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# Ergonomics Awareness: An Exploratory Study

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**ABSTRACT:** The study examined the effects of ergonomics on employee performance by ascertaining the level of ergonomics awareness in Nigerian organizations, identifying the factors hindering the use of ergonomic, and the best practices and methods adopted by various organizations across industries. Despite the knowledge of importance to a growing number of researchers in Nigeria, there is still a dearth in knowledge of ergonomics design and its implementation in Nigeria. This can be observed in the low level of its adoption. The study adopted an exploratory approach through the review of literature. It was seen that several factors have hindered the efficient implementation of ergonomics in Nigeria which ranges from awareness, insufficient relevant studies, personnel considerations, resources constraints, technological changes, communication and integration disconnection between employees and equipment designers.

**KEYWORDS:** Ergonomics Awareness, Frame work, Human Factors

## I. INTRODUCTION

Employees are one of the most important tools of any organization in general (Gabčanová, 2011:2) and project organizations in particular as the quality of output of the organisation depends largely the caliber of the people working therein (Golden, 2011; Heskett, 2006; International Labour Organization, 2011). With positive and creative contributions from employees, the quality of the output of an organization can give an immense competitive advantage over their competitors. To achieve this in the present day competitive environment, management will need to take some strategic decisions to improve the performance of its human assets (Gabčanová, 2011:4). One of these decisions is to develop a work system that will fit job to an employee, rather than the employee to the job (Computer/Electronic Accommodations Program, 2012). This innovative management strategic decision is known as ergonomics (human factors). It involves the scientific use of human data to design a workstation, work center, or working environment to create a job friendly environment for individual employee.

This is to improve the wellbeing, safety and efficiency of workers by fitting the environment to them and not the other way around (Ergo Squad, 2012). It also improves the flow of work within an organization. For example, most organizations like Lagos State University (LASU) do order for furniture fittings with uniform size without regard to the anthropomorphic data of individual employee of the organization. This may have adverse effects on some of the employees who sometimes have to adjust their sitting position to reduce stress.

### 1.1 STATEMENT OF THE PROBLEM

Leading researchers like Obi (2015:59) have identified relatively high level of safety risk exposure among employees in Nigeria, showing the unpopularity in the use of ergonomics design and inputs in Nigeria workplace environment. Hence, there is a growing need in Nigeria to develop ergonomics in all sectors of the economy. This has led to the inability of organizations' decision makers and employees to tap into the benefits of ergonomics designs and its implementation in various industries in Nigeria. This can be observed in the low level of its adoption in academic and research environment like Lagos State University that is expected to enlighten the society about its design, implementation and advantages. Hence, this study is a critical examination of past studies to assess how ergonomics design and inputs have fared in improving the performance of employees especially in Nigeria using an exploratory research method.

### 1.2 OBJECTIVES OF THE STUDY

- To ascertain the level of ergonomics design and inputs awareness in improving employee performance in project organizations.
- To identify the factors hindering the use of ergonomics as a strategic tool for improving employee performance in project organizations.

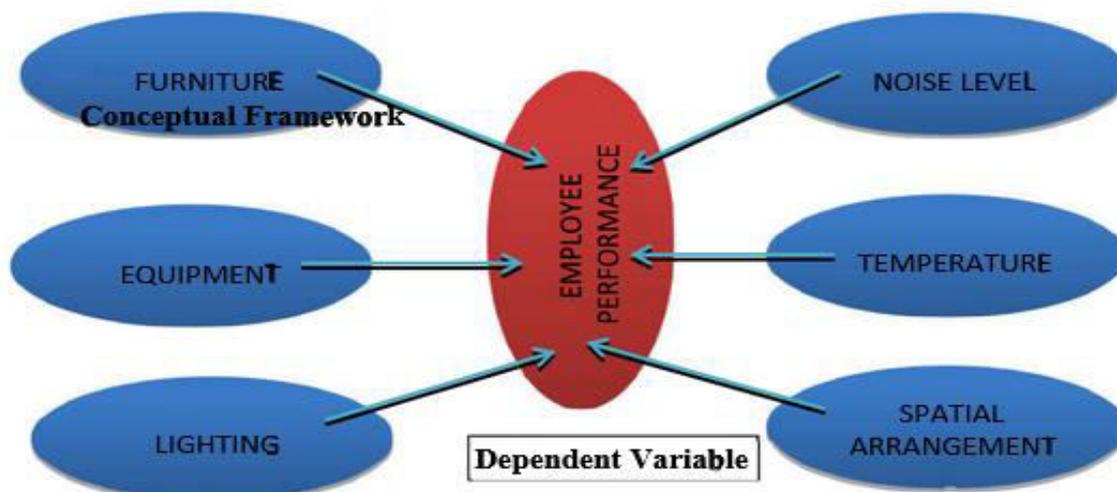
- To identify the different practices and methods adopted by various organizations such as the construction and oil and gas industries in the design of equipment, workspace

