experimental study manipulating the threat of job layoffs (Probst, 2002), individuals threatened with layoffs were shown to engage in more subsequent violations of workplace safety policies, while simultaneously increasing their production output. More recently, a study conducted by Jiang and Probst (2014) with 639 employees from multiple companies demonstrated that job insecurity is associated with negative safety outcomes.

2.4.4 Working Hours

Time has been proposed as a social determinant of health, as it is a resource that people need for good health; accessing health services, partaking in healthy behaviors, resting, working and caring for dependents (Strazding et al., 2016). Working hours (long working hours, irregular or shift work, night work, etc.) may create a work-life imbalance due to lack of time to sustain a personal life. Poor work-life balance has been suggested to be an

intermediate factor of the associations between working hours and health-related outcomes (Bannai et al., 2014). Lack of time is associated with unhealthy behaviors; unhealthy diets, alcohol consumption, smoking and/or not exercising (Strazding et al., 2011). Moreover, not having time to recover from work exhaustion may result in a poor mental health status and sleeping problems (Bannai et al., 2014). Also, rushing to trying to catch up with the out-of-work activities may create stress responses, such as elevated blood pressure, heart rate and cortisol levels (Lunau et al., 2014). Further, low wages due to few working hours and temporary jobs may create financial insecurities that also have an impact on health status (Lenhart, 2016) Therefore, satisfaction with work-life balance is an indicator of well-being that is of public health interest.

2.5 PROJECT SUCCESS

The goal of project management is to ensure the success of the project. However, companies face new challenges when adopting project management methodologies, for example, in construction projects, as suggested by Ala-Risku and Kärkkäinen (2006), or in information systems (IS) projects, as suggested by Barclay and Osei-Bryson (2010). Furthermore, success, as a subjective term, is dependent on the perspective of those who are measuring it (Jha and Iyer, 2006).

According to Barclay and Osei-Bryson (2010), a key challenge in projects often includes the lack of clearly defined objectives and the mismatched stakeholders' expectations (project sponsor, external consultant, staff and executive management). Moreover, the success criteria can vary from project to project as they are dependent on the context and on the perspectives of the various construction stakeholders (client, consultants, and contractors), according to Toor and Ogunlana (2010). Corroborating this assumption,

some authors, such as Chou and Yang (2012) and de Vries (2009), who have applied the stakeholder salience theory and identified a strong influence based on the interests of various stakeholders, recommend the use of stakeholder analysis. Factors such as time, cost, and quality are traditionally used as criteria for measuring project success (Pinto and Slevin, 1987; Mullaly, 2006; Papke-Shields et al., 2010). **These criteria comprise the "iron triangle" (Meredith and Mantel, 2000; Pinto and Slevin, 1987) in which a project is considered a success when the cost is very close to the initial budget planned, the estimated schedule is met, and all deliveries meet the requirements established by all parties involved in the project.** However, there is no consensus regarding the success criteria among researchers (Jha and Iyer, 2006) because there are many variables that can affect success, such as the context of the internal organization and the external environment in which a project is performed, and can influence both the outcome and the success of a project (Papke-Shields et al., 2010). In addition, over the years, the three criteria (time, cost, quality), often called the basic or traditional criteria, have been criticized because they seem inadequate. Some authors consider them excessive, while others consider them incomplete (Yu et al., 2005). Accordingly, several efforts have been made to overcome the inadequacies. These attempts can be grouped into two different approaches: (1) adding more dimensions to the traditional criteria (iron triangle), exploring the variables that can impact success; and (2) reducing various criteria to a single evaluation criterion, the financial criterion (Yu et al., 2005). The second approach considers that time and quality are project cost variables (Yu et al., 2005). This study is aligned with approach with the traditionally used success criteria, exploring variables like time cost and scope.

2.6 THEORETICAL LITERATURE REVIEW

The section focuses on the theories of employee satisfaction and organizational performance. The theories are categorized into two: content theories and process theories. These theories are linked to the study under investigation.

Motivating people at work is the bedrock of the content theories. The identification and prioritization of needs, drives and incentives/goals make individual satisfied and thus perform effectively (Luthans, 2005).

