ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

The Role of Ergonomics on the Growth of Small and Medium Size Industrial Enterprises in Cameroon

Le rôle de l'Ergonomie sur la Croissance des Petites et Moyennes Entreprises Industrielles au Cameroun

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Disclosure Statement :	Authors are not aware of any findings that might be perceived as affecting the objectivity of this study and they are responsible for any plagiarism in this paper.
Conflict of Interest :	The authors report no conflicts of interest.
Cite this article :	FOKAM, J., CHIABI, P., & TCHUENCHE, R. (2025). The Role of Ergonomics on the Growth of Small and Medium Size Industrial Enterprises in Cameroon. *International Journal of Accounting, Finance, Auditing, Management and Economics*, *6*(2), 495-513. https://doi.org/10.5281/zenodo.14880360
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Received: January 09, 2024 *Accepted: February 15, 2025*

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Abstract

This paper aims to evaluate the impact of Ergonomics (Physical and Cognitive) on the Growth of Small and Medium size Industrial Enterprises in Cameroon. To test our hypotheses, the research followed a deductive methodology through which primary data were collected using structured questionnaires from 114 respondents of SMEs in Cameroon. The results showed that, Physical Ergonomics exerts a positive and significant effect on growth of SMIEs in Cameroon, and Cognitive ergonomics also exerts a positive and significant effects on growth. From the above findings, we propose that Management of industrial SMEs should provide adaptive workstations that is, Height-Adjustable and Flexible Workstations, Mental Health and Well-being Programs should be prioritized as well as invest on Ergonomic Software Design like Intuitive User Interfaces so as to render the workplace physically and cognitively safe, hence fostering the growth of the Enterprise.

Keywords: Physical ergonomy, Cognitive ergonomy, Growth, SMIEs, Cameroon.
JEL Classification : O4, P23.
Paper type : Empirical Research

Résumé

Cet article vise à évaluer l'impact de l'ergonomie (physique et cognitive) sur la croissance des petites et moyennes entreprises industrielles au Cameroun. Pour tester nos hypothèses, la recherche a suivi une méthodologie déductive à travers laquelle les données primaires ont été collectées par le biais de questionnaires structurés collectés auprès de 114 répondants de PME au Cameroun. Les résultats ont montré que l'ergonomie physique exerce un effet positif et significatif sur la croissance des SMIE au Cameroun, et que l'ergonomie cognitive exerce également des effets positifs et significatifs sur la croissance. À partir des résultats ci-dessus, nous proposons que la direction des PME industrielles fournisse des postes de travail adaptatifs, c'est-à-dire que les postes de travail réglables en hauteur et flexibles, les programmes de santé mentale et de bien-être soient prioritaires, ainsi que d'investir dans la conception de logiciels ergonomiques tels que des interfaces utilisateur intuitives afin de rendre le lieu de travail physiquement et cognitivement sûr, favorisant ainsi la croissance de l'entreprise.

Mots-clés : Ergonomie physique, Ergonomie cognitive, Croissance, SMIEs, Cameroun
JEL Classification : O4, P23.
Type du papier : Recherche empirique

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

IJAFAME
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1. Introduction

Organizational psychology has spent years studying the relationship between worker productivity and happiness. They are more productive and profitable if they are able to design a workplace that creates congruence in the line of sight between employer and employee interests which means that the workplace is designed where employees believe they will benefit financially and psychologically if the organization is profitable and successful (Gilbreath, 2004; Kossek et al., 2012). Organizations around the world, regardless of their types and sizes need a well-functioning and effective application of ergonomics to grow, be successful and flourish. These organizations and companies can be small, medium, or large, and be part of the private or the public sector. They can also be profit making or non-profit organizations. They can provide services by manufacturing, extracting or service organizations, and be local or global corporations. The truth of the matter is, for any of the listed types of corporations to succeed and to see an exponential growth with the years, and in the present times, the practice of ergonomics is mandatory, and would be play a key role in that.

