**ASSESSMENT OF THE IMPACT OF WORK ENVIRONMENT ON THE PRODUCTIVITY OF CONSTRUCTION SKILLED WORKERS**

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**Abstract**

Management has a great effect on the job-site performance of construction skilled workers. This paper discusses "An assessment of the impact of work environment on the construction skilled workers in Imo State, Nigeria. It was carried out with the aim of assessing the efficiency and productivity of skilled workers on construction environment. The questionnaires and field approach was the method of study used. Data for the study were collected through secondary and primary sources and were analyzed by means of simple percentage, severity Index (likert scale) and productivity formula. The study found that certain groups of skilled workers are more productive on public construction work environment while others are more productive on private construction work environment. The study also found out that the percentage agreement between public and private skilled workers in the ranking of productivity improvement factors on construction work environment is very low (16.67%). The study equally identifies and documented productivity improvement factor of skilled workers on building construction site.

**CHAPTER ONE**

**INTRODUCTION**

* 1. **Background of the study**

The Employees’ productivity is the heart and soul’ of any organization. Any successful business knows much of its success is due to diligent workers with excellent productivity. Employees who put forth extra effort often make a big difference in company profits. The employees who do only what the job duties require, and no more, can stymie the progress of a company. Increasing productivity is one of the most critical goals in business. Unfortunately, it’s an activity seldom accepted by Human Resource professionals as a legitimate mandate. While most Human Resource professionals acknowledge that their job entails establishing policy, procedures, and programs governing people management, few attempt to connect such elements to increasing employee output (volume, speed, and quality) in terms of revenue per employee. It is important to motivate all employees to reach their full potential and maximal their level of productivity. Companies that recognize and encourage increased productivity are likely to be more successful than their counterparts that don't (Sahay, 2005). Kauno (2005) says productivity is important because it allows the business to be more cost effective. The more output a business has for a specific cause, the cheaper it is to produce the product. This in turn allows the business to have a higher profit. Productivity on the part of employees is important because getting your job done will help the company's growth. If the company grows and progresses, profits will increase. If profits in the company increase, not only will the bosses be happier but they will hire more people and give raises to those doing a good job and increase benefits for them. If employees are shareholders in the company they will win even more benefits since their shares will be worth more and they will have a nice nest egg when they retire. Productivity is good for everyone and important for a company's survival Kreitner and Kinicki (2007) stated, “Perception is a cognitive process that enables us to interpret and understand our surroundings”. When employees are evaluating their roles in the workplace, their perceptions of these roles may lead to either an increase or decrease productivity. Whether they develop positive or negative perceptions of their roles in the workplace may lead them to feel valuable, like the make a difference in the workplace, or invaluable and unimportant to the workplace. These varying perceptions are an extremely important concept for managers to understand in order to keep production up and even increase productivity. Managers must not only understand employees’ perceptions of their roles in the workplace, they must also be able to recognize the significance of these perceptions in order to meaningfully interact with employees and encourage them, therefore increasing overall productivity (Kreitner & Kinicki, 2010). Ever since the dawn of civilization, man has indulged in some form of construction activity. In most countries, construction activity constitutes 6-9% of the gross domestic product (GDP) and more than half of the fixed capital formation as infrastructure and public utilities required for economic development (Chitkara, 2009). Like most developing countries such as Saudi Arabia, Libya and Malaysia, a major criticism faced by the Nigerian construction industry is the growing rate of delay in project delivery (Assaf, Alkhalil and Al-Hazmi, 1995; Saleh, 2009 and Yong, 1988). Majority of the construction projects in Nigeria experience delays which in turn lead to disputes, arbitration, litigation and sometimes the total abandonment of the project. In construction, the term “delay” refers to something happening at a later time than planned, expected and specified in a contract or beyond the date agreed upon for the delivery of a project (Pickavance, 2005). Research has shown that timely delivery of projects within budget and to the level of quality standard specified by the client is an index of successful project delivery (Chan and Kumaraswamy, 1994). The investigation of Odeyinka and Yusuf (1997) shows that seven out of ten projects surveyed in housing projects in Nigeria suffered delay in their execution. Construction industry in Nigeria is faced with a lot of problems, among which is delay in project execution. It has been researched, that delay is a major setback in the construction industry in Nigeria. The problem of delays in the construction industry is a global phenomenon. In Nigeria, it was observed that the performance of the construction industry in terms of time was poor. . Chan and Kumaraswamy [1997] studied delays in Hong Kong construction industry. They emphasized that timely delivery of projects within budget and to the level of quality standard specified by the client is an index of successful project delivery. Failure to achieve targeted time, budgeted cost and specified quality result in various unexpected negative effects on the projects Normally, when the projects are delayed, they are either extended or accelerated and therefore, incur additional cost. The normal practices usually allow a percentage of the project cost as a contingency allowance in the contract price and this allowance is usually based on judgment. The award of the civil aspect of the Bonny NLNG construction project in 1996 to Julius Berger Nigeria Plc. necessitated the extension of the company’s activities to Bonny Island and the employment of many individuals for the project execution. Since the individuals have diverse backgrounds and culture their interests, goals and values may not be compatible with that of the organization hence conflict may arise. The word conflict brings to mind images such as antagonism, struggles between parties, opposition processes and threats to cooperation. But not all conflicts come in these forms especially in the construction industry. They come in form of needs to be met or desires to be satisfied, disagreements to be settled and ideas to be shared that eventually lead to change of attitudes, feelings and perceptions. Fadipe (2000) sees conflict as a form of disagreement in an establishment between two individuals or groups who have cause to interact formally or informally. Similarly, Miller and King (2005), see it as basically a disagreement between two or more individuals or groups over compatible goals. Conflict therefore is a process of incompatible behaviours. It may involve the interference or disruption by one person or group of persons, or in some way or ways which make another action less likely to be effective. According to Deutsch (1973), conflict inevitably means that people are working against each other, in such a manner that what one wants is incompatible with that which another wants. It could bring about competition in the pursuit of goals. What the competitor gets comes at the expense of others or the job. It is therefore counterproductive, disruptive, unnatural, and produces a deviation from the free flow of events.