2.5.1 Maslow's Theory of Motivation/Satisfaction (1943)

The most widely mentioned theory of motivation and satisfaction according to Weihrich et al., (1999) is Maslow's hierarchy of needs theory. This theory mainly capitalises on humanistic psychology and the clinical experiences. Abraham Maslow explains that individual's motivational needs can be arranged in hierarchical order. One need satisfied no longer motivates thus following another to be satisfied. Maslow (1943), outlines five levels of needs hierarchy:

Physical needs: (food, clothing, shelter, sex), Safety needs: (physical protection), Social: (opportunities to develop close associations with other persons), Esteem/Achievement needs: (prestige received from others), and Self-Actualization: (opportunities for self-fulfillment and accomplishment through personal growth) (Maslow, 1943). Karimi, (2007), posit that the influence of individual need satisfaction is the importance attached to type of needs, the degree to which the individual sees differently his or her life needs.

The theory serves as a good basis from which early researchers develop job satisfaction theories (Wikipedia, 2009).

2.5.2 Herzberg's Two-Factor Theory (1959)

Specific work motivation theory is developed by Herzberg. Motivational study on about 200 accountants and engineers employed by firms in Pittsburgh, Pennsylvania was conducted by him. He employed the critical incident method of data collection with two questions:

a. when did you feel particularly good about your job – what turned you on?

b. when did you feel exceptionally bad about your job – what turned you off? (Luthans, 2005:243). Herzberg's result concludes that job satisfiers (motivators) are relate to job content and that job dissatisfiers (Hygiene factors) are in relation to job context. The motivators are Achievement, Recognition, Work itself, Responsibility and Advancement. They hygiene factors do not motivate/satisfy but rather stampede dissatisfaction. These factors are Company policy, Administration, Supervision, Salary, Interpersonal relations, Supervisor, and Working conditions (Herzberg et al., 1959).

The concern of the process theories is how does motivation takes place. Cognitive theory of expectation plays significant position in the process theories of job-satisfaction (Luthans, 2005:246). In the views of Perry et al., (2006), process theories explain how the needs and goals are fulfilled and accepted cognitively.

2.5.3 Equity Theory (J. Stacy Adams) (1963)

Equity theory explains that employees assess their input into a job situation against what they receive from it (outcome). Employees compare their input-outcome ratio with the

input-outcome ratio of relevant others. If they see their ratio to be the same as the relevant others with whom they compare themselves, a state of equity is said to exist (Robbins, 2005:58).

The first of these fairness perceptions - distributive justice – is extensively studied for past few decades under the name of equity theory (Yusof & Shamsuri, 2006). Continuing through the motivation cycle suggests that high performance leads to the receipt of rewards, both intrinsic and extrinsic, which leads to increased employee satisfaction when such rewards are valued by the employee and perceived as equitable (Perry et al., 2006).

2.5.4 Porter/Lawler Expectancy Model (1968)

Effort (force or strength of motivation) does not directly lead to performance as espoused by Porter and Lawler. Abilities, traits and role perceptions moderate effort. Weihrich & Koontz (1999), argue that satisfaction does not only depend on performance but the likelihood to receive fair rewards. The Porter-Lawler motivation model posits that motivation is influence by several interconnected cognitive factors. For instance, effort emanates from the perceived effort-reward probability before it begins. However, before effort is changed into performance, the abilities, traits and role-perceptions have moderating effect on the real efforts invested in performance. In effect, the perceived equitable rewards determines job-satisfaction." (Luthans, 2005).

2.6 EMPIRICAL LITERATURE REVIEW

The review looks at what people of have done in relation to work environment factors and organisational performance. The empirical related literature covers the objectives of each study, methodology employed, type of data and the findings from the study.

Matthew et al, (2009), posit that workers who are internally motivated, satisfied and are productive in an organisation contributing to efficiency and effectiveness leading to profit maximisation. Studies conducted settle that there exists a positive relationship between employee motivation and organizational effectiveness.

Maurer (2001), cited in Jun et al., (2006), espouses that essential factors such as rewards and recognition enhance job satisfaction and motivation of employee that directly influence organizational achievement. In consonant with the argument made by Maurer and Jun et al., Kalimullah et al, (2010), undertook a study examining the linkage between rewards and employee motivation in commercial banks of Pakistan. The study concentrated on four types of rewards of which one was recognition. His analysis used Pearson correlation co-efficient and concluded that recognition correlates significantly (0.65) with employee work motivation.

