

Understanding Ergonomics in Nigerian Work Organisations: A Conceptual Review

Nkemdili Nnonyelu Department of Sociology/Anthropology

Nnamdi Azikiwe University, Awka, Nigeria

DOI: <https://dx.doi.org/10.47772/IJRISS.2023.71006>

Received: 08 September 2023; Accepted: 18 September 2023; Published: 14 October 2023

ABSTRACT

The paper seeks to illuminate the concept and utilisation of ergonomics in Nigeria. It reveals that although ergonomics enjoys global currency, it is yet to be felt in Nigerian work organisations. The review of literature on ergonomics awareness, reveals that it is still very poor. It is also observed from the qualitative review that ergonomics, or the resetting of the workplace is at the rudimentary stage owing to paucity of funds, hostility of employers in both the public and private sector in matters of ergonomics, poor appreciation of the essence of ergonomics by employees themselves, and the nature of the Nigerian industrial system. The paper recommends that the benefits of ergonomics to the welfare and wellbeing of organisational participants be made more visible with necessary information.

Keywords: ergonomics, embeddedness, workplace safety, work environment, office equipment.

INTRODUCTION

Towards the end of the 20th Century, the subject of ergonomics started receiving multi-disciplinary attention. Some of the earliest insights on ergonomics were seen in the works of Pul & Weerdmeester (1993), ILO (1998), HSE (1998), Kroemer & Grandjean (2000) to the recent discourses by IEA (2017) and OSHA (2017) amongst others. Ergonomics focuses on the work setting or workplace arrangement, and seeks to have a balance between physical structures, the machines, furniture arrangement, or even its nature, and how these fit the requirements of the end-user, the worker. Whether these machines, new furniture, and the totality of the office environment are in sync with the desires, safety, and performance of the employee is of paramount importance to the disciples of the school of ergonomics.

At face value, ergonomics seems like a reincarnation of the Taylorian thesis of scientific management of the workplace that stipulated an adoption of a scientific approach in work organisations to eliminate waste and inefficiency (Okafor, Olujimi & Obuene, 2021). It called for the use of standard tools and equipment while matching it with the appropriate body movement or motion. This elicited the mathematical formula of best implement (equipment) + best motion = best way of carrying out the task. This carries the attractive notion of discovering over time the most efficient and simplest way of finishing a task, which employers insist that employees should follow.

It is therefore on the foundation of that seminal work of Taylor, that ergonomics rests to redirect organisations' attention to the workplace setting or environment as pivotal to unpacking the performance, satisfaction, and continuous enjoyment of routine duties by the worker.

Rejigging or resetting the workplace environment is globally enjoying a lot of acceptance, but there is enough room for doubt whether Nigerian work organisations are aware of this new workplace reality. In reality, Nigerian workplaces in many public and private organisations remain decrepit, uncomfortable,

unattractive, and unsafe.

Workers are becoming impatient and insisting on a work setting that gives utmost consideration to their welfare and wellbeing. Workplace convenience is therefore central to ergonomics. How has ergonomics fared in Nigeria? Before we present the situation of ergonomics in Nigeria, it may be apposite to seek conceptual clarity first.

Concept of Ergonomics

Ergonomics broadly speaking refers to the scientific body of knowledge that looks at the way a job environment is tailored to suit, and meet the physical and social needs of the worker while at work. According to Alzahrani (2019, p.604) ergonomics deals with the “fit between people and their work while taking account of their capabilities and limitations”. To McCormick and Saunder, ergonomics embodies information about human behaviour, abilities and limitations, and other characteristics like machine types, design of tools, and tasks. Ergonomics’ lens is directed towards the physical posture at work (sitting or standing) or other bodily movements, and the general state of the environment including temperature, lighting, heat, visibility, and reaction of the workers to the job setting. The fundamental consideration is to align the work activity in a way that suits the individual worker. In ergonomics-embedded workplaces, there is a matching of the requirement of a job with the capabilities of a worker pursuant to the reduction of various risks like musculoskeletal injuries (Health and Safety Authority, 2014). Immanent in the concept of ergonomics is the match or fitness of purpose between the machine environment and the worker. It makes physical work imperative and compelling in order to free the worker from the stress of a workplace that is discomfiting and unnerving.