Globally, the success of any organization is closely related to employee performance within that organization. The quality of the employees' workplace environment has an impact on their motivation level and hence performance (Heath, 2022). Conducive workplace environment ensures employee's wellbeing which will enable them exert themselves to their roles with full commitment that may translate to higher growth (Akinyele, 2020). Various literature pertains to the study of multiple offices and office buildings indicated that the factors such as dissatisfaction, cluttered workplaces and the physical environment play a major role in the loss of employees' productivity (Carnevale, 1992; Clements, Croome 1997). According to the Washington State Department of Labor and Industries (2022) ergonomics improvements to the work environment are primarily used to create a safer and more healthful work environment. Better outcomes and increased growth are assumed to be the result of better workplace environment.

Several studies have confirmed that ergonomically optimized workplaces contribute to increased employee productivity and engagement. A study by Robertson and Huang (2006) found that implementing ergonomic interventions, such as adjustable desks and proper seating arrangements, significantly improved workers' efficiency, reduced discomfort, and enhanced job satisfaction. This supports Mayo's (1933) argument that workplace environment and social factors play a crucial role in employee motivation and performance. Similarly, Hedge (2016) demonstrated that workers in ergonomically designed offices reported lower fatigue and higher efficiency, reinforcing Herzberg's (1959) Two-Factor Theory, which emphasizes the importance of workplace conditions in reducing dissatisfaction. Furthermore, Vischer (2007) suggested that environmental ergonomics, including proper lighting, ventilation, and noise control, significantly influences employee stress levels and job performance, supporting Herzberg's (1959) view on hygiene factors affecting workplace satisfaction.

Cognitive ergonomics plays a critical role in enhancing employee performance by reducing mental workload and improving decision-making efficiency. A study by Young et al. (2015) found that workplaces incorporating cognitive ergonomics, such as simplified workflow designs and intuitive software interfaces, led to improved concentration and reduced mental fatigue. This supports Cyert and March's (1963) Behavioral Theory of the Firm, which emphasizes the importance of aligning employee interests with organizational goals through improved work environments. Research by Haines et al. (2002) found that participatory ergonomics programs, where employees are actively involved in designing ergonomic solutions, led to higher acceptance and effectiveness of interventions. This aligns with the argument that businesses prioritizing ergonomic improvements tend to experience improved productivity and profitability (Washington State Department of Labor and Industries, 2022).

Furthermore, Dul and Neumann (2009) demonstrated that organizations integrating ergonomic principles into their management strategies achieved better long-term success, reinforcing the idea that ergonomics is a key driver of organizational performance.

According to the SME Statistical Yearbook (2021), Ergonomics is important to SMEs, to ensure their growth and expansion. They furthered by saying, ergonomic practices like providing ergonomic furniture, also reviewing the adequacy of software and all the digital tools provided to team members and ensuring that the processes and working methods, would greatly contribute in ameliorating productivity. We have discovered that ergonomics is more practiced and taken into consideration in Developed Countries and other continents like Asia, Europe and America, but neglected in Africa, especially in Cameroon, which is our host country in this study.

As a result, this study will investigate the following research questions:

- To what extent does Ergonomics impact Growth in Small and Medium size Industrial Enterprises in Cameroon?
- To what extent I s Physical Ergonomics linked to the Growth of Small and Medium size Industrial Enterprises in Cameroon?
- To what extent does Cognitive Ergonomics impact Growth in Small and Medium size Industrial Enterprises in Cameroon?

This article aims to address the critical issue of workplace ergonomics and its impact on employee productivity, particularly in regions where its implementation is often overlooked. While extensive research has demonstrated the strong correlation between a well-designed work environment and enhanced employee performance in developed countries such as those in Europe, Asia, and America, there remains a significant gap in the adoption of ergonomic practices in Africa, especially in Cameroon. By examining the challenges faced by organizations in Cameroon and highlighting the benefits of ergonomic interventions, this study will provide concrete recommendations on how businesses—regardless of size, sector, or profit orientation—can integrate ergonomics into their workplace strategies. Furthermore, this article will analyze how ergonomic improvements, such as appropriate office furniture, optimized digital tools, and streamlined work processes, contribute to increased motivation, efficiency, and overall business success. Ultimately, the findings will offer practical solutions for bridging the gap between employer and employee interests, fostering a more productive and profitable work environment.