Again, to consolidate Maurer, Jun et al., and Kalimullah et al., assertion empirical study conducted in Pakistan by Rizwan et al, (2010), using 220 questionnaires distributed and filled by employees of different sectors confirm that recognition and employee work motivation have significant ($r=0.13$, $p<0.05$) relationship.

2.7 CONCEPTUAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

The framework establishes the dependent and the independent constructs use in the study. The study uses non-physical work environment constructs – reward and remuneration, satisfaction in the job, job security and hours of work as independent variables and triple constraints – cost, time and scope as dependent variables. The hypothesis establishes

whether or not is a linkage that exist between environment of work and project triple constraints.

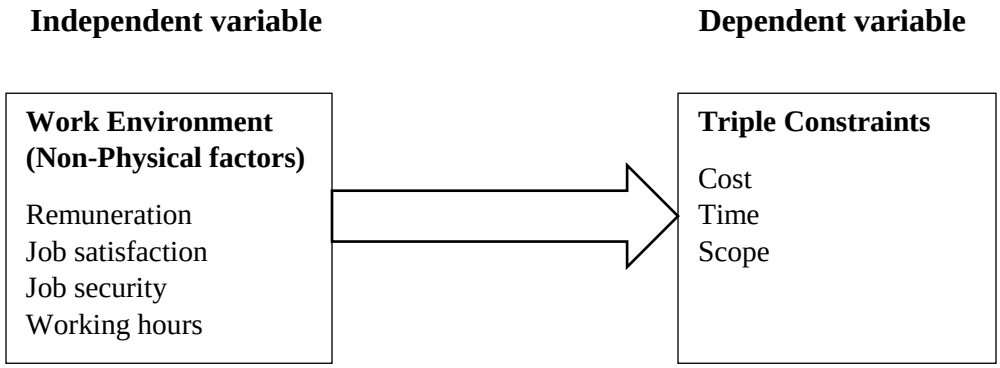

Figure 2: Conceptual Framework

Hypothesis Development

H0: There is no significant relationship between work environment factors and triple constraints.

H1: There is significant relationship between work environment factors and triple constraints.

2.8 CHAPTER SUMMARY

The chapter discussed the work environment and triple constraints. Concentration on the work environment was on the work environment of work – reward and remuneration, satisfaction in the job, job security and hours of work and how these factors affect triple constraints – cost, time and scope of project management. The chapter also looked at the dynamics of the triple constraints as well as the theory of constraints and the triple constraints. Ultimately, the chapter developed a framework and hypothesis to guide the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The chapter focuses on the research method and design. It details the research design, study population, sample and sampling technique, sample size, data collection method and data analysis.

3.2 PROFILE OF JOSAN STEEL INDUSTRY LIMITED

Josan Steel Industry Ltd is a manufacturing company engaging in all aspect of multiple building location management from budgeting to productivity to establishing and maintaining business partnership. Since 1998, the company has been authorized to manufacture and supply quality roofing sheets.

3.3 RESEARCH DESIGN

The study employs the quantitative research design. According to Leedy et al., (2013) quantitative research design furnishes explanations and comprehension of difficult situations. Designed questionnaires are given to workers of Josan Steel Industry to answer because non-physical work environment issues affect triple constraints in organisations having very significant organisational issue affecting workers' performance. Under conditions of not being able to answer, the investigator guides the respondent to answer.

3.4 RESEARCH METHODS

This research is based on deductive approach as it involves the use of already existing theories, thus, quantitative methods was adopted to make inference into work environment and project success in the Josan Steel Industry.

3.5 SAMPLING PROCEDURE

3.5.1 Population Target

The target population for the study was employees in all departments, Production (30), Administrative/Auxiliary Workers (10), Sales and Marketing (42) and Security (13) in Josan Steel Industry Limited located at Ejisu Asaman in Ashanti Region, Ghana.