The point of departure from scientific management, which ergonomics introduces as a concept, is the conscious effort to synchronize the work setting with not only the needs, demands, and physical condition, but the general expectations of the worker. This presupposes that ergonomics is proactive, as it makes deliberate efforts, and arranges the workplace in a setting that reduces the propensity for work-related musculoskeletal disorders and other associated risk factors (HAS, 2014). In light of the foregoing, ergonomics will rightly be understood as a process, not a programme inside a workplace that has a beginning and end (Pinto, Tereso & Abrahao, 2018).

In contextualising the workplace, ergonomics brings into bold relief cardinal characteristics, like workstations, computers, chairs, lighting, noise level, and room temperature, that could be tailored to fit and enhance staff health, safety, and performance (Saad & Ebraheem, 2019, p.1). It appears inherent in the conceptualisation that it presupposes a priori understanding of the individuals, that work tools designs are made to conform to the physiological and mental configuration of the workplace participants. It seems, in the Nigerian work climate to have in place human-specific driven work settings, where office furniture, machines, and other inevitable appurtenances are provided in deference to the body makeup. We shall return to this later. To further disaggregate ergonomics, in order to achieve better clarity of the term, we shall categorise ergonomics according to its different manifestations or dimensions.

Classification of Ergonomics

Ergonomics is a multi-headed concept embracing different categories or classifications. These include:

1. Physical Ergonomics,
2. Employee/Cognitive Ergonomics, and
3. Organisational Ergonomics (IEA, 2017).

Physical Ergonomics dwells on physical conditions relating to man’s anatomy, and other physiological

characteristics and how these relate to physical exertion during task performance. It keeps in focus topics that concern the layout of the workplace, safety and health issues, basic postures of work, as seen in Taylorism more than a century ago, working motions, and handling of work materials.

Employee/Cognitive Ergonomics is interested in man's cognitive and mental processes, perception, reasoning, and how these nurture relationships at work among workplace participants. It tries to understand the nexus between this bouquet of mental processes and decisions taken with performance, or stress induced by the task itself.

Organisational Ergonomics concentrates on the totality of the organisation as a socio-technical system. It also emphasizes the need to improve maximally the processes, policies, and structures of the organization while promoting proper work design, efficient communication, team building, e-work, and productive management. In a bid to foster good health and safety at work, ergonomics seeks to systematically correlate production with employee satisfaction and wellbeing.

Olabode, Adesanya & Bakare (2017) drew attention to the other manifestations of ergonomics following Mallen (2010) to wit: Reactive Ergonomics, Preventive Ergonomics, Proactive Ergonomics, and Advanced Ergonomics. Reactive ergonomics as the name implies, comes when a problem has been identified to help in its mitigation or amelioration. Preventive ergonomics refers to the early stage of placing the employee on the job, after a thorough physical examination of the task is done, whereby only those with requisite criteria are brought on board. Proactive ergonomics builds into the entire job design from the onset with specific prescriptions, while in advanced ergonomics, a plethora of risks are brought to bear on the development and improvement of job design through advanced engineering (Olabode, Adesanya & Bakare, 2017).

Furthermore, ergonomics could be delineated along four different components namely (a) Design ergonomics – which deals with product innovations and designs, machines environments or systems (Lida, 2005 cited in Pinto, Tereso & Abrahao, 2018). Others are Corrective ergonomics concerned with real-life work situations like fatigue, the volume of production, safety, and disease; Awareness ergonomics enables workers to prepare for routine duties and problems, and lastly, Participatory ergonomics which concentrates on the worker, and indeed, all organisational participants towards providing the solution to the plethora of organisational problems.

Richline (n.d.) contends that ergonomics could also be compartmentalised into micro-ergonomics that focuses on the fitness of man to machine, to furniture, and such like considerations, while macro-ergonomics are more holistic, encompassing contextual issues like the culture of the area, sundry organisational affairs, presence and relevance of infrastructure and other climatic conditions.

It seems therefore that the foregoing classification of ergonomics is a careful introduction of necessary items, and the creation of a deliberate workplace environment that reduces fatigue, and frustration, incentivising employees to perform optimally by doing their best. The corollary is that interest in the different classifications of ergonomics is the attempt to make the job environment safe, devoid of work hazards, and make jobs less physically exerting or tasking. Similarly, ergonomics as presented in the literature (Richline, n.d.) has a twofold objective namely; on the one hand, it seeks improved organisational productivity, and on the other, it tries to address and improve the overall wellbeing of the employees at the workplace.