2. Literature review and Hypothesis Development

2.1. Theoretical literature

2.1.1. Elton Mayo and the Hawthorne Experience (1880-1949)

The school of human relation is issued notably from the works of Elton Mayo, who is considered as the founding father of the human relations school. The origin of the work of this author started from the experiences gathered in the western electrical factory, realized as from 1947; under the supervision (management) of a psychologist and philosopher Elton Mayo. Confronted with productivity problem and by adopting a Taylorian approach, this experience seeks to observe the evolution of the productivity of workers in function of the material working conditions (lighting, definition of post, amelioration of working time and remuneration system). In other words, the objective of this study was to analyze the link (relationship) between lighting in the workshop and the productivity of workers i.e. the study was focused on verifying whether putting in place of a favorable material working condition can ameliorate labor

Elton Mayo's Human Relations Theory emphasizes the importance of social factors, employee satisfaction, and workplace environment in driving productivity. His Hawthorne Studies revealed that employees are more motivated when they feel valued and have a sense of

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

belonging in the workplace (Mayo, 1933). This aligns with the idea that a well-structured work environment—one that prioritizes ergonomics and employee well-being—fosters motivation and enhances performance. Research has shown that organizations with better workplace ergonomics experience higher employee engagement and efficiency, ultimately leading to increased profitability and success (Heath, 2022).

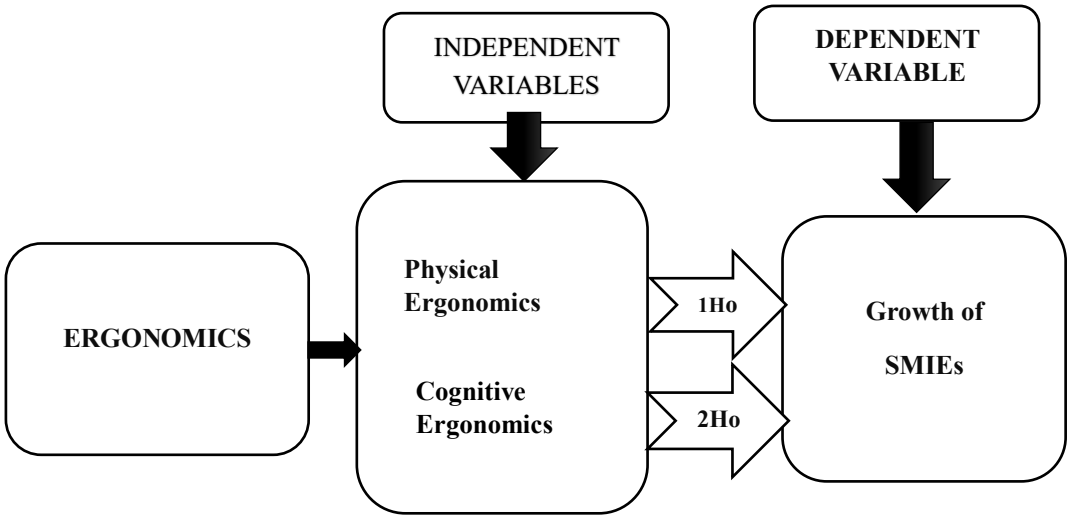
2.1.2. Herzberg's Two-Factor Theory (1959)

Herzberg's Two-Factor Theory distinguishes between hygiene factors and motivators in the workplace. Hygiene factors, such as physical working conditions and company policies, do not necessarily motivate employees but can lead to dissatisfaction if inadequate. On the other hand, motivators like recognition, career growth, and meaningful work enhance job satisfaction and productivity (Herzberg, 1959). The role of ergonomics in organizational success ties directly to this theory, as an ergonomically optimized workplace serves as both a hygiene factor—by preventing discomfort and dissatisfaction—and a motivator—by enhancing efficiency and psychological well-being. Studies have shown that organizations that invest in ergonomic improvements benefit from higher employee morale, lower turnover, and increased output (Akinyele, 2020).