3.5.2 Study Area

Josan Steel Industry Limited has three branches in Ashanti Region. Specifically, the one at Ejisu Asaman was used for the study because the researcher found it easier in terms of proximity to get respondents to answer the questions posed in the questionnaire.

3.5.3 Sample Size and Sampling Technique

The study used seventy-three (73) respondents with an alpha level of 5% and a confidence level of 95% to gather data for analysis with the help of Yamane (1967) sample size calculation formula. This number constitute all employees in Josan Steel Industry Limited. The examination utilised purposive sampling strategy to sift data from the respondents in light of two reasons: first, simple choice and distinguishing proof of people or gatherings of people that are capable and all around vexed in data with a wonder of intrigue (Cresswell et al., 2011). Second, the significance of readiness and accessibility to take an interest, and the capacity to convey encounters and feelings in an

expressive, intelligent way, and understandable (Bernard, 2002; Spradley, 1979). The sample size calculation by Yamane (1967) is given by:

$n = \frac{N}{1+N(e)^2}$, where *n* is the sample size, *N* is the population size, and *e* is the level of precision.

$$n = \frac{90}{1 + 90(0.05)^2}$$

= 73.

3.6 INSTRUMENT OF DATA COLLECTION

Quantitative research methods was used for the study. Questionnaire was used to glean the data. Questionnaire was given to respondent to fill. In most cases, the investigator guided the respondents by making the questions clearer.

3.7 DATA SOURCES

Primary source data collection was employed. Data was gleaned from the questionnaires. In gleaning the data, questions in the nature of close-ended were employed to ensure that sufficient information are gotten from the respondents.

3.8 THEORETICAL MODEL FOR THE STUDY

In 1959, Frederick Herzberg vehemently advanced the Two Factor Theory. The theory explains the relationship that exist between employee performance and workplace environment. Herzberg argued in favour of two set of factors - motivation and hygiene factors in deciding employees' attitude towards work and levels of performance (Robbins et al., 2007). He argued that motivation factors are intrinsic and that they increase

employees' job satisfaction; while hygiene factors are extrinsic in that they prevent any employees' dissatisfaction.

3.9 EMPIRICAL MODEL SPECIFICATIONS AND ESTIMATION METHODS

Following the objectives and the questions the study seeks to achieve and answer, simple regression model specification was used. The model was specified as follows:

$$\boldsymbol{y_i = b_i x_i + \varepsilon_i, where}$$

y_i = dependent variable

x_i = independent variable

ε_i = random or stochastic variable.

3.10 EMPIRICAL MODEL ESTIMATION

In this study, the same model specification was employed. The data gotten was analysed using the Ordinary Least Squares (OLS) regression method in determining the significance of the independent variables has on triple constraint variables. The model for this study was specified thus:

$$\boldsymbol{TC_i = \alpha_0 + \beta_1 REM_i + \beta_2 JS_i + \beta_3 JSE_i + \beta_4 WH_i + \varepsilon_i, where}$$

TC = Triple Constraints

REM = Remuneration

JS = Job Satisfaction

JSE = Job Security

WH = Working Hours

But TC is measured by Time (T), Cost (C) and Scope (S)

Therefore:

$$T_i = \alpha_0 + \beta_1 REM_i + \beta_2 JS_i + \beta_3 JSE_i + \beta_4 WH_i + \varepsilon_i, where$$
$$C_i = \alpha_0 + \beta_1 REM_i + \beta_2 JS_i + \beta_3 JSE_i + \beta_4 WH_i + \varepsilon_i, where$$
$$S_i = \alpha_0 + \beta_1 REM_i + \beta_2 JS_i + \beta_3 JSE_i + \beta_4 WH_i + \varepsilon_i, where$$

3.11 RESEARCH INSTRUMENT VALIDITY

Three (3) to five (5) respondents was used as pre-test to ensure increase validity, understanding, difficult questions and respondents' willingness to respond to questions (Orodho, 2012; Ghauri et al., 2005). Language was made clearer through pre-testing. Accuracy of instrument were tested. Pre-test respondents were selected randomly from the targeted population. Ensuring content validity entails giving questionnaire to experts in steel works to cross examine to see if all major issues work environment components were outlined. Their corrections together with those from the pre-test were incorporated in the final questionnaire.