* 1. **STATEMENT OF THE PROBLEM**

Conflict emerges in an organization when an individual perceives that his goals are threatened or hindered by the activities of another person. Most conflicts in in Julius Berger Nigeria Plc. Bonny Island, arises from the inability of the company to fulfill its collective agreement with its employees resulting in employees embarking on industrial action which may be work-to-rule or total strike. Employees’ industrial action usually results in loss of man-hours, machine-hours, output, skilled personnel, employees’ morale and organizational reputation. Though, Julius Berger Nigeria Plc.has not been experiencing incessant labour unrest since its mobilization to Bonny Island in 1996, it becomes pertinent for an assessment of the impact of work environment on the productivity of construction skilled workers and employees performance from the perception of the managerial and non-managerial employees of the company.

* 1. **OBJECTIVE OF THE STUDY**

The main objective of the study is to assess the impact of work environment on the productivity of construction skilled workers. But to aid the successful completion of the study, the researcher intends to achieve the following specific objectives;

1. To ascertain the effect of conflict on work environment of construction workers
2. To ascertain the impact of work environment on the productivity of workers
3. To examine the relationship between work environment and employee productivity
4. To ascertain the role of management in creating a conducive working environment for construction workers
   1. **RESEARCH HYPOTHESES**

To aid the successful completion of the study, the following research hypotheses were formulated by the researcher

**H0:** conflict has no effect conflict on work environment of construction workers

**H1:** conflict has no effect conflict on work environment of construction workers

**H02:** work environment has no impact on the productivity of construction skilled workers

**H2:** work environment has impact on the productivity of construction skilled workers

* 1. **SIGNIFICANCE OF THE STUDY**

It is believed that at the completion of the study, the findings will be useful to the management of construction companies, as the findings will enable them create a peaceful and conflict free working environment for construction workers, the study will also be of importance to entrepreneur and intending entrepreneur as the findings of the study will enable them create a work friendly environment for the employee’s as this will enhanced profitability and general productivity. The study will also be useful to management, students lecturers, teachers and the general public as the study will contribute to the pool of existing literature on the subject matter, the study will also be useful to researchers who intends to embark on a study in a similar topic.

**1.6 SCOPE AND LIMITATION OF THE STUDY**

The scope of the study covers an assessment of the impact of work environment on the productivity of construction skilled workers. But in the cause of the study, there were some factors which limited the scope of the study;

**(a)Availability of research material:** The research material available to the researcher is insufficient, thereby limiting the study.

**(b)Time**: The time frame allocated to the study does not enhance wider coverage as the researcher has to combine other academic activities and examinations with the study.

**(c)Finance:** The finance available for the research work does not allow for wider coverage as resources are very limited as the researcher has other academic bills to cover

**1.7 OPERATIONAL DEFINITION OF TERMS**

**Contract**

A contract is a voluntary arrangement between two or more [parties](https://en.wikipedia.org/wiki/Party_(law)) that is enforceable by law as a binding legal agreement. Contract is a branch of the [law of obligations](https://en.wikipedia.org/wiki/Law_of_obligations) in jurisdictions of the [civil law](https://en.wikipedia.org/wiki/Civil_law_(legal_system)) tradition

**Construction**

Construction is the [process](https://en.wikipedia.org/wiki/Process_(disambiguation)) of constructing a [building](https://en.wikipedia.org/wiki/Building) or [infrastructure](https://en.wikipedia.org/wiki/Infrastructure). construction typically takes place on location for a known client.

**Construction workers**

A construction worker is a tradesperson, laborer, or professional employed in the physical construction of the built environment and its infrastructure

**1.8 Organization of the study**

This research work is organized in five chapters, for easy understanding, as follows Chapter one is concern with the introduction, which consist of the (overview, of the study), statement of problem, objectives of the study, research question, significance or the study, research methodology, definition of terms and historical background of the study. Chapter two highlight the theoretical framework on which the study its based, thus the review of related literature. Chapter three deals on the research design and methodology adopted in the study. Chapter four concentrate on the data collection and analysis and presentation of finding. Chapter five gives summary, conclusion and also recommendations made of the study.

