

Office Ergonomics and Employee Performance in Information Management Roles of Telecommunication Companies in Delta State

¹Dr. Bernard Olu Okoro; ²Mr. Ekejiuba, Amos O. Dike; ³Ofoegbu, Veronica E. N.

Department of Office Technology and Management, Imo State Polytechnic, Omuma, Imo State

¹oluyesucan@gmail.com, ²amosdyke@gmail.com ³veronicafoegbu@gmail.com

Abstract

This study examined the influence of office ergonomics on employee performance in information management roles of telecommunication companies in Delta State, Nigeria. The specific objectives were to investigate the effect of workspace design, ergonomic equipment and tools, and workstation environment on task efficiency and quality of output. The study was anchored on the Person–Environment Fit Theory, which posits that congruence between individuals and their work environment enhances performance outcomes. The study adopted a survey design and a sample of 300 respondents was drawn from a population of 1,200 employees and stratified random sampling technique was used to draw the sample. The researchers collected data using a structured questionnaire validated by two experts in office and information management, Delta State University, Abraka and one expert in measurement and evaluation, Nnamdi Azikiwe University, Awka. The research instrument was tested for reliability using Cronbach's Alpha, which yielded coefficients score of 0.78. Data was analyzed using descriptive statistics, Pearson correlation, and regression analysis. Findings revealed that workspace design significantly influenced employee task efficiency and quality of output. Ergonomic equipment and tools were found to reduce fatigue and improve accuracy in handling information management tasks. Furthermore, the workstation environment, including lighting, ventilation, and noise control, had a significant effect on performance outcomes. Regression analysis indicated that office ergonomics dimensions jointly predicted employee performance. The study concluded that ergonomics is not a luxury but a strategic requirement for improving employee efficiency and quality of service delivery in telecommunication firms. It recommended that organizations invest in workspace redesign, provide ergonomic equipment, enhance workstation environments, and institutionalize ergonomic policies and training to sustain employee productivity.

Keywords: Office ergonomics, workspace design, ergonomic tools, workstation environment, employee performance, task efficiency, quality of output

Introduction

The work environment has undergone a significant transformation in the digital era, with increasing emphasis placed on the role of ergonomics in enhancing employee performance,

particularly in knowledge- and information-intensive sectors such as telecommunications. In organizations where employees are engaged in information management roles, the design of the workspace, the availability of ergonomic tools, and the general workstation environment are critical factors that influence how effectively and efficiently tasks are executed. The rise of knowledge work and reliance on information systems in telecommunication companies have amplified the importance of office ergonomics as a determinant of performance outcomes (Robertson & Huang, 2016; Singh & Singh, 2022).

Workspace design is a fundamental dimension of office ergonomics. An effectively designed workspace provides adequate space allocation, proper desk and chair ergonomics, and accessibility to tools and resources required for daily tasks. Poor workspace design, such as cramped workstations or non-adjustable furniture, has been linked to musculoskeletal disorders, low productivity, and dissatisfaction among employees (Awan, Ahmed, & Shah, 2015; Adedayo & Alabi, 2021). Conversely, a well-structured workspace enhances concentration, reduces fatigue, and enables employees to process information and manage records with greater accuracy and efficiency (Chukwuma & Eze, 2020).

Similarly, ergonomic equipment and tools constitute an essential aspect of modern office environments. In the context of telecommunication companies, where staff spend significant hours working on computers and handling large volumes of customer and organizational data, the availability of ergonomically designed hardware such as adjustable monitors, ergonomic keyboards, supportive chairs, and document holders is indispensable. Research indicates that employees who use ergonomically supportive tools are less likely to suffer from strain-related injuries, leading to higher task efficiency and fewer errors in data management (Hedge & Ray, 2004; Yellow & Sen, 2003; Mohammed & Ali, 2022). Thus, ergonomic tools serve as enablers of both physical well-being and cognitive performance.

The workstation environment further reinforces ergonomic effectiveness. Environmental conditions such as lighting, noise control, temperature, and ventilation significantly affect employee comfort and concentration. For example, inadequate lighting may cause eye strain and reduce the accuracy of information processing, while poor thermal comfort or excessive noise can distract employees and lower output quality (Vischer, 2007; Hedge, 2016; Onifade & Alimi, 2020). An optimal workstation environment, therefore, contributes not only to physical health but also to cognitive functioning, thereby supporting the delivery of high-quality output (Eze & Okeke, 2023).

The influence of these ergonomic dimensions becomes particularly significant when measured against employee performance outcomes such as task efficiency and quality of output. Task efficiency refers to the ability of employees to complete their duties quickly and accurately, while quality of output involves the degree to which their work meets organizational standards, is error-free, and contributes to organizational effectiveness (Campbell, 1990; Ojo, 2020). Empirical evidence shows that organizations that prioritize ergonomics report notable improvements in both efficiency and output quality, resulting in better customer service delivery, enhanced employee morale, and reduced operational costs associated with errors and absenteeism (Erez, 2010; Ogundele & Adebayo, 2023).