3.12 VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENT

Three (3) to five (5) respondents were utilized as pre-test to guarantee increment legitimacy, understanding, troublesome inquiries and respondents' readiness to react to questions (Ghauri et al., 2005; Orodho, 2012). Pre-testing made dialect clearer and tried exactness and manageability of instrument. Pre-test respondents were chosen haphazardly from the focused on populace. Survey was given to program specialists and cocoa agriculturists to cross check regardless of whether modified issues were delineated to

guarantee content legitimacy. Their rectifications together with those from the pre-test were joined in the last poll.

3.13 DATA ANALYSIS

Data analysis process entails the process of packaging the collected data putting in order and structuring its major elements in a way that the results can be easily and efficiently communicated. The data analysis was conducted through the use of the software Statistical Package for Social Scientist (SPSS) version 21. The presentation and analysis were conducted through statistical mean score ranking.

3.14 CHAPTER SUMMARY

This chapter outlined the processes of data collection. Specifically, it focused on the research design, population, sample and sampling techniques, and research instruments and data collection processes.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.1 INTRODUCTION

This chapter gives the study's outcome and discussions of the findings. The key sections of the chapter includes: respondent profile, descriptive results, measurement assessment, and discussions, and chapter conclusion.

4.2 RESPONDENTS' PROFILE

The study sought to explore the linkage between work environment and triple constraints of project taking into account a specific organization. Ninety (90) questionnaires were administered and only 73 were retrieved. Preliminary checks for incompleteness however revealed that 69 could be considered usable for the study. As shown in Table 4.1, majority of the respondents had ages between 21 and 25 (46.0%), 26 to 30 years (34.0%), 31 to 35 (10%) and 36+ (10%). Also, majority of them were male (54.0%) or female (46.00%). Moreover, regarding educational background, majority of them were either bachelor degree holders (50.0%) or masters' degree holders (22.0%). Further, majority of them were either administrative managers or communication/dissemination managers or procurement officers (26.0%). Regarding those who have had experience, (57.0%) represent Yes and (43.0%) represent. Again, there was an indication that 36.0%) employees have had over four years working experience with the organization, followed by two to three years representing 28.0%). 1 year work experience (8.0%).

Table 4.1 Respondent profile

Variable	Category	% of n
Academic Qualification	SSCE/WASSCE/O LEVEL Bachelor's Degree Professional Certificate Master's Degree	14.0 50.0 14.0 22.0
Experience	Yes No	57.0 43.0
Position	Director Project manager/officer Programmes manager Administrative manager Communication/Dissemination manager Procurement officer Field worker	4.2 4.2 4.0 26.0 26.0 6.0 26.0
Experience with the organisation	1 year 2 years 3 years Over 4 years	8.0 28.0 28.0 36.0

Source: Field study (2018)

4.3 DESCRIPTIVE RESULTS

This section presents descriptive results on the study's constructs – that is work environment and triple constraints of project. A 4-point scale that ranged from strongly disagree (=1) to strongly agree (=4) was used to measure all items.

4.3.1 Extent of Critical Work Environment Factors

Critical factors defining the work environment was measured with a 14-item scale adopted from Wright et al, (2001). The descriptive results on the items and their composite (average) score are shown in Table 4.2.

Of the 14 items, the lowest mean score was 4.50 (standard deviation = .740) and the highest means score was 4.74 (standard deviation = .538). The overall mean score was 4.27 (standard deviation = .625). Given a scale of 1 to 4, these results, suggest that critical work environment factors play a crucial role in the organization and that employees are particularly concern about the these critical work environment factors in the organization.