**CHAPTER TWO**

**REVIEW OF RELATED LITERATURE**

**2.1 Introduction**

Nowadays the relationship between employees and employers may be seen upside down. Since there the number of job opportunities available for employees has been increasing in a growing worldwide economy, not just employees but also employers need to readjust themselves in order to cope up with the dynamics of business life. Therefore, HR executives need to consider new strategies for recruiting and retaining best fit talents for their organizations. Higher salaries and compensation benefits may seem the most likely way to attract employees. However, quality of the physical workplace environment may also have a strong influence on a company’s ability to recruit and retain talented people Some factors in workplace environment may be considered keys affecting employee’s engagement, productivity, morale, comfort level etc. both positively and negatively. Although convenient workplace conditions are requirements for improving productivity and quality of outcomes, working conditions in many organizations may present lack of safety, health and comfort issues such as improper lightening and ventilation, excessive noise and emergency excess. People working under inconvenient conditions may end up with low performance and face occupational health diseases causing high absenteeism and turnover. There are many organizations in which employees encounter with working conditions problems related to environmental and physical factors. Pech and Slade (2006) argued that the employee disengagement is increasing and it becomes more important to make workplaces that positively influence workforce. According to Pech and Slade the focus is on symptoms of disengagement such as distraction, lack of interest, poor decisions and high absence, rather than the root causes. The working environment is perhaps a key root causing employee’s engagement or disengagement. Another research indicates that improving the working environment reduces complaints and absenteeism while increasing productivity (Roelofsen, 2002).Wells (2000) states that workplace satisfaction has been associated with job satisfaction. In recent years, employees comfort on the job, determined by workplace conditions and environment, has been recognized as an important factor for measuring their productivity. This is particularly true for those employees who spend most of the day operating a computer terminal. As more and more computers are being installed in workplaces, an increasing number of businesses has been adopting ergonomic designs for offices and plant installations. Ergonomics, also called biomechanics, has become popular because of demand of workers for more human comfort. Many executives are under the mistaken impression that the level of employee performance on the job is proportional to the size of the employee’s compensation package. Although compensation package is one of the extrinsic motivation tool (Ryan andDeci, 2000) it has a limited short term effect on employees’ performance. A widely accepted assumption is that better workplace environment motivates employees and produces better results. Office environment can be described in terms of physical and behavioral components. These components can further be divided in the form of different independent variables. An organization’s physical environment and its design and layout can affect employee behavior in the workplace. Brill (1992) estimates that improvements in the physical design of the workplace may result in a 5-10 percent increase in employee productivity. Stallworth and Kleiner (1996) argue that increasingly an organization’s physical layout is designed around employee needs in order to maximize productivity and satisfaction. They argue that innovative workplaces can be developed to encourage the sharing of information and networking regardless to job boundaries by allowing communication freely across departmental groups. Statt (1994) argues that the modern work physical environment is characterized by technology; computers and machines as well as general furniture and furnishings. To achieve high levels of employee productivity, organizations must ensure that the physical environment is conducive to organizational needs facilitating interaction and privacy, formality and informality, functionality and cross-disciplinarily. Consequently, the physical environment is a tool that can be leveraged both to improve business results (Mohr, 1996) and employee well-being (Huang, Robertson and Chang, 2004). Ensuring adequate facilities are provided to employees, is critical to generating greater employee commitment and productivity. The provision of inadequate equipment and adverse working conditions has been shown to affect employee commitment and intention to stay with the organization (Weiss, 1999; Wise, Darling-Hammond and Berry, 1987) as well as levels of job satisfaction and the perception of fairness of pay (Bockerman and Ilmakunnas, 2006). From a safety perspective, Gyekye (2006) indicates that environmental conditions affect employee safety perceptions which impact upon employee commitment. Extensive scientific research conducted by Roelofsen (2002) has also yielded indications suggesting that improving working environment results in a reduction in a number of complaints and absenteeism and an increase in productivity. The indoor environment has the biggest effect on productivity in relation to job stress and job dissatisfaction. As suggested by Govindarajulu (2004), in the twenty-first century, businesses are taking a more strategic approach to environmental management to enhance their productivity through improving the performance level of the employees. It is evident in the research findings of Patterson et al., (2003) that the more satisfied workers are with their jobs the better the company is likely to perform in terms of subsequent profitability and particularly productivity. Sekar (2011) argues that the relationship between work, the workplace and the tools of work, workplace becomes an integral part of work itself. The management that dictate how, exactly, to maximize employee productivity center around two major areas of focus: personal motivation and the infrastructure of the work environment. (Sekar, C.(2011). There are various literature that defines different factors that influence the performance of the employees. Haynes (2008) explains the behavioral office environment behavioral components of the office environment that have the greatest impact on office productivity. In all of the work patterns, it was found that interaction was perceived to be the component to have the most positive effect on productivity, and distraction was perceived to have the most negative. As people are the most valuable resource of an organization, and that the management of people makes a difference to company performance (Patterson et al., 1997). The workplace environment factors which lead to engagement or disengagement. The factors encourage employees to communicate with each other in the workplace.

**2.2 CONSTRUCTION PROJECTS COST OVERRUNS**

Cost overruns are very common in the construction industry. Hardly few projects get completed within original costs. Al-Najjar defines cost overruns as the change in contract amount divided by the original contract award amount. However, Zhu and Lin states that cost overrun can be defined as excess of actual cost over budget. Cost overrun is also sometimes called cost escalation, cost increase or budget overrun. Memon, Rahman and Abdul Azis outlines that cost is among the major considerations throughout the project management life cycle and can be regarded as one of the most important parameters of a project and the driving force of project success. Olawale and Sun states that despite the availability of various control techniques and project control software many construction projects still do not achieve their cost objectives. Hence, despite its proven importance it is not uncommon to see a construction project failing to achieve its objectives within the specified cost. Park and Papadopoulou states that construction cost overruns mean negative publicity for the design team and loss of client confidence. The repercussions for contractors are similar as they see their profit margins shrink.

Lo, Fung and Tung,(2006) define delay as the slowing down of work without stopping construction entirely, which can lead to time over-run either beyond the contract date or beyond the date that project parties have agreed upon for the delivery of the project. Delay occurs in every construction project and the significance of this delay varies considerably from project to project. Although there are differences in perception of researchers on the causes of delay and its relative significance, extensive review of literatures shows that the causes of delay in the construction industry of developing economies can be classified into three:

1. Shortages or inadequacies in industry infrastructure, mainly supply of resources;
2. Problems caused by clients and consultants; and
3. Problems caused by incompetence of contractors (Ogunlana, Prokuntong, Jearrkjirm, 1996, Kumaraswamy and Chan, 1998 and Maura, teixeira and Pires, 2007).

In the same vein, Mansfield, Ugwu and Doran, (1994) addressed the causes of delays in Nigeria building projects. The important causes of delay identified by Mansfield et al. (1994) include: financing of and payment for completed works, poor contract management, changes in site condition and shortages in materials. Mezher and Tawil, (1998) conducted a survey on the causes of delays in the construction industry in Lebanon from the perspective of the clients, contractors and architectural/engineering firms. It was found that clients are more concerned with financial issues; contractors considered contractual relationships as the most important, while consultants considered project management issues as the major cause of delays. In evaluating the progress reports of 164 building and 28 highway projects constructed during the period of 1997 to 1999 in Jordan, Abdullah and Battaineh (2000) revealed that delay is extensive: with the average ratio of actual completion time to the planned duration being160.5% for road projects and 120.3% for building projects. AlMomani (2000) conducted a quantitative analysis of construction delays by examining the records of 130 public building projects constructed in Jordan between1990 and1997. The analysis showed that the main causes of delay in construction projects were designing, user changes, weather, site conditions, late deliveries, economic conditions and increases in quantities