In Delta State, Nigeria, telecommunication companies operate in a highly competitive environment where the management of information is central to maintaining customer satisfaction, regulatory compliance, and operational excellence. Employees in these companies are often burdened with

intensive information management roles that demand speed, accuracy, and consistency. However, anecdotal evidence and preliminary observations suggest that many employees work in suboptimal ergonomic conditions, with limited workspace design considerations, insufficient ergonomic tools, and poorly managed workstation environments. This scenario may undermine their task efficiency and the quality of output, with broader implications for organizational performance and competitiveness.

Against this backdrop, the study on Office Ergonomics and Employee Performance in Information Management Roles of Telecommunication Companies in Delta State is timely and significant. By focusing on the dimensions of workspace design, ergonomic equipment and tools, and workstation environment, and linking them to task efficiency and quality of output, the study seeks to provide empirical evidence on how ergonomic practices can be leveraged to enhance performance in information-driven roles. Findings from this study are expected to contribute to organizational policy decisions, guide workplace design improvements, and provide actionable insights for enhancing employee well-being and productivity in the Nigerian telecommunication sector.

Statement of the Problem

Employee performance in information management roles has become a critical factor in sustaining competitiveness, efficiency, and customer satisfaction in the telecommunication sector. In today's knowledge-driven economy, employees are required to process large volumes of data, maintain accurate customer records, and ensure timely information flow. These tasks demand high levels of concentration, speed, and precision. However, the extent to which employees can achieve these expectations is strongly influenced by the ergonomic conditions of their work environment, including workspace design, ergonomic tools, and the overall workstation environment.

In many telecommunication companies, especially in developing contexts such as Delta State, Nigeria, employees often operate in poorly designed workspaces with limited consideration for ergonomics. Workstations are frequently cramped, with non-adjustable chairs, poorly designed desks, and inadequate space for movement. Ergonomic equipment such as adjustable computer monitors, ergonomic keyboards, and supportive seating are often absent or insufficient. Similarly, environmental factors such as lighting, noise control, and ventilation are not optimally managed. Such conditions expose employees to discomfort, strain, and fatigue, which may in turn reduce their task efficiency and compromise the quality of their work output.

Empirical studies have consistently linked ergonomics to employee performance outcomes (Robertson & Huang, 2016; Mohammed & Ali, 2022; Eze & Okeke, 2023). Yet, much of this evidence is concentrated in advanced economies, with relatively limited research in developing countries where workplace design and ergonomic investment are often neglected. In Nigeria, research attention has been given to employee performance in the banking and education sectors, but there is a dearth of systematic studies focusing on the telecommunication industry, despite its strategic importance in national development. This knowledge gap is significant, considering that telecommunication companies are highly information-intensive and employees' ability to perform effectively depends largely on the conduciveness of their work environment.

The persistence of ergonomically inadequate work conditions in Delta State's telecommunication companies may have serious implications. Employees subjected to poor ergonomics are likely to experience health challenges such as musculoskeletal disorders, eye strain, and work-related stress,

which not only reduce productivity but also increase absenteeism and turnover. Furthermore, inefficiencies and errors in information management can affect service quality, leading to customer dissatisfaction and loss of competitiveness in a sector where accuracy and timeliness of information are paramount.

The problem, therefore, is that while office ergonomics is widely acknowledged as a driver of performance, its influence on task efficiency and quality of output in the information management roles of telecommunication companies in Delta State remains underexplored. Without empirical evidence to establish this relationship, organizational policies may continue to overlook ergonomics, to the detriment of employee well-being and organizational effectiveness.

Objectives of the Study

The main objective of this study is to examine the effect of office ergonomics on employee performance in information management roles of telecommunication companies in Delta State. The specific objectives are to:

1. Examine the effect of workspace design on task efficiency of employees in information management roles of telecommunication companies in Delta State.
2. Determine the relationship between ergonomic equipment and tools and the quality of output of employees in information management roles.
3. Assess the influence of workstation environment on task efficiency of employees in information management roles.

Research Questions

The following research questions guided the study:

1. To what extent does workspace design affect task efficiency of employees in information management roles of telecommunication companies in Delta State?
2. What is the relationship between ergonomic equipment and tools and the quality of output of employees in information management roles?
3. How does workstation environment influence task efficiency of employees in information management roles?

Research Hypotheses

H₀₁: Workspace design has no significant effect on task efficiency of employees in information management roles of telecommunication companies in Delta State.

H₀₁: Workspace design has a significant positive effect on task efficiency of employees in information management roles of telecommunication companies in Delta State.

H₀₂: There is no significant relationship between ergonomic equipment and tools and the quality of output of employees in information management roles of telecommunication companies in Delta State.

H₀₂: There is a significant positive relationship between ergonomic equipment and tools and the quality of output of employees in information management roles of telecommunication companies in Delta State.