Table 4.2a: Extent of Critical Work Environment Factors

Item code	*Item statement*	*Mean*	*Std. Dev.*
RR1	The organization gives higher salary	4.78	.530
RR2	Workers are satisfied with what they receive	4.74	.538
RR3	Managers are willing to increase salaries	4.70	.616
RR4	Opportunities for personal growth and advancement	4.64	.642
JS1	Good cooperation between management and workers	4.62	.739
JS2	Workers input and output are well recognized by management	4.61	.673
JS3	There is better management supervision	4.59	.727
JS4	There is good interpersonal relationships	4.58	.724
JSE1	Workers have higher percent chance maintaining their job	4.57	.613
JSE2	Workers are protected from danger	4.54	.775
JSE3	Workers rights are ensured	4.52	.725
WH1	Working hours are sufficient	4.52	.711
WH2	Workers work beyond the stipulated time	4.50	.740
	Composite (average) score	***4.27***	***0.625***

Source: Field study (2018)

4.3.2 Project Success

Twenty-two (22) items were adopted from Taylor, (2004) to measure triple constraints of project. Each item was measured with one dimension. To make interpretation of the result easier, the scores obtained were recoded to depict each dimension of the construct. Respectively, the study rephrased the dimensions of the triple constraints as outlined below.

The descriptive statistics of the items and their overall average score are shown in Tables 4.3b. Across the three dimensions, an average participant scored 4.31 (standard deviation = 1.282). 4.16 (standard deviation = 1.256), and 4.03 (standard deviation = 1.384). The mean scores were obtained on time, cost and scope dimensions respectively. Given a scale of 1 to 4 used to measure the items, these results suggest that an average participant demonstrates slightly above average project triple constraints at the workplace.

Table 4.3b: Extent of Project Success

Item code	*Item statement*[1]	*Mean*	*Std. Dev.*
TM1	Projects are executed before or within the stipulated time	4.31	1.282
CT2	Projects are executed within budget	4.16	1.256
SP3	Projects are executed on the performance criteria of the deliverables	4.03	1.384
	Composite (average) score	***4.16***	***1.307***

Source: Field study (2018)

4.4 MEASUREMENT ASSESSMENT

The survey empirically adopted the use of questions for one of the variables, reward and remuneration, already used by Caprara et al., (2006); and for the other variables, security of Job, satisfaction in the job, Hours of work, Time, Cost and Scope. The tool developed by the researcher was tested on sixty-nine participant in the investigation. The investigation depicted that reliability of multiple items of the tool (Spector, 1992) had Cronbach Alpha values of 0.60, 0.65, 0.62, 0.70, 062, 0.76, and 0.65 for satisfaction in the job, Hours of work, Time, Cost and Scope respectively. A four-point Likert scale ranging from (strongly disagree to strongly agree) was developed for each item.

4.5 MULTIPLE REGRESSION ANALYSIS

The outcome of the regression for environment of work and project three constraint is shown below. The value of the R square showed the model fitness. Goodness of fit is spotted through R square Adjusted. The R square value of 0.715, indicated that 71.5 percent of the variation in three constraints were explained by changes in the environment of work.

Again, it indicated fact that work environment impact the triple constraint. Focusing on the analysis, environment of work is a powerful indicator of project triple constraint. The model is therefore significant.

Table 4.4a: Regression Analysis

Model	R Squared	Adjusted R Squared	Standard Error
1	0.715	0.706	0.673

Predictors (Constant): Remuneration & Reward, Job Satisfaction, Job Security and Working Hours.

Dependent variable: Project Success

4.5.1 Correlation Matrix of Variables

Correlation was used to show the degree of relationship existing between the study variables. The correlation coefficient values were summarized. The outcomes indicated that at 5% level of significance, there is positive correlation between work environment variables as the value of the correlation coefficient were .287, .276, .205, and .266 respectively.

Table 4.4b Pearson Correlation Coefficient

Variables	RR	JS	JSE	WH	PROJ SUCC
RR	1				
JS	0.512 (0.000)	1			
JSE	0.658 (0.000)	0.708 (0.000)	1		
WH	0.711 (0.000)	0.504 (0.000)	0.727 (0.000)	1	
PROJ SUCC	0.287 (0.000)	0.276 (0.000)	0.205 (0.000)	0.266 (0.000)	1

Note: figures in ( ) are sig. (2-tailed)

4.6 DISCUSSIONS

Workplace is found in the manner in which representatives' exhibitions are evaluated, specialists wind up gainful through cooperation and individuals see their profession movement with development and dynamism. Gummer (2001), contended that the most widely recognized explanation behind a workplace to exist is the ventures progressing in an association, uniting individuals, procedures, advances and the physical condition. Woolfolk and Davis (2006), contended that the execution based pay methodology is result-arranged, and emphatically influencing venture triple requirements.