## II. RELATED WORK

This study examined various literature by reviewing relevant aspects, including the concept of ergonomics awareness, employee performance and substantive findings with respect to the two variables in Nigeria.

## III METHODOLOGY

**3.1 CONCEPTUAL FRAMEWORK:-** According to Occupational Safety and Health Academy (OSHA) (2017), ergonomics involves the designing of workstations, work practices and work flow to fit the employees’ capabilities. It also involves a design that reduces risk factors that may contribute to common work related injuries and illnesses, such as sprains and strain and cumulative trauma disorders (CTDs). These are common employees’ safety issues that occurs as a result of accumulated strain on the employee for a period of time. For example, the design of work spaces that make employees to work in awkward postures some portion/all the time may result in excessive effort, fatigue and discomfort of the employee. These conditions may cause damage to some of the body components such as muscles, tendons, ligament, nerves and blood vessels. Such Injuries are known as musculoskeletal disorders (MSDs) (Occupational Safety and Health Academy, 2017). The concept expressed ergonomics as a *scientific discipline concerned with understanding of the interaction among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance.* An examination of this concept shows that, one of the main objectives of ergonomics is to improve employee performance in work place. Ergonomics is also expressed as a holistic approach in which considerations of physical, cognitive, social, organizational, environmental and other relevant factors are taken into account to enhance the design and evaluation of tasks, jobs, products, environments and systems in order to make them compatible with the needs, abilities and limitations of employees (International Ergonomics Association, 2017). This new concept also shows that ergonomics is not limited to the improvement of individual employee alone but an improvement in Organizational performance. This concept also involved a broader and an all-encompassing use of constructs that identify the possible domains of specialization within the discipline of ergonomics.



## 3.2 ERGONOMICS AWARENESS IN NIGERIA

Ismaila (2010:731) conducted a study on Ergonomics Awareness in Nigeria as a developing country that recently has an ergonomics society. Ismaila (2010:732) is of the opinion that it is essential to ascertain the level of ergonomics awareness in the country based on the benefits accruable from ergonomics as a subject on one hand and ergonomics society of Nigeria on the other. His study concluded that there is very low level of ergonomics



awareness. This to Ismail may be due to the fact that the generality of Nigerians (irrespective of their background or educational qualification) were not conversant with the benefits derivable from ergonomics, not only to workplace but to humans' daily activities. Their study further revealed that the level of awareness was not significantly affected by affiliation, area of specialization, post-qualification experience, and educational qualification of their study participants. Though, an academic environment is assumed to be enlightened enough to be a major advocate of research findings that improve how jobs are fit for its staffs and not staff for job. The findings of different researchers like Adeyemi (2009:251); Adeyemi (2010:4); Asaolu and Itsekor (2014:24); Dunmade, Adegoke and Agboola (2014:32); Ikonne (2014:82) etc. on ergonomics inputs, using academics environments, showed that sampled respondents from the selected institutions are faced with a variety of ergonomic problems that have led to tension, stress, headaches, and other pain, due to the low level of ergonomics awareness in the researchers sampled institutions.