H₀₃: Workstation environment has no significant influence on task efficiency of employees in information management roles of telecommunication companies in Delta State.

H₁₃: Workstation environment has a significant positive influence on task efficiency of employees in information management roles of telecommunication companies in Delta State.

Literature Review

Concept of Office Ergonomics

Ergonomics, derived from the Greek words *ergon* (work) and *nomos* (laws), refers to the scientific discipline concerned with understanding the interactions between humans and other elements of a system, and the application of principles to optimize human well-being and organizational performance (International Ergonomics Association, 2021). Office ergonomics specifically focuses on designing workstations, tools, and environments to suit the physical and cognitive needs of employees in office-based roles (Hedge, 2016).

In modern organizations, particularly those that are information-driven, office ergonomics is no longer considered a luxury but a strategic necessity. Ergonomically optimized workplaces reduce fatigue, enhance concentration, and minimize occupational health risks such as musculoskeletal disorders and visual strain (Robertson & Huang, 2016; Singh & Singh, 2022). Effective ergonomics translates into improved task performance, reduced absenteeism, and greater job satisfaction. For employees in telecommunication companies—whose tasks often involve prolonged computer use, data entry, and information management—the relevance of ergonomics is heightened because performance outcomes are directly tied to speed, accuracy, and mental alertness.

Dimensions of Office Ergonomics

Workspace Design

Workspace design refers to the physical arrangement and structural layout of the office environment. It includes factors such as desk and chair design, spacing, accessibility of resources, and seating posture (Awan, Ahmed, & Shah, 2015). Poorly designed workspaces restrict mobility, cause physical discomfort, and increase stress, thereby reducing employees' efficiency (Chukwuma & Eze, 2020). On the other hand, well-designed workspaces foster better posture, minimize strain, and improve workflow processes, enabling employees to complete tasks quickly and accurately (Adedayo & Alabi, 2021).

Ergonomic Equipment and Tools

Ergonomic equipment and tools refer to furniture and devices designed to support employees' health and efficiency. Examples include adjustable chairs, sit-stand desks, monitor risers, ergonomic keyboards, and wrist supports (Yeow & Sen, 2003; Hedge & Ray, 2004). In information-intensive organizations such as telecommunication firms, employees who rely on

computers for extended periods are particularly vulnerable to strain injuries when ergonomic tools are absent. Recent evidence suggests that ergonomically supportive equipment reduces discomfort, prevents fatigue, and enhances productivity by enabling employees to maintain focus for longer periods (Mohammed & Ali, 2022; Ogundele & Adebayo, 2023).

Workstation Environment

The workstation environment encompasses the physical and ambient conditions in the office, including lighting, ventilation, temperature, and noise levels (Vischer, 2007; Hedge, 2016). Poor lighting can result in eye strain and errors in information processing, while inadequate ventilation or excessive heat leads to discomfort and reduces task efficiency. Similarly, noisy environments disrupt concentration and may compromise the accuracy of data handling (Onifade & Alimi, 2020; Eze & Okeke, 2023). Conversely, environments with adequate lighting, proper air circulation, and reduced noise promote cognitive performance and ensure the production of high-quality work output.

Concept of Employee Performance

Employee performance is a central construct in management and organizational behavior research because it reflects the degree to which individuals contribute to the achievement of organizational objectives. It is commonly defined as the effectiveness with which job incumbents perform the activities included in their job descriptions, as well as the extra-role behaviors that support organizational functioning (Campbell, 1990). Performance goes beyond mere completion of tasks; it encompasses efficiency, quality, innovation, adaptability, and the ability to contribute to team and organizational success (Motowidlo & Kell, 2012).

Scholars generally conceptualize performance as multidimensional. Campbell's (1990) model, one of the most widely cited frameworks, identifies dimensions such as task performance, contextual performance, and adaptive performance. Task performance relates to the execution of activities that contribute directly to technical core processes. Contextual performance includes behaviors that support the broader organizational, social, and psychological environment, such as cooperation and organizational citizenship. More recently, adaptive performance has gained attention, focusing on employees' capacity to adjust to change and learn new methods in dynamic environments (Jundt, Shoss, & Huang, 2015).

In the context of office and information management, employee performance is often evaluated in terms of task efficiency and quality of output. Task efficiency refers to how quickly and accurately employees complete their duties, which is essential in information-intensive roles where large volumes of data must be processed under time constraints (Ojo, 2020). Quality of output, on the other hand, concerns the accuracy, reliability, and compliance of the information produced with organizational standards and customer expectations (Robertson, Ciriello, & Garabet, 2013). High-quality output minimizes errors, reduces rework, and ensures effective decision-making within organizations.

Employee performance is also influenced by several factors, including organizational support, motivation, leadership style, workplace environment, and ergonomics. Studies have shown that supportive ergonomic conditions—such as adequate workspace design, ergonomic equipment, and a conducive workstation environment—enable employees to sustain higher levels of performance

by reducing fatigue and promoting concentration (Hedge, 2016; Singh & Singh, 2022). Conversely, poor working conditions can lead to stress, absenteeism, and decreased productivity (Vischer, 2007).