2.1.3. Cyert and March's Behavioral Theory of the Firm (1963)

C Cyert and March's Behavioral Theory of the Firm suggests that organizations function through a coalition of individuals and groups with varying interests, and success depends on balancing these interests to achieve common goals (Cyert & March, 1963). This perspective is relevant to the discussion on ergonomics because it highlights the importance of aligning employer and employee interests. By investing in ergonomic workplace improvements, organizations create an environment where employees see a direct benefit in their well-being and performance, reinforcing their commitment to organizational goals. Research indicates that businesses that prioritize workplace ergonomics tend to experience improved productivity, reduced absenteeism, and higher profitability (Washington State Department of Labor and Industries, 2022). This study will explore how businesses, particularly in Cameroon, can apply these principles to enhance productivity and profitability by fostering a work environment that accommodates both employer objectives and employee needs

Figure 1: Conceptual Framework



Source: Author's Conception

This study makes use of both a dependent and independent variable which are explained as follows:

❖ **Dependent Variables**

The dependent variable use in this study is the Growth of SMIEs in Cameroon. Growth indicators used for the purpose of this study are market growth, Client satisfaction, employee turnover, and revenue.

❖ **Independent Variables**

The independent variable use in this study is Ergonomics; our characteristics were Physical Ergonomics and Cognitive Ergonomics. The aim of this model is to enable us to achieve the effect of our key independent variables as seen on the table below

Table 1: Summary of Operationalization of Variables

Source	Concepts	Nature	Variables	Indicator
International Ergonomics Association (2017)	ERGONOMICS	Independent	Physical Ergonomics	workplace layout safety and health, material handling repetitive mouvements
			Cognitive Ergonomics	mental effort decision making work stress human reliability
Pegasus (2015)	GROWTH	Dependent	Growth	market growth Client satisfaction employee turnover Revenue

Source: Author's Conception

2.2. A Missing Link Between Ergonomics and Growth

2.2.1. Physical Ergonomics and Growth

Physical ergonomics plays a crucial role in the growth of industrial enterprises by improving worker productivity, safety, and overall well-being. Here's how it contributes to industrial growth: Enhanced Productivity by ensuring optimized workstations. This is done by designing workstations that align with ergonomic principles, workers can perform tasks more efficiently with reduced physical strain, leading to higher productivity levels. Also, we have Reduced Fatigue. Ergonomic designs minimize unnecessary movements and awkward postures, reducing worker fatigue and allowing for sustained high performance throughout shifts. Improved Safety and Health through injury prevention: Proper ergonomic practices help prevent common workplace injuries like musculoskeletal disorders (MSDs), which are prevalent in industrial settings. Fewer injuries lead to lower absenteeism and healthcare costs. Safety Compliance: Adopting ergonomic solutions helps companies comply with occupational safety regulations, reducing the risk of penalties and improving the company's reputation.
Employee Satisfaction and Retention through Comfortable Work Environment: Ergonomically designed workplaces lead to increased comfort, reducing physical discomfort and strain. This can lead to higher job satisfaction and lower turnover rates. Also, Psychological Benefits: Workers who feel physically comfortable are generally more satisfied, which contributes to a positive workplace culture and better overall morale. We have Cost Savings through Reduced Compensation Costs: By minimizing workplace injuries and associated compensation claims, companies can save on costs related to worker's compensation insurance and legal fees. Lowered Equipment Maintenance Costs: Ergonomically designed tools and equipment often lead to fewer breakdowns and lower maintenance costs, as they are designed with human use in mind. Competitive Advantage