### 3.3 FACTORS HINDERING THE USE OF ERGONOMICS / HUMAN FACTORS

Number of factors act as barriers to the use of ergonomics as a strategic tool for improving the performance of employees in organizations. These can be summarized according to Pinder (2015) as financial, organizational, personal and knowledge-based. Financial considerations and pressures within a firm, particularly its business strategy, can lead to it being unwilling to spend money on using ergonomics, especially if it is perceived that the financial benefit is perceived to be low or marginal. Organizational considerations such as a requirement to complete a given task or project within stipulated time and budget can prevent the use of ergonomics in work design. Personal factors are also important in the use of ergonomic, particularly commitment from individual senior managers who are to perceive its value to the business. Lack of specific ergonomic knowledge among many organizational heads and senior managers means they may be unable to identify when ergonomics could benefit the organizational productivity. They may also be unaware of how to access specialist advice if it is not immediately available to them.

Awareness has been proven to play an important role in providing the safest and healthiest work environment possible for employees, and ergonomics is still not a hot issue to be considered by many construction companies (Ahankoob & Charehzehi, 2013:39). Chung and Shorrocks (2011:) examined the gap in ergonomic studies and the application of their findings.

They identified that there is a "lack of relevance" of several research papers to ergonomic practitioners' concern, some of the studies seen as "relevant" tends to lack scientific merit. The high volume of irrelevant studies has masked the relevant studies which has brought about the difficulty in obtaining relevant journal articles, low applicability of findings, which invariably has affected or hindered the use of ergonomics due to lack of awareness of ergonomics' benefits to organizations and individual productivity.

### 3.4 ORGANIZATIONS' PRACTICES AND METHODS ABOUT EMPLOYEE ERGONOMICS

Employee ergonomics is an aspect of ergonomics that deals with fitting the job to worker (Khedkar & Pawar, 2015:456). Various organizations across several industries have over time developed several practices and methods of implementing cognitive ergonomics in order to improve productivity by improving employee wellbeing. Integration of human element into job design has been a proven practice of implementing ergonomics in automobile organizations. The study of Bradley (as cited in Khedkar & Pawar, 2015:456) observed that the ergonomic process at Ford has been successful in altering engineering process to better integrate human elements to job design which is responsible for the reducing ergonomic risk on jobs. This reduction of ergonomic risk has been observed to have a positive correlation with the increase in the quality of products. The study further observed that launching a new vehicle assembly line required less re-work of the workstations and an overall reduction in worker absenteeism and injury. These levels of maturity are reactive, preventive, proactive and advanced. Reactive ergonomics is implemented after a problem has already occurred, such as a risk assessment report being written and used to suggest what measures can be taken to reduce the risk of the same errors occurring again. Preventive ergonomics is implemented at the initial stage of placing the employee on the job, a Physical Demand Analysis of the job is done and only personnel that possesses the criteria is hired. Workspace quality such as office design, furniture and spatial arrangements, lightings and heating arrangements, and noise level have also been a method employed to improve employee attitude and productivity following the study of Shruti (2012:1994) on office design factors and employees' productivity. The results from survey showed that nine out of ten employees believed that workspace quality affects employees' attitude and productivity. The study further revealed that office design, furniture and spatial arrangements, lightings and heating arrangements, and noise level have positive effects on productivity.



#### IV. CONCLUSION AND RECOMMENDATIONS

It is evident through the reviews of studies, as cited above, that the level of ergonomics awareness in the country is low, this may be due to the fact that employers in Nigeria are not conversant with the benefits derivable from the implementation of ergonomics in employees' daily activities. The reviews also showed that several factors have hindered the efficient implementation of ergonomics in Nigeria which ranges from awareness, insufficient relevant studies to organizational practices, resources constraints, technological changes, communication and integration disconnection between employees and ergonomics designers, personnel considerations, ergonomic knowledge and training. Ergonomics researchers and practitioners in the country should intensify efforts in carrying out relevant study on the link between ergonomic awareness and employee performance, organization of conferences and seminars as well as media publicity across the country on why ergonomics should be part of our daily activities.

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