**2.3 Conflicts in the construction industry**

A project can be conceived as a single continuum or recurring negotiations with multiple participants with varying concerns. A typical construction project involves a wide range of disparate professionals (clients, architects, structural engineers, contractors, etc.,), in many cases geographically distributed, and working together for a relatively short period of time on the design and construction of a facility. Since organizations are becoming flatter, culturally richer, geographically diverse and intensely competitive, the possibilities for conflict in such environments are greater and project managers must have sufficient competencies to lead in such situations. There are different views on conflict and the causes that originate it. Levinson describes conflict as a dispute over resources, whereas other authors believe that conflicts are either interpersonal (affective) or task/goal oriented (substantive). Interpersonal conflicts are clearly more intractable than task/goal conflicts and can lead to imbedded friction. Rahim contends that interpersonal conflict diminishes group loyalty, commitment, job satisfaction, and intention to stay in the organization. Jehn and Rahim suggest that while task/goal conflict may enhance performance under certain circumstances, the downsides are the same as for interpersonal conflicts. Conflict can arise from several causes such as cross-cultural differences. Many authors argue that cross-cultural training is a very strong mediator for avoiding and diminishing destructive conflict. Another method for reducing differences in crosscultural conflict and to help to educate people in the richness of diversity is the use of metaphors and stories. There is a limited coverage of conflict management and negotiation in the standards for project management. The Australian National Competency Standard for Project management, one of the most widely recognized and referenced project management standards based on the nine areas of the American Body of Knowledge, focuses on the mechanisms of communication within a project but the only reference to negotiation is that of contract negotiation. Conflict is covered in greater detail, with the establishment of procedures for conflict resolution, the management of inter and intra project conflict, the reduction of client conflict, management of the resolution of contract conflict and the escalating of conflict issues to senior personnel. According to Hudson et al, conflict management competencies include: reducing conflicts within project teams, not hiding or avoiding conflict but facilitating resolution, identifying the social behavior reflected in conflict situations, supporting the creation of healthy argumentative cultures, and being able to find consensus with others, aiming for win-win situations, and reacting coolly to personal attacks and forgiving such attacks. Part of any project manager’s role as a leader is to recognize conflict, understand the sources of conflict and manage it, and to do this a project manager must be able to understand the basics of negotiation theory. Negotiation is an important aspect of a project and plays an important role in resolving claims, preventing disputes, and keeping a harmonious relationship between project participants. In a multi-person decision- making process when there are a number of decision-makers involved in choosing a single alternative from a set of possible alternatives, multiple disciplines and teamwork, different concerns caused by different preferences, experiences and background, negotiation plays an important role for multi-person decision-makers to select unfinished projects that will be continued, postponed or terminated. Negotiation is the process of joint decision-making. It is communication, direct or tacit, formal or informal, between individuals who are motivated to converge on an agreement for mutual benefit. According to Raiffa et al, the basic structure of negotiations in different contexts is fundamentally the same and all negotiation situations share four common characteristics:

(i) there are two or more parties;

(ii) the parties can be creative and cooperate to arrive at a joint decision;

(iii) the payoffs to any party depend either on the consequences of the joint decision or alternatives external to the negotiations;

(iv) the parties can reciprocally and directly exchange information, honest or not. It is widely admitted that a client and a contractor face significant difficulties in negotiating major projects. These major projects entail hundreds of issues and a multitude of implicit and explicit interests resulting in substantially complex negotiations between the client and contractor. However, project negotiations are not confined to the planning oriented phase culminating in contract signing. Serious bargaining often commences only after an initial settlement is reached and the most arduous negotiations are typically conducted during or after implementation. Most project managers consider negotiation as the most time-and energy-consuming activity in claim management. In addition, claim negotiation is commonly inefficient due to the diversity of intellectual background, many variables involved, complex interactions, and inadequate negotiation knowledge of project participants. To address the complex technical and human issues in negotiation, different negotiation theories and models are available which mainly include game theory, economic theory, and behavior theory. Game theory is divided into two approaches, the axiomatic approach and the strategic approach. Under the latter, approach game theorists treat economic theory as a part of game theory. On the other hand, negotiation theorists usually distinguish game theory (mainly referring to the axiomatic approach) from economic theory. Game theory seeks to get to the essence of decision-making and the associated strategies in situations where two or more parties are interdependent, and where the outcome of their conflict and competition must be the product of their joint requirements and the interaction of their separate choices. All the players in games are assumed to be rational, try to maximize their own utilities, and have complete information on the payoff function and utility function. In contrast to the classical game theory approach, in economic theory there is no concern for the discovery of once-and-for-all strategies, but rather an intention to examine how the bargainers should interact in terms of their expectations of each other. Economic models analyze the processes through which the demands of the participants converge in the course of offers and counteroffers toward some specific point on the contract curve. In behavior theory, much attention is given to the nature of changing expectations and negotiators’ tactics, and to the significance of uncertainties of information, perception and evaluation, all matters that tend to be ignored by game theory and economic theory. Behavior theory attempts to analyze the negotiation processes in which negotiators influence each other’s expectations, perceptions, assessments, and decisions during the search of an outcome.