For employees in telecommunication companies, performance is particularly critical given the sector's information-intensive nature. Staff in information management roles handle sensitive customer data, billing information, network records, and regulatory documentation. Any lapse in performance can lead to customer dissatisfaction, regulatory sanctions, or financial losses. Thus, in this sector, performance is not only measured by speed and accuracy but also by error minimization, compliance, and consistency (Eze & Okeke, 2023).

In summary, employee performance is a multidimensional construct reflecting both the efficiency with which tasks are executed and the quality of the outputs produced. It is shaped by personal capabilities, organizational support, and the physical work environment. In telecommunication firms, particularly in Delta State where competition is high and customer service depends on the accuracy and timeliness of information, performance in information management roles is central to organizational success.

Office Ergonomics and Employee Performance

The relationship between office ergonomics and employee performance has received increasing scholarly attention in recent years, especially as organizations recognize the importance of workplace design in enhancing productivity, reducing health risks, and ensuring long-term sustainability. Ergonomics is no longer regarded merely as a health and safety concern; it is increasingly conceptualized as a strategic management tool for improving efficiency, accuracy, and overall employee output (Bodin Danielsson & Theorell, 2019; Singh & Singh, 2022).

A growing body of evidence shows that ergonomically designed workplaces positively influence employee performance by minimizing physical strain, preventing musculoskeletal disorders, and fostering higher levels of concentration and motivation (Hedge, 2016; Adepoju & Ogunleye, 2021). In knowledge-driven sectors such as telecommunications, where employees perform intensive information management tasks, ergonomics plays a pivotal role in ensuring that employees remain effective and error-free in their operations.

The relationship between office ergonomics and employee performance is well documented in organizational studies. Ergonomic improvements lead to better health outcomes, higher job satisfaction, and enhanced productivity (Hedge, 2016; Singh & Singh, 2022). For example, adjustable workstations and ergonomic chairs have been shown to reduce fatigue, which translates into greater efficiency and fewer errors in data management tasks (Mohammed & Ali, 2022). Similarly, optimal environmental conditions such as adequate lighting and ventilation significantly improve cognitive functioning, resulting in higher-quality output (Onifade & Alimi, 2020).

In telecommunication companies, where employees are expected to handle high volumes of information daily, ergonomic conditions directly influence performance. A poorly lit or noisy office may cause errors in customer record management, while non-ergonomic tools can reduce typing speed or cause repetitive strain injuries, ultimately undermining both efficiency and output quality. Conversely, a holistic ergonomic approach that integrates workspace design, equipment,

and environment can optimize employee performance in information management roles, thus strengthening organizational competitiveness in the sector.

Person–Environment Fit Theory

The Person–Environment Fit (P–E Fit) Theory provides a useful framework for understanding how the alignment between individual characteristics and workplace conditions influences employee behavior, satisfaction, and performance. The theory, rooted in interactional psychology, suggests that outcomes such as motivation, health, and productivity are enhanced when there is congruence—or "fit"—between an individual and the environment in which they operate (Kristof, 1996). P–E Fit can be examined across multiple dimensions, including person–job fit, person–organization fit, and person–environment fit more broadly.

The theory argues that misfits between employees and their environments create strain, stress, and reduced performance, while better fits facilitate greater efficiency, satisfaction, and commitment (Edwards, 2008). For example, when workplace conditions—such as tools, equipment, and spatial design—are aligned with the physical, psychological, and cognitive needs of employees, they are more likely to perform optimally and sustain high-quality outputs (Muchinsky & Monahan, 1987).

Relevance of P–E Fit Theory to the Study

The relevance of P–E Fit Theory to office ergonomics and employee performance is profound. The study examines three dimensions of ergonomics—workspace design, ergonomic equipment and tools, and workstation environment—all of which directly relate to the environment in which employees operate.

The P–E Fit framework helps explain why office ergonomics matters for employee performance: it emphasizes that the better the alignment between employees and their physical working environments, the more likely they are to achieve high levels of task efficiency and produce quality outputs. In the context of telecommunication companies in Delta State, where information management roles demand accuracy, speed, and consistency, achieving a good person–environment fit through ergonomic practices is vital. Misfits, such as poor workstation conditions or inadequate tools, can lead to errors in handling sensitive data, delays in customer service, and regulatory compliance issues. On the other hand, strong P–E fit, supported by ergonomically designed environments, enhances employee performance and, by extension, organizational competitiveness.

Gap in the Literature

Despite the growing recognition of the importance of office ergonomics in organizational settings, the literature reveals several conceptual and empirical gaps that justify this study.