It saw alongside work fulfillment and employer stability, and are for the most part performers in the workplace.

4.6.1 Remuneration & Reward and Project Success

The study sought to ascertain respondents' views on remuneration and reward and its influence on project success in Josan Steel Industry Limited in Kumasi. This was done by seeking the respondents' views on four dimensions of remuneration and reward – i.e.

good salary, workers are satisfied with what they receive, managers are willing to increase salaries and opportunities for personal growth and advancement. In all, the score of the remuneration and reward was found to be high and gives the indication that this factor of work environment seriously affect project success in the company. Among the four dimensions, good salary was found to have the highest score, followed by workers satisfaction, managers' willingness and opportunities for personal growth. The study's findings agree with the findings of Maurer (2001), cited in Jun et al., (2006), who espoused that essential factors such as rewards and recognition enhance job satisfaction and motivation of employee that directly influence project success in an organisation.

4.6.2 Job Satisfaction and Project Success

The study sought to ascertain respondents' views on job satisfaction and its influence on project success in Josan Steel Industry Limited in Kumasi. This was done by seeking the respondents' views on four dimensions of job satisfaction – i.e. good cooperation between management and workers, workers input and output are well recognized by management, better management supervision and good interpersonal relationships.

In all, the score of job satisfaction was found to be high and gives the indication that this factor of work environment seriously affect project success in the company.

Among the four dimensions, good corporation between management and workers was found to have the highest score. The study's findings agree with the findings of Matthew J. et al, (2009), who posited that workers who are internally motivated, satisfied and are productive in an organisation contributing to project success (efficiency and effectiveness) leading to profit maximisation.

4.6.3 Job Security and Project Success

The study sought to ascertain respondents' views on job security and its influence on project success in Josan Steel Industry Limited in Kumasi. This was done by seeking the respondents' views on four dimensions of job security – i.e. workers have higher percent chance maintaining their job, workers are protected from danger, workers receive good compensation and workers' rights are ensured. In all, the score of job satisfaction was found to be high and gives the indication that this factor of work environment seriously affect project success in the company. Among the four dimensions, workers have higher percent chance maintain their job was found to have the highest score. The study's findings commensurate the findings of (Fabiano et al., 2008; Saloniemi and Salminen, 2010; Seo et al., 2015) who examined occupational health and safety risks in temporary workers, a workforce which is constantly at risk for job loss and re-assignment. Again, the study conducted by Probst and Brubaker (2001) demonstrated that job insecurity perceptions are longitudinally associated with low compliance with safety policies and reduced safety motivation thereby reducing workers efforts

4.6.4 Working Hours and Project Success

The study sought to ascertain respondents' views on work hours and its influence on project success in Josan Steel Industry Limited in Kumasi. This was done by seeking the respondents' views on two dimensions of work hours – i.e. working hours are sufficient and workers work beyond the stipulated time. In all, the score of working hours was found to be high and gives the indication that this factor of work environment seriously affect project success in the company.

The study's findings commensurate the findings of Strazding et al., 2011 who posited that lack of time is associated with unhealthy behaviors; unhealthy diets, alcohol consumption, smoking and/or not exercising which in a long run affect project performance. Again, Bannai et al., 2014 also found that project success is greatly impacted when workers have no time to recover from work exhaustion resulting in a poor mental health status and sleeping problems.

4.7 CHAPTER CONCLUSION

This chapter presented the study's results and findings. It also discusses the findings in relation to the study's objectives, underpinning theories, and the pertinent literature. The subsequent chapter presents the summary of the findings, conclusion, and recommendation of the study.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The purpose of the study was to explore the relationship that exist between environment of work and project triple constraint. This chapter cogently outlines summary of the study findings in connection with the stated research objectives. The chapter also presents thorough conclusion and recommendations based on the findings discovered by the study. The recommendations of the study covered two broad areas namely policy or practical recommendations and future research recommendations. Whilst the practical recommendations cover steps to improve policy development regarding work environment among employees, future research recommendations cover information for future researchers on the topic understudy.