**2.4 WORKING ENVIRONMENT**

An attractive and supportive work environment can be described as an environment that attracts individuals into the health professions, encourages them to remain in the health workforce and enables them to perform effectively. The purpose of providing attractive work environments is to create incentives for entering the health professions (recruitment) and for remaining in the health workforce (retention). In addition, supportive work environments provide conditions that enable health workers to perform effectively, making best use of their knowledge, skills and competences and the available resources in order to provide high-quality health services. This is the interface of the work environment and quality of care. Working environment can be divided into two components namely physical and behavioral components. The physical environment consists of elements that relate to the office occupiers‟ ability to physically connect with their office environment. The behavioral environment consists of components that relate to how well the office occupiers connect with each other, and the impact the office environment can have on the behavior of the individual. According to Haynes (2008), the physical environment with the productivity of its occupants falls into two main categories office layout (openplan verses cellular offices) and office comfort (matching the office environment to the work processes), and the behavioral environment represents the two main components namely interaction and distraction. These components can further be divided in major attributes and operationalized in the form of different independent variables. These variables will be used for analysis of their impact on dependant variable. It is generally understood that the physical design of offices and the environmental conditions at work places are important factors in organizational performance. The empirical research by Stall has also shown that when human needs are considered in office design, employees work more efficiently. One survey conducted by Brill in particular has suggested that improvements in the physical design of office buildings may result in a 5-10 percent increase in productivity and eventually increase performance. Other studies have examined the effect of physical work environment on workers‟ job satisfaction, performance, and health. For example Scott, (2000) reported that working conditions associates with employees‟ job involvement and job satisfaction. Strong et al (1999) in a study observed that social, organizational and physical context serve as the impetus for tasks and activities, and considerably influence workers‟ performance. Researches on quality of work life have also established the importance of safe and healthy working conditions in determining employees‟ job performance. The influence of working environment, which is mostly composed of physical, social and psychological factors, has been extensively examined in past two decades. In a number of studies, employees‟ motivation, job satisfaction, job involvement, job performance, and health have been found to be markedly influenced by psycho-social environment of work organization. According to Franco performance relies on internal motivation but presence of internal factors such as necessary skills, intellectual capacity and resources to do the job clearly have an impact. As a consequence employers are supposed to provide appropriate working conditions in order to make sure the performance of employees meet the required standards

**2.5 EMPLOYEE PRODUCTIVITY**

The origin of productivity management is deeply rooted in the context of mass production therefore issues of productivity are mainly analyzed in this sphere. This may be the main reason for the prolonged neglect of the productivity issues in the sphere of service. Service organizations are recognized as the largest and fastest-growing segment of the economy in the world (Sahay, 2005). Productivity shows whether the activity of an organization is efficient and effective. Though the terms like productivity, efficiency and effectiveness are used together and practicians sometimes alternate their meanings, however we must not identify productivity with efficiency and/or effectiveness. Productivity requires both efficiency and effectiveness, because a certain activity will not be productive if it is only efficient, but not effective, or effective, but not efficient (Koss, 1993). Organizations that deliver service must broaden their examination of productivity from the conventional organization-oriented perspective, including employee productivity to a dual organization – customer perspective. This broadened approach can help reconcile conflicts between improving service quality and boosting productivity (Sahay, 2005). According to Parasuraman (2002), customers are often involved into activity of an organization providing some amount of input in the form of time, physical effort and mental energy. Employee productivity is the amount of goods and services that an employee produces in a given amount of time. It is one of several types of productivity that economists measure. It can be measured for a firm, a process, an industry, or a country. It is often referred to as labor productivity because it was originally studied only with respect to the work of laborers as opposed to managers or professional. It refers to the utilization of available, scarce resources to give maximum output. “A poor supervisor is definitely the No. 1 factor that causes low productivity,” (Barry 2007), Employees who do not have a direct connection with the company begin to lose all the reasons for wanting to do that little bit extra and take the additional time to make something right.” Happy employees are productive employees. Negative attitudes can torpedo employee productivity in a very short time. “An employee with a positive attitude usually enjoys the work that they do and feels empowered and recognized for their contributions,” said Henning. “An employee that is complacent and does not really enjoy their work, but is simply there for a paycheck usually does not produce at a high level, develops a bad attitude and generally drags a team down”.

**2.6 THEORETICAL REVIEW**

This theory adopted the game theory since game theory may provide, by its very nature, the appropriate tools for the analysis and eventual solution of conflicts of any kind in the construction industry, this paper adopts the negotiation theorist’s approach. Game theory, defined as the study of mathematical models of conflict and cooperation between intelligent rational decision-makers, has the potential to address some of the problems facing the construction industry within a collaborative framework. In construction projects, conflicts among builders and owners are very common, particularly in a bidding or claiming situation, and game theory is a natural tool that can be used to analyze the situation systematically. Game theory focus on strategic interaction and conflict providing a way to think about the conflicting structure of collective decision making processes. In project management, game theory is still in the beginning of its practical applications. Branzei et al. proposed two coalitional games related to delay cost sharing problems to determine fair shares for each of the agents who contribute to the delay of a project so that the total delay cost is clear. Bergantinos and Sanchez introduced a nontransferable utility game associated to the Program and Evaluation review Technique (PERT) problem to divide the floats of time among the different activities. In a second paper, Bergantinos and Sanchez presented two different approaches, one based on serial cost sharing problems and the other in game theory, to distribute the cost caused by the delay of a project among the firms which are responsible for it. Estevez-Fernandez et al. [38] analyzed both delayed and expedited problems where the penalty (reward) function is proportional with respect to the total delay (expedition) of the project. In a second paper, Estevez-Fernandez analyzed project problems with arbitrary but non-decreasing penalty and rewards functions taking into account whether an activity could be started before its planned starting time. San Cristobal applied the Shapley value to the fair allocation of gains obtained by cooperation among several firms carrying out a vessel drydocking who form a coalition to expedite the project. In a broad sense, game theory can be classified into two categories: non-cooperative game approaches, where a decision-making unit treats the others as competitors, and cooperative approaches where a group of decision-makers decide to undertake a project together in order to achieve their joint business objectives. In game theory, individuals or groups become players when their respective decisions, coupled with the decisions made by other players, produce an outcome. The options available to players to bring about particular outcomes are called strategies. Strategies are linked to outcomes by a mathematical function that specifies the consequences of the various combinations of strategy choices by all of the players in a game. A coalition refers to the formation of sub-sets of players' options under coordinated strategies