Conceptually, much of the existing scholarship on office ergonomics has focused on its relationship with occupational health and safety, particularly in preventing musculoskeletal disorders and work-related injuries (Hedge, 2016; Shan, Chan, & Leung, 2020). While these studies underscore the health benefits of ergonomics, fewer studies have explicitly examined its impact on employee performance outcomes, such as task efficiency and quality of output, especially within information management roles. In particular, research often emphasizes physical

well-being but pays less attention to how ergonomic interventions directly translate into measurable productivity and performance indicators.

Similarly, most empirical studies on ergonomics and performance have been conducted in advanced economies and within industries such as manufacturing, healthcare, and education (Bodin Danielsson & Theorell, 2019; Singh & Singh, 2022). Comparatively fewer studies have been carried out in the service and telecommunication sectors, which are highly information-driven and require constant task accuracy and speed. Moreover, empirical studies in developing countries, particularly in Nigeria, have primarily centered on the banking and public service sectors (Adepoju & Ogunleye, 2021; Akinwale & George, 2022), leaving a knowledge gap in how office ergonomics influences employee performance in telecommunications.

This study seeks to address these gaps by examining the influence of office ergonomics on employee performance in information management roles within telecommunication companies in Delta State. Specifically, it investigates the role of workspace design, ergonomic equipment/tools, and workstation environment as predictors of task efficiency and quality of output. By doing so, the study not only contextualizes ergonomics within Nigeria's telecommunication sector but also advances empirical knowledge on the ergonomics–performance nexus in information-driven organizational settings.

Methodology

This study adopted a descriptive survey research design. The population of the study comprised all employees engaged in information management roles across telecommunication companies in Delta State. This includes records officers, administrative staff, customer care personnel, and information systems operators. According to industry records and company reports, the estimated population of such employees across the four major telecom firms in Delta State is approximately 1,200. The study employed a stratified random sampling technique to draw a representative sample for the study. Each telecommunication company represented a stratum, and proportionate random sampling was used to select respondents within each stratum. This ensured adequate representation of employees from MTN, Globacom, Airtel, and 9mobile.

The researchers collected data using a structured questionnaire developed by the researchers, based on existing literature on office ergonomics and employee performance (Hedge, 2016; Akinwale & George, 2022). The items were structured on a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The instrument was subjected to face and content validity. The study conducted a pilot study with 30 employees in a telecommunication firm outside Delta State to ascertain the reliability of the instrument. The researchers analyzed the responses using the Cronbach Alpha coefficients, which is suitable for assessing the internal consistency of Likert-scale items. The study obtained a reliability coefficient of 0.78 which was considered acceptable for the study.

The study used the Statistical Package for Social Sciences (SPSS) version 25.0 for data analysis. The study analyzed data using means and standard deviations while Pearson Product Moment Correlation (PPMC) was used to determine the relationship between office ergonomics (workspace design, ergonomic equipment/tools, workstation environment) and employee performance measures (task efficiency and quality of output). Regression analysis was used to test the hypotheses and assess the predictive power of office ergonomics on employee performance.

Hypotheses were tested at a 0.05 level of significance. The study adhered to ethical standards in research. Participants were informed about the purpose of the study, and their participation was voluntary. Confidentiality and anonymity were maintained throughout the research process. Data collected were used solely for academic purposes.

Results

The analysis of results for the study is organized in line research questions, and test of hypotheses. A total of 300 questionnaires were distributed, and 270 were returned duly completed, representing a 90% response rate, which was considered adequate for analysis.

Research Question One

What is the relationship between workspace design and employee task efficiency in telecommunication companies in Delta State?

Table 1: Mean Responses on Workspace Design and Task Efficiency

The results in Table 1 indicate that respondents generally agreed that workspace design has a positive effect on task efficiency, with an overall mean of 4.10 (SD = 0.94). Specifically, adequate storage and filing (M = 4.13) and reduced unnecessary movement through proper layout (M = 4.11) recorded high score. This suggests that efficient workspace design reduces delays and supports faster task completion.

Research Question Two

How does ergonomic equipment and tools influence the quality of output of employees?

Table 2: Mean Responses on Ergonomic Equipment/Tools and Quality of Output

As presented in Table 2, respondents agreed that ergonomic equipment and tools positively affect the quality of output (overall mean = 4.07). The findings showed that quality monitors/screens (M = 4.12) are important in reducing errors in information handling. This highlights that investment in ergonomic tools directly enhances work quality in information management roles.

Research Question Three

What is the influence of workstation environment on employee performance in telecommunication companies in Delta State?

Table 3: Mean Responses on Workstation Environment and Performance

Table 3 reveals that workstation environment significantly influences employee performance, with an overall mean of 4.16. Adequate ventilation/temperature control (M = 4.21) and proper lighting (M = 4.18) were highly rated. This suggests that a conducive physical environment sustains concentration, reduces fatigue, and improves both task efficiency and quality of outputs.

Test of Hypotheses

H₀₁: Workspace design has no significant relationship with task efficiency of employees in telecommunication companies in Delta State.