THEORETICAL ORIENTATION

Ergonomics has been assaulted by some scholars as lacking in theoretical depth and rigour (Hanckock & Diaz, 2002). At the dawn of the 21st Century, there were no specific theories on ergonomics (Hanckock & Diaz, 2002). In their presentations on the discourse of the theory of ergonomics, Hanckock & Diaz (2002)

sought to interpret two mainline notions the Field of Safe Travel (FST) and Situation Awareness (SA) which look at changing motion situations, and how the environment is seen or perceived within a locality (scope) or period (time) and how it is understood. Following from this Hancock & Diaz (2002) contend that both SA and FST present the external environment as a source where information is contained and also exert two types of influence. The first is that a conducive work environment instigates or incentivises a corresponding response in terms of action. The second is the actors' surroundings that affect or are affected by the perception of the actor, in this case, the worker.

The domain of ergonomics and what it professes suits well with the theory of socio-technical systems. According to Ropohl (1999, p.59) the "concept of socio-technical systems was established to stress the reciprocal interrelationship between humans and machines and to foster the program of shaping both the technical and the social conditions of work, in such a way that efficiency and humanity would not contradict each other any longer." The relevance is further buttressed by the thrust of the socio-technical systems theory which is to cope with the theoretical and practical problems of working conditions in industry. The theory in an eclectic manner fuses technology with the social (machines vs. man). The socio-technical systems theory provides insight into the synergistic interaction between social, in this case, human, and technical phenomena, what Ropohl refers to as the "technization of society and the socialisation of technology" (Ropohl, 1999, p.66). The underpinning premise of the socio-technical system theory that illuminates ergonomics is the fostering of "modern organisations that are humane, productive, agile and innovative." (Govers & Amelsvoort, 2019, p.142). Even with the introduction, and dominance of technology in the workplace, the human element continues to play a crucial role (Govers & Amelsvoort, 2019) requiring a juxtaposition of the technical and social perspectives, and thus has so ably been demonstrated by the socio-technical systems theory.

Socio-technical Systems Theory

The socio-technical systems theory germinated in the Tavistock Institute in London following the seminal works of Trist & Bamforth (1951), and Trist (1981) that reset the conversation around the role and scope of technology in organisations while reaffirming the importance of the human element in production (Abbas & Michael, 2023). The theory echoes the mutual benefits activated by the interplay of social and technical elements (Emery, 1980 cited in Abbas & Michael, 2023). Socio-technical systems theory is therefore well suited to incisively unravel the intricate dynamics and crosscutting interface between the technical (equipment, office arrangement, and more) and the human usage of these work situations and environments. Hancock & Diaz (2002, p.117) have observed that "in this cavalcade of novelty, manufacturers have now discovered how important human-machine interfaces are and have adjusted their marketing strategies accordingly."

ERGONOMICS AND NIGERIAN WORKPLACE ENVIRONMENTS

It is incontestable that a good workplace should ipso facto be a convenient place for the enhancement of the employees' wellbeing and wellness. It is indeed the *raison d'être* of ergonomics. One's wellbeing to a large extent is dependent on the state of the workplace. Complaints are galore among employees that the Nigerian work environment as evidenced in public and private offices has continued to be derelict, distasteful, dishevelled, and very poorly furnished (Nnonyelu, 2009). It gives credence to the deluge of the scanty literature on ergonomics and their almost unanimous affirmation of a gross lack of awareness by both employers and even employees on the subject of ergonomics (Olabode, Adesanya & Bakare, 2017; Oladeinde, Ekejindu, Omoregie & Aguh, 2015; Ikonne, 2014; Ismaila, 2010). Even in Nigerian universities, lip service is paid to the issue of ergonomics, as the various needs assessment findings following visitations to public universities concerning infrastructure and other needs of the universities, are still not thoroughly implemented. It therefore seems superfluous to think about the influence of ergonomics in Nigeria when for

obvious debilitating deficiencies, workplaces are still lacking the most basic of essentials that will reduce stress, and risks and improve workers' performance. There is no doubt that an apriori construction or forcing of the office environment to make it personnel friendly will improve the attraction of the workplace. Currently, there is a large hiatus between what the offices will be and what they shall look like, to what they are currently. After several years, ergonomics is set to birth fully in Nigeria (Oladeinde et al, 2015; Ikonne, 2014).