**2.7 FACTORS INFLUENCING EMPLOYEE PRODUCTIVITY**

Knowing what factors influence productivity is a prerequisite to improving performance. Over the years, researchers have found that productivity is affected by relatively few influencers, and workers are generally aware of what those influencers are (Armstrong, 2006; Clawson & Newburg, 2005; Hankin, 2004; Newstrom & Bittel, 2002; Williams, 2003). Identification of the specific productivity limiters operative in a workplace can yield opportunities for significant productivity gains in the organizations. 2.3.1 Reward and Motivation Rewards for employees act as a source of motivation. Motivated employees work harder. These rewards could be in form of good package, favourable working conditions, review of wages and salaries to promote efficiency. Employees who lack promotion prospects tend to feel unvalued by the Organization which leads to frustrations and eventually low output. According to Armstrong and Murlis (2004) reward management is concerned with the formulation and implementation of strategies and policies that aim to reward people fairly, equitably and consistently in accordance with their value to the organisation. It deals with implementation and maintenance of reward processes and practices that are geared to the improvement of Organizational, team and individual performance. According to Koretz (1995), it is good to create total reward processes that are based on beliefs about what the organization values and wants to achieve, reward staff for the value they create, support the development of performance culture, develop a positive employment of a performance culture and facilitate the attraction and retention of the skilled and competent staff the organization needs, thus develop a positive employment relationship and psychological contract. Reward does not only mean monetary but also nonfinancial rewards like words of affirmation, incentives scheme, recognition, increased responsibility and the opportunity to achieve and grow. All organizations are concerned with what should be done to achieve sustained high levels of performance through the efforts of people. This means giving close attention to how individuals can best be motivated through such means as incentives, rewards, leadership and, importantly the work they do and the organization context within which they carry out that work (working environment). The aim is to develop motivation processes and a work environment that will help to ensure that individuals deliver results in accordance with the expectations of management. Motivation theories explain not only why people behave the way they do in their work places in terms of their efforts and the directions they are taking but also describes what organizations can do to encourage people to apply their efforts and abilities in ways that will further the achievement of the organization’s goals as well as satisfying their own needs. However, it is absolutely wrong for an organization to assume that one approach to motivation fits all the staff. This is because people have different needs and establish different goals to satisfy those needs. According to Arnold, Robertson and Cooper (1991), there are three components of motivation. Direction – what a person is trying to do, Effort – how hard a person is trying and Persistence – how long a person keeps on trying. Motivating other people is about getting them move in the direction you want them to go in order to achieve a result. Motivation according to Michael Armstrong (2002), can be described as goaldirected behavior. According to McGraw (2003) Motivation is a set of attitudes that predisposes a person to act in an inner state that energizes, channels and sustains human behavior to achieve goals. Work motivation is concerned with that attitude that channels a person’s behavior toward work and away from recreation or other areas of life. The motivation to work is likely to change as other life activities change. A number of theories have attempted to explain work motivation. The theories differ in their assumptions about how rational people are and about the degree to which the conscious and the unconscious mind direct behavior. Most of these memories have received some research support, but none has been overwhelmingly substantiated. A manager who can determine what the work motivations of the employees are, will make more effective human resource management decisions. For employees who appear to be work oriented and motivated toward working hard, incentive compensation system will lead to higher productivity and higher quality of work. Those who are consciously motivated to do a better job benefit from performance evaluation techniques such as management by objectives. Motivation is within a person and a manager must infer the individual’s motivation or level of motivation, from his or her behavior. According to Maslow (1954) hierarchy of needs human needs operate at a number of different levels, from basic physiology needs such as hunger, to higher-level needs such as self –development and self-fulfillment. Motivating your staff is an essential part of the job of managing people. Recognition can be an important element of motivation. How a person performs in the future will often be influenced by feedback on the way in which they have performed in the past. By acknowledging the achievements of your staff, and ensuring that they have as much information as possible about the work they do and what is required to do it better, you should be able to increase their motivation to perform well. The working environment in RIDA is quite friendly and warm. It gives workers desire to continue working. However the workers sometime complain of delayed salary payments, lack of essential benefits like medical cover and lack of overtime compensation. This makes the staff concerned to be less efficient hence low productivity. It also contributes to lack of commitment strategy by the entire staff fraternity. According to Arthur (1990, 1992, 1994) firms with a high commitment strategy have significantly higher levels of both productivity and quality than those with a control strategy.

**Participation in decision making**

An environment that lacks employee ‘voice’ is not very healthy for the workers. This is when they are given an opportunity to have a say in management decisions that affect them and their working conditions. A saying goes, ‘if you do it for us without us, then you are doing it against us’. If you implement some change without the input of the employees, no matter how beneficial it is to them, they are likely to feel that you don’t mean well of their welfare. Role ambiguity, lack of involvement in decision-making, Role ambiguity fails to restrict respective employees in their specific assignment therefore gives birth to abnormal idle time hence low efficiency. Low efficiency subsequently causes low productivity in the long run. Koretz (1995) cited three key productivity factors: “inadequate supervision and employee involvement in decision-making, too much work, and insufficient rewards and chances to advance”. Leonard (2000) noted surveys indicating that less organizational bureaucracy, a greater sense of purpose, clear goals, and being able to see results were essential to productivity.

**Job satisfaction**

According to Michael Armstrong (2006), the term ‘job satisfaction’ refers to the attitude and feelings people have about their work. Positive and favourable attitudes towards the job indicate job satisfaction. Negative and unfavourable attitudes towards the job indicate job dissatisfaction. The level of job satisfaction is affected by intrinsic and extrinsic motivation factors, the quality of supervision, social relationships with the work group and the degree to which individual succeed or fail in their work. If the Human Resource department does not fully and clearly decide on the content and performance and competency requirements of jobs and roles in order to provide a basis for performance, development and reward, then even those who perform well may feel discouraged due to failure to reward them and so there is no maximizing of intrinsic motivation and job satisfaction.

**CHAPTER THREE**

**RESEARCH METHODOLOGY**

* 1. **Research design**

The researcher used descriptive research survey design in building up this project work the choice of this research design was considered appropriate because of its advantages of identifying attributes of a large population from a group of individuals. The design was suitable for the study as the study sought to examine the impact of work environment on the productivity of construction skilled workers.