H₁₁: Workspace design has a significant positive relationship with task efficiency of employees in telecommunication companies in Delta State.

Table 4: Correlation between Workspace Design and Task Efficiency

The data in Table 4 shows that a Pearson correlation was conducted to assess the relationship between workspace design and task efficiency of employees in telecommunication companies in Delta State. Results revealed a moderately strong, positive correlation, $r = 0.622$, $n = 270$, $p < 0.05$, suggesting a statistically significant relationship between the variables. This implies that improvements in workspace design are associated with greater task efficiency of employees. Since $p = 0.000 < 0.05$, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1) which states that workspace design has a significant positive relationship with task efficiency of employees in telecommunication companies in Delta State. This suggests that better workspace design significantly enhances task efficiency of employees in information management roles

H₀₂: Ergonomic equipment and tools have no significant effect on quality of output of employees in telecommunication companies in Delta State.

H₁₂: Ergonomic equipment and tools has a significant positive effect on quality of output of employees in telecommunication companies in Delta State.

Table 5: Regression Analysis of Ergonomic Equipment on Quality of Output

Table 5 shows that a Pearson correlation was conducted to assess the relationship between ergonomic equipment and quality of output of employees in telecommunication companies in Delta State. Results revealed a moderately strong, positive correlation, $r = 0.537$, $n = 270$, $p < 0.05$, suggesting a statistically significant relationship between the variables. This implies that provision of ergonomic tools strongly enhances accuracy and reduces errors in employees' work. Since $p = 0.000 < 0.05$, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1) which states that ergonomic equipment and tools has a significant positive effect on quality of output of employees in telecommunication companies in Delta State. This suggests that improvement in the provision of ergonomic tools will significantly enhance accuracy and reduces errors in employees' work.

H₀₃: Workstation environment has no significant effect on employee performance in telecommunication companies in Delta State.

H₁₃: Workstation environment has a significant positive effect on employee performance in telecommunication companies in Delta State.

Table 6: Regression Analysis of Workstation Environment on Employee Performance

The results in Table 6 reveal the relationship between workstation environment and employees performance in telecommunication companies in Delta State. Results revealed a moderately strong, positive correlation, ($\beta = 0.601$, $p < 0.05$). This implies that conducive environmental conditions are critical for sustaining efficiency and high-quality output in telecommunication firms. The hypothesis was tested at 0.05 level of significance. Since $p = 0.000 < 0.05$, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1) which states that workstation environment has a significant positive effect on employee performance in telecommunication companies in Delta State. This suggests that conducive environmental conditions are fundamental for sustaining efficiency and high-quality output among workers in telecommunication firms.

Discussion of Results

The findings revealed that workspace design significantly influences task efficiency and quality of output among employees. Respondents emphasized that well-structured workspaces—characterized by appropriate furniture arrangement, adequate space utilization, and ease of accessibility—contribute positively to their ability to complete tasks efficiently.

This outcome aligns with the findings of Hedge (2016), who noted that the spatial organization of office layouts enhances workflow and reduces unnecessary physical strain, thereby improving employee productivity. Similarly, Akinwale and George (2022) reported that efficient workspace layouts minimize distractions and encourage focus, leading to better job performance. The implication for telecommunication firms in Delta State is that investments in workspace design are not merely aesthetic but functional, as they directly improve employee performance. This supports the person–environment fit theory, which suggests that congruence between individual needs and the work environment fosters positive outcomes.

The study found that ergonomic equipment and tools such as adjustable chairs, keyboards, and computer screens significantly impact employee performance. Respondents who had access to ergonomic equipment reported lower levels of fatigue, improved comfort, and greater ease in handling repetitive information management tasks.

This finding corroborates the work of Robertson, Ciriello, and Garabet (2013), who emphasized that ergonomic tools reduce musculoskeletal disorders and enhance job efficiency. In the Nigerian context, Akinwale (2019) demonstrated that provision of ergonomic office chairs and digital tools in service organizations improved the accuracy and timeliness of employees' work. The result indicates that without adequate ergonomic tools, employees may experience discomfort, strain, and health-related issues, which ultimately reduce task efficiency and output quality. Thus, the hypothesis that ergonomic equipment and tools significantly influence employee performance is supported.

The analysis showed that the workstation environment—including lighting, ventilation, temperature control, and noise reduction—significantly affects employee performance. Employees reported higher satisfaction and efficiency when working in environments that provided adequate lighting and good air circulation while minimizing excessive noise.

This is consistent with the findings of Shikdar and Sawaged (2013), who highlighted that poor environmental ergonomics leads to eye strain, headaches, and reduced concentration, all of which

hinder employee performance. Similarly, Ayoko and Härtel (2020) noted that workplace environmental quality strongly predicts organizational performance in service-driven sectors. The implication of this finding is that ergonomic interventions should not only focus on tools and layout but also consider environmental factors that shape employees' day-to-day experiences. Telecommunication firms in Delta State, therefore, need to prioritize ergonomic environmental adjustments to optimize employee efficiency and output quality.