5.2 SUMMARY OF FINDINGS

The argument that work environment has a link with project success is reasonable to many organization. Work environment factors has been indicated to a large extent to determine the project success.

In the light of this, the purpose of the study was to explore the linkage between work environment factors and project success in steel companies in Ghana. The study examined the objectives and tested the employees in a Josan Steel Company in Kumasi.

The first objective of the study was to determine critical factors that define the work environment of a project. The study found that critical work environment factors play a crucial role in the organization and that employees are particularly concern about these critical work environment factors in the organization.

The second objective of the study was to identify the extent to which these factors affect triple constraints of a project. The study found that project constraint largely depends on work environment.

5.3 CONCLUSION

Work environment and project triple constraint are very vital subject matter to every organisation and its development. Therefore encouraging good and realistic work environment ultimately affect project triple constraint. The study has proven that triple constraint of project – time, cost and scope are significantly determined by work environment. It is clear that without good work environment project triple constraint is affected negatively.

5.4 RECOMMENDATIONS

Based on the findings the following recommendations are provided;

- Managers of Project must be equipped to have a whiff of practical areas of managing projects in that all difficulties associated with managing project success. Education and training for project teams are relevant, in connection to behavioral improvement of workers.

5.4.1 FUTURE RESEARCH RECOMMENDATIONS

The following future research recommendations are provided;

- Future researchers can examine the relationship between physical work environment and how these affect project success.

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QUESTIONNAIRE

My name is **Asamoah, Irene Boadu**. I am a final year MSC Project Management student from Department of Construction Technology and Management at Kwame Nkrumah University of Science and Technology, Kumasi. As part of the requirement for the master's degree, I am conducting a research on the topic**: Exploring the Linkage between Work Environment and Triple Constraints of Projects.** The objectives of the study include:

- To determine the critical factors that defines the work environment of a project.
- To identify the extent to which these factors affect triple constraints of a project.

The implication of the findings is for future implementation of project in Ghana. Information given will be treated with utmost confidentiality.

Thank you for your participation and assistance with this study.

SECTION A: CRITICAL FACTORS DEFINING THE WORK ENVIRONMENT

On a scale of 1 to 4, how will you rate the following critical factors of your work environment?

1 2 3 4

Strongly Disagree Disagree Agree Strongly Agree

Que. No	Critical Factor	1	2	3	4
	Remuneration and Reward				
1	Good salary				
2	Workers are satisfied with what they receive				
3	Managers are willing to increase salaries				
4	Opportunities for personal growth and advancement				
	Job Satisfaction				
1	Good cooperation between management and workers				
2	Workers input and output are well recognised by management				
3	Better management supervision				
4	Good interpersonal relationships				
	Job Security				
1	Workers have higher percent chance maintaining their job				
2	Workers are protected from danger				
3	Workers receive good compensation				
4	Workers rights are ensured				
	Working Hours				
1	Working hours are sufficient				
2	Workers work beyond the stipulated time				

SECTION B: PROJECT SUCCESS

On a scale of 1 to 4, how will you rate the following project constraints?

1 2 3 4

Strongly Disagree Disagree Agree Strongly Agree

Que No	Project Triple Constraint	1	2	3	4
	Time				
1	Projects are executed before or within the stipulated time				
	Cost				
2	Projects are executed within budget				
	Scope				
3	Projects are executed on the performance criteria of the deliverables				

SECTION C: DEMOGRAPHIC INFORMATION

1. What is your age?

[ ] 21 – 25

[ ] 26 – 30

[ ] 31 – 35

[ ] 36 +

2. What is your gender?

[ ] Male

[ ] Female

3. What is your level of education?

[ ] SSCE/WASSCE/O Level Certificate

[ ] Professional Certificate

[ ] Bachelor's Degree

[ ] Master's Degree

4. Please, do you have any experience with NGO?

[ ] Yes

[ ] No

5. How long have you worked with this organisation?

[ ] 1 year

[ ] 2 years

[ ] 3 years

[ ] over 4 years

6. What is your position in the organisation?

[ ] Director

[ ] Programmes Manager

[ ] Project Manager/Officer

[ ] Administrative Manager

[ ] Communication and Dissemination Manager

[ ] Procurement Officer

[ ] Field Worker