* 1. **Sources of data collection**

Data were collected from two main sources namely:

(i)Primary source and

(ii)Secondary source

**Primary source:**

These are materials of statistical investigation which were collected by the research for a particular purpose. They can be obtained through a survey, observation questionnaire or as experiment, the researcher has adopted the questionnaire method for this study.

**Secondary source:**

These are data from textbook Journal handset etc. they arise as by products of the same other purposes. Example administration, various other unpublished works and write ups were also used.

* 1. **Population of the study**

Population of a study is a group of persons or aggregate items, things the researcher is interested in getting information on the study assessment of the impact of eork environment on the productivity of construction skilled workers. 200 staff of construction companies in Lagos state was selected randomly by the researcher as the population of the study.

* 1. **Sample and sampling procedure**

Sample is the set people or items which constitute part of a given population sampling. Due to large size of the target population, the researcher used the Taro Yamani formula to arrived at the sample population of the study.

n= N

1+N(e)2

n= 200

1+200(0.05)2

= 200

1+200(0.0025)

= 200 200

1+0.5 = 1.5 = 133.

**3.5 Instrument for data collection**

The major research instrument used is the questionnaires. This was appropriately moderated. The secretaries were administered with the questionnaires to complete, with or without disclosing their identities. The questionnaire was designed to obtain sufficient and relevant information from the respondents. The primary data contained information extracted from the questionnaires in which the respondents were required to give specific answer to a question by ticking in front of an appropriate answer and administered the same on staff of the two organizations: The questionnaires contained about 16 structured questions which was divided into sections A and B.

* 1. **Validation of the research instrument**

The questionnaire used as the research instrument was subjected to face its validation. This research instrument (questionnaire) adopted was adequately checked and validated by the supervisor his contributions and corrections were included into the final draft of the research instrument used.

* 1. **Method of data analysis**

The data collected was not an end in itself but it served as a means to an end. The end being the use of the required data to understand the various situations it is with a view to making valuable recommendations and contributions. To this end, the data collected has to be analysis for any meaningful interpretation to come out with some results. It is for this reason that the following methods were adopted in the research project for the analysis of the data collected. For a comprehensive analysis of data collected, emphasis were laid on the use of absolute numbers frequencies of responses and percentages. Answers to the research questions were provided through the comparison of the percentage of workers response to each statement in the questionnaire related to any specified question being considered.

Frequency in this study refers to the arrangement of responses in order of magnitude or occurrence while percentage refers to the arrangements of the responses in order of their proportion.

The simple percentage method is believed to be straight forward easy to interpret and understand method.

The researcher therefore choose the simple percentage as the method to use.

The formula for percentage is shown as.

% = f/N x 100/1

where f = frequency of respondents response

N = Total Number of response of the sample

100 = Consistency in the percentage of respondents for each item contained in questions.

**CHAPTER FOUR**

**PRESENTATION ANALYSIS INTERPRETATION OF DATA**

**4.1 Introduction**

Efforts will be made at this stage to present, analyze and interpret the data collected during the field survey. This presentation will be based on the responses from the completed questionnaires. The result of this exercise will be summarized in tabular forms for easy references and analysis. It will also show answers to questions relating to the research questions for this research study. The researcher employed simple percentage in the analysis.

**DATA ANALYSIS**

The data collected from the respondents were analyzed in tabular form with simple percentage for easy understanding.

A total of 133(one hundred and thirty three) questionnaires were distributed and 133 questionnaires were returned.

Question 1

Gender distribution of the respondents.

TABLE I

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Gender distribution of the respondents** | | | | | |
| Response | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Male | 77 | 57.9 | 57.9 | 57.9 |
| Female | 56 | 42.1 | 42.1 | 100.0 |
| Total | 133 | 100.0 | 100.0 |  |

From the above table it shows that 57.9% of the respondents were male while 42.1% of the respondents were female.

Question 2

The positions held by respondents

TABLE II

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **The positions held by respondents** | | | | | |
| Response | | Frequency | Percent | Valid Percent | Cumulative Percent |
| **Valid** | Contractors | 37 | 27.8 | 27.8 | 27.8 |
| Site managers | 50 | 37.6 | 37.6 | 65.4 |
| Site engineer | 23 | 17.3 | 17.3 | 82.7 |
| Laborers | 23 | 17.3 | 17.3 | 100.0 |
| Total | 133 | 100.0 | 100.0 |  |

The above tables shown that 37 respondents which represents 27.8% of the respondents are contractors, 50 respondents which represents 37.6 % are site managers, 23 respondents which represents 17. 3% of the respondents are site engineers, while 23 respondents which represents 17.3% of the respondents are movie laborers.

**TEST OF HYPOTHESES**

conflict has no effect conflict on work environment of construction workers.

**Table III**

|  |  |  |  |
| --- | --- | --- | --- |
| **conflict has no effect conflict on work environment of construction workers** | | | |
| Response | Observed N | Expected N | Residual |
| Agreed | 40 | 33.3 | 6.8 |
| strongly agreed | 50 | 33.3 | 16.8 |
| Disagreed | 26 | 33.3 | -7.3 |
| strongly disagreed | 17 | 33.3 | -16.3 |
| Total | 133 |  |  |

|  |  |
| --- | --- |
| **Test Statistics** | |
|  | conflict has no effect conflict on work environment of construction workers |
| Chi-Square | 19.331a |
| Df | 3 |
| Asymp. Sig. | .000 |
| a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 33.3. | |

Decision rule:

There researcher therefore reject the null hypothesis that state that conflict has no effect conflict on work environment of construction workers as the calculated value of 19.331 is greater than the critical value of 7.82

Therefore the alternate hypothesis is accepted that state that conflict has no effect conflict on work environment of construction workers.