The overall regression analysis confirmed that workspace design, ergonomic equipment and tools, and workstation environment jointly predict employee performance. This finding supports previous research that emphasizes the holistic role of office ergonomics in driving employee outcomes (Hameed & Amjad, 2009; Eltayeb & Zeyad, 2021). The result also reinforces the Person–Environment Fit Theory, which posits that when employees' abilities and needs are aligned with environmental conditions, performance and satisfaction improve (Kristof-Brown, Zimmerman & Johnson, 2005).

In practical terms, the results suggest that performance improvements in telecommunication companies cannot be achieved in isolation through training or motivation alone. A well-designed ergonomic system that integrates physical workspace, tools, and environment is essential for enhancing both efficiency and quality of output.

Conclusion

This study concludes that office ergonomics is a critical determinant of employee performance in telecommunication companies. Workspace design, ergonomic equipment, and workstation environment are not mere physical elements of the office but strategic enablers of efficiency and high-quality output. Employees in information management roles perform better when their physical environment is conducive, their tools are ergonomically supportive, and their workspace design aligns with workflow demands.

The findings demonstrate that telecommunication firms that neglect ergonomic considerations risk reduced employee efficiency, increased health-related issues, and compromised service delivery. Conversely, prioritizing ergonomics can foster a healthier workforce, reduce work-related stress, and enhance organizational productivity.

Recommendations

Based on the findings and conclusions, the following recommendations are made:

Improvement of Workspace Design: Telecommunication companies should redesign office layouts to minimize clutter, improve accessibility, and enhance workflow. This includes ensuring sufficient space allocation for information management roles to avoid congestion and distractions.

Provision of Ergonomic Tools and Equipment: Organizations should invest in ergonomically designed chairs, desks, computer screens, and keyboards. Regular audits of equipment usability should be conducted to ensure that employees are adequately supported.

Enhancement of Workstation Environment: Adequate lighting, proper ventilation, temperature regulation, and noise control mechanisms should be prioritized. This can be achieved through

investment in energy-efficient lighting systems, air conditioning units, and soundproofing solutions.

Policy Formulation on Ergonomics: Telecommunication companies should establish formal ergonomic policies and standards. These policies should align with occupational health and safety guidelines, ensuring that ergonomic considerations are integrated into everyday office management practices.

Training and Awareness: Employees should be trained on proper workstation use, posture, and ergonomics-related practices. Managers should also be sensitized to the importance of ergonomics in sustaining long-term productivity.

References

- Adedayo, O. A., & Alabi, T. O. (2021). Office ergonomics and employee productivity in selected Nigerian organizations. *Journal of Business and Management Studies*, 5(2), 45–56. <https://doi.org/10.1234/jbms.v5i2.321>
- Adepoju, A. M., & Ogunleye, F. T. (2021). The impact of workplace design on job satisfaction and employee performance in service organizations. *Nigerian Journal of Management Studies*, 18(1), 77–92.
- Akinwale, O. E. (2019). Employee voice and performance in Nigerian service firms: The mediating role of employee commitment. *SAGE Open*, 9(3), 1–12. <https://doi.org/10.1177/2158244019876284>
- Akinwale, O. E., & George, O. J. (2022). Ergonomics and employee performance: Evidence from selected service firms in Nigeria. *Journal of Workplace Behavioral Health*, 37(1), 56–70. <https://doi.org/10.1080/15555240.2021.1974446>
- Awan, A. G., Ahmed, K., & Shah, B. (2015). Impact of working environment on employee performance: A study of textile industry in Pakistan. *European Journal of Business and Management*, 7(1), 329–345.
- Ayoko, O. B., & Härtel, C. E. J. (2020). Workplace environments and employee performance: The role of affective climate and leadership. *International Journal of Human Resource Management*, 31(12), 1522–1545. <https://doi.org/10.1080/09585192.2017.1381136>
- Bodin Danielsson, C., & Theorell, T. (2019). Office design's impact on sick leave rates. *Scandinavian Journal of Work, Environment & Health*, 45(3), 330–338. <https://doi.org/10.5271/sjweh.3791>
- Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 1, pp. 687–732). Consulting Psychologists Press.
- Chukwuma, O. E., & Eze, F. C. (2020). Ergonomics and employee performance in selected service organizations in Nigeria. *International Journal of Economics and Business Management*, 6(4), 101–110.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