Several roadblocks have been identified as impeding the introduction of ergonomics in the majority of Nigerian work organisations. These range from poor funding, or what some analysts have referred to as poor capital availability (Olabode, Adesanya & Bakare, 2017; Oladeinde et al, 2015). Companies are still battling with staying afloat, as many thriving companies have since left the shores of the country, following the serial mismanagement of fiscal and macro-economic policies by successive governments in the country that had a bearing on the strength and direction of organisations, whether public or private (Nnonyelu, 2013).

In austere and challenging times, like the current period in Nigeria, following the withdrawal of fuel subsidy with accompanying massive hyperinflation and drastic reduction of disposable income, employees in most firms in Nigeria are gasping for breath. It is safe to say that given the poor reading of the benefits of ergonomics, arising from palpable ignorance, employers, and even employees are united in the preoccupation with the settlement of salaries and wages of employees, not with a reset of the workplace in compliance with the dictates of ergonomics.

The embeddedness of ergonomics in Nigeria rather than being hastened, is further delayed by the unexpected arrival of the fourth industrial revolution globally, with Nigerian and many other Sub-Saharan African countries left behind. According to Nnonyelu (2021, p.318), the "fourth industrial revolution took off from the third industrial revolution which provided the digital infrastructure that was the bedrock and innovations in new technologies that have now become the imprimatur of the fourth industrial revolution. Similarly, Dallal (2019, p.552) contended that the point of departure for the fourth industrial revolution is the new computing systems particularly digital-based technologies such as blockchain, distributed ledger technologies, the Internet of Things (IoT), Artificial Intelligence, and robotics, advanced materials, nanotechnology, virtual and augmented realities, energy capture, storage and transmission, space technologies and geoen지니어ing.

Nigeria and countries of its kind are still grappling with disambiguating the novel developments involved in the changing production and service orientation of work organisations, and whatever benefits ergonomics is expected to bring on board are left at the doorstep of speculation.

It is therefore in anticipation of the widespread adoption of ergonomic practices that employers and employees can potentially harvest the dividends of ergonomics. These benefits include:

1. Increased performance and productivity, where the ubiquitous points of hazards, risks, and discomforts would be drastically reduced, if not eliminated, allowing the employees to maximally use their creative energies in the production sphere or duty posts.
2. Increased work morale and self-esteem. The conducive workplace becomes an energizer, and boosts the morale and confidence of the worker, with the socio-psychological feeling that his welfare and wellbeing are cornerstones of management policy.
3. It is very likely to have more workers get attracted to the workplace daily for routine activities, and thus reduce absenteeism from work that has plagued many a work organisation. Well-furnished offices that take into consideration the anatomy and physiology of the organisation participants, and also foster a friendly social environment, are more likely to serve as an incentive to attendance. Thus, ipso facto decelerates the propensity to abstain from work. Nacion & Tanquangco (2019) contend that if workers do not experience weariness during working hours, it can diminish absenteeism,

improve confidence, and increase worker involvement.

However, making ergonomics an integral part of work organisations seems to be a tall order in the face of obvious barriers like funding scarcity, other competing managerial interests, and staff indifference to or apprehension of, bringing in a new set of the workplace environment. This is corroborated by Olabode et al (2017) who highlighted poor adaptation to new technology. It is, therefore, necessary that organisational personnel are called on to provide inputs about the setting of the work environment where they are expected to spend a great part of their office duties. Workers should say the facilities they require to make ergonomics meaningful to the workforce. As Christy & Duraismy (2020) have correctly observed, “Employees in distress either physically or mentally are a burden to the organisation, not an asset” (p.435).

CONCLUSION

Ergonomics is still not well domesticated within workplace settings in Nigeria, given the unanimity of views in the literature about the lack of ergonomic awareness. The contest between employees and their representatives regarding the state of the workplace is still raging in many workplaces with employers’ response hampered by realities at work.

In Nigeria, despite the promise of ergonomics as a novel way of resetting the workplace, it has not taken off, however, the potential benefits following ergonomics globally is a wakeup call to stakeholders in the Nigerian work environment to embrace ergonomics. Working in a cozy environment is expected to be an invigorating experience for the employees.

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