**TEST OF HYPOTHESIS TWO**

work environment has no impact on the productivity of construction skilled workers

Table V

|  |  |  |  |
| --- | --- | --- | --- |
| **work environment has no impact on the productivity of construction skilled workers** | | | |
| Response | Observed N | Expected N | Residual |
| Yes | 73 | 44.3 | 28.7 |
| No | 33 | 44.3 | -11.3 |
| Undecided | 27 | 44.3 | -17.3 |
| Total | 133 |  |  |

|  |  |
| --- | --- |
| **Test Statistics** | |
|  | work environment has no impact on the productivity of construction skilled workers.. |
| Chi-Square | 28.211a |
| Df | 2 |
| Asymp. Sig. | .000 |
| a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 44.3. | |

Decision rule:

There researcher therefore reject the null hypothesis that state that work environment has no impact on the productivity of construction skilled workers as the calculated value of 28.211 is greater than the critical value of 5.99

Therefore the alternate hypothesis is accepted that state that work environment has impact on the productivity of construction skilled workers.

**CHAPTER FIVE**

**SUMMARY, CONCLUSION AND RECOMMENDATION**

**5.1 Introduction**

It is important to ascertain that the objective of this study was on assessment of the impact of work environment on the productivity of construction skilled workers.

In the preceding chapter, the relevant data collected for this study were presented, critically analyzed and appropriate interpretation given. In this chapter, certain recommendations made which in the opinion of the researcher will be of benefits in addressing the challenges of work environment in construction sector

**5.2 Summary**

The study has discussed work environment on the productivity of construction skilled workers, management and employee’s performance in Julius Berger Nigeria Plc. It assumes that integration of all stakeholders’ interests will go a long way in reducing conflicts in organizations and enhancing employees’ performance. It is based on the democratic conflict management strategy. The three major findings of the research are as follows: Conflict management strategies in place at Julius Berger Nigeria Plc. have been relatively useful in minimizing the incidence of disruptive conflicts. There is a significant relationship between conflict management strategies and employees’ performance in Julius Berger Nigeria Plc. Bonny Island. There is a significant relationship between managerial and non-managerial employees perception of the effectiveness of conflict management strategies in Julius Berger Nigeria Plc.

**5.3 Conclusion**

The research is investigated dimensions of workplace environment in terms of physical as well as behavioral components. , survey results show that while the employees are unhappy with the physical conditions of the workplace, they have remarkable satisfaction with the workplace by having strong behavioral workplace conditions. According to the survey results it is proven that workplace environment affects employee performance but behavioral workplace environment has greater effect on employees’ performance.

**5.4 Recommendations**

Haven completed the study, the following recommendations were made by the researcher;

Entrenchment of Industrial Democracy: Julius Berger management in should create room for equal participation of employees of all categories in resolution of trade disputes.

Regular employees/management meetings: Employees/management meetings should be conducted on regular basis to identify and resolve labour/management issues that could result in labour unrest.

Strict implementation of collective agreement issues: Julius Berger management should strictly implement agreements it reached with labour unions.

Establishment of additional communication channels: Management should create additional channels of communication with employees as means of obtaining prompt feedback on organizational policies.

Regular review of personnel policies: Julius Berger management should regularly review their personnel policies to eliminate clauses that could trigger labour unrest.

Regular training of employees: Julius Berger management should embark on regular training of its employees to eliminate ignorance and reduce areas of friction between labour and management and eliminate unnecessary labour unrest.

Fair remuneration of employees: Julius Berger management should fairly compensate their employees for their efforts so as to reduce dissatisfaction among the workforce.

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**QUESTIONNAIRE**

**INSTRUCTION**

Please tick or fill in where necessary as the case may be.

Section A

1. Gender of respondent

A male { }

B female { }

1. Age distribution of respondents
2. 15-20 { }
3. 21-30 { }
4. 31-40 { }
5. 41-50 { }
6. 51 and above { }
7. Marital status of respondents?
8. married [ ]
9. single [ ]
10. divorce [ ]
11. Educational qualification off respondents
12. SSCE/OND { }
13. HND/BSC { }
14. PGD/MSC { }
15. PHD { }

Others……………………………….

1. How long have you been in in construction sector?
2. 0-2 years { }
3. 3-5 years { }
4. 6-11 years { }
5. 11 years and above……….
6. Position held by the respondent in Julius Berger?
7. HRM { }
8. managers { }
9. senior staff { }
10. Junior staff { }
11. How long have you been working in Julius Berger?
12. 0-2 years { }
13. 3-5 years { }
14. 6-11 years { }
15. 11 years and above……….

SECTION B

1. Does HRM play any role in ensuring a favorable working environment?
2. Agrees { }
3. Strongly agreed { }
4. Disagreed { }
5. Strongly disagreed { }
6. Is there any means of eradicating conflict in our work environment?

(a) Agrees { }

(b) Strongly agreed { }

(c) Disagreed { }

(d) Strongly disagreed { }

1. Is there adequate health and safety practices in the organization?
2. Agreed { }
3. Strongly agreed { }
4. Disagreed { }
5. Strongly disagreed { }
6. Does conflict has any effect on the work environment of construction workers?
7. Agreed { }
8. Strongly agreed { }
9. Disagreed { }
10. Strongly disagreed { }
11. Does work environment has any impact on the productivity of workers?
12. Agreed { }
13. Strongly agreed { }
14. Disagreed { }
15. Strongly disagreed { }
16. Is there any relationship between work environment and employee productivity?
17. Agreed { }
18. Strongly agreed { }
19. Disagreed { }
20. Strongly disagreed { }
21. Does management play any role in creating a conducive working environment for construction workers?
22. Agreed { }
23. Strongly agreed { }
24. Disagreed { }
25. Strongly disagreed { }
26. work environment has impact on the productivity of construction skilled workers?
27. Agreed { }
28. Strongly agreed { }
29. Disagreed { }
30. Strongly disagreed { }
31. conflict has no effect conflict on work environment of construction workers?
32. Agreed { }
33. Strongly agreed { }
34. Disagreed { }
35. Strongly disagreed { }