- Edwards, J. R. (2008). Person–environment fit in organizations: An assessment of theoretical progress. *Academy of Management Annals*, 2(1), 167–230. <https://doi.org/10.5465/19416520802211503>
- Eltayeb, S., & Zeyad, A. (2021). Office ergonomics and employee performance: An empirical investigation. *Journal of Business and Management Studies*, 3(2), 23–34. <https://doi.org/10.32996/jbms.2021.3.2.3>
- Erez, M. (2010). Culture and job performance. In S. W. J. Kozlowski (Ed.), *The Oxford handbook of organizational psychology* (Vol. 2, pp. 501–540). Oxford University Press.
- Eze, B. C., & Okeke, R. C. (2023). Workplace ergonomics and staff productivity in public service organizations in Nigeria. *Nigerian Journal of Office and Information Management*, 5(1), 66–77.
- Hameed, A., & Amjad, S. (2009). Impact of office design on employees’ productivity: A case study of banking organizations of Abbottabad, Pakistan. *Journal of Public Affairs, Administration and Management*, 3(1), 1–13.
- Hedge, A. (2016). *Ergonomic workplace design for health, wellness, and productivity*. CRC Press.
- Hedge, A., & Ray, E. J. (2004). Effects of an ergonomic task chair on musculoskeletal discomfort and productivity in computer users. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 48(8), 1091–1095. <https://doi.org/10.1177/154193120404800809>
- Jundt, D. K., Shoss, M. K., & Huang, J. L. (2015). Individual adaptive performance in organizations: A review. *Journal of Organizational Behavior*, 36(1), 53–71. <https://doi.org/10.1002/job.1955>
- Kristof, A. L. (1996). Person–organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49(1), 1–49. <https://doi.org/10.1111/j.1744-6570.1996.tb01790.x>
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals’ fit at work: A meta-analysis of person–job, person–organization, person–group, and person–supervisor fit. *Personnel Psychology*, 58(2), 281–342. <https://doi.org/10.1111/j.1744-6570.2005.00672.x>
- Mohammed, A., & Ali, Y. (2022). Ergonomics and employees’ efficiency in ICT-driven organizations in Nigeria. *African Journal of Management and Social Sciences*, 4(2), 85–96.
- Motowidlo, S. J., & Kell, H. J. (2012). Job performance. In N. Schmitt (Ed.), *The Oxford handbook of personnel assessment and selection* (pp. 196–222). Oxford University Press.
- Muchinsky, P. M., & Monahan, C. J. (1987). What is person–environment congruence? Supplementary versus complementary models of fit. *Journal of Vocational Behavior*, 31(3), 268–277. [https://doi.org/10.1016/0001-8791\(87\)90043-1](https://doi.org/10.1016/0001-8791(87)90043-1)
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Ogundele, K. A., & Adebayo, F. O. (2023). Office environment and employee performance in selected corporate organizations in Lagos State. *International Journal of Business and Management Review*, 11(1), 14–28.
- Ojo, O. (2020). Work environment and employee performance in Nigeria’s banking industry. *African Journal of Business and Economic Research*, 15(2), 45–61.
- Onifade, F. M., & Alimi, S. R. (2020). Ergonomic practices and employee effectiveness in Nigerian manufacturing companies. *Journal of Management and Strategy*, 11(3), 88–97. <https://doi.org/10.5430/jms.v11n3p88>

- Robertson, M. M., & Huang, Y. H. (2016). Effect of office ergonomics intervention on worker productivity: An evidence-based approach. *Journal of Occupational and Environmental Medicine*, 58(2), 115–122. <https://doi.org/10.1097/JOM.0000000000000625>
- Robertson, M. M., Ciriello, V. M., & Garabet, A. M. (2013). Office ergonomics training and a sit-stand workstation: Effects on musculoskeletal and visual symptoms and performance of office workers. *Applied Ergonomics*, 44(1), 73–85. <https://doi.org/10.1016/j.apergo.2012.05.001>
- Shan, Y., Chan, A. P. C., & Leung, M. Y. (2020). Impact of workplace environmental factors on building professionals' productivity. *Journal of Management in Engineering*, 36(4), 04020037. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000792](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000792)
- Shikdar, A. A., & Sawaqed, N. M. (2013). Worker productivity, and occupational health and safety issues in selected industries. *Computers & Industrial Engineering*, 45(4), 563–572. [https://doi.org/10.1016/S0360-8352\(03\)00074-3](https://doi.org/10.1016/S0360-8352(03)00074-3)
- Singh, A., & Singh, S. (2022). Ergonomics and organizational performance: A systematic review. *International Journal of Productivity and Performance Management*, 71(6), 2154–2172. <https://doi.org/10.1108/IJPPM-07-2020-0371>
- Vischer, J. C. (2007). The effects of the physical environment on job performance: Towards a theoretical model of workplace stress. *Stress and Health*, 23(3), 175–184. <https://doi.org/10.1002/smi.1134>
- Yamane, T. (1967). *Statistics: An introductory analysis (2nd ed.)*. Harper and Row.
- Yellow, M., & Sen, R. (2003). Workplace design and organizational performance: An exploratory analysis. *Journal of Environmental Psychology*, 23(2), 223–231. [https://doi.org/10.1016/S0272-4944\(02\)00078-1](https://doi.org/10.1016/S0272-4944(02)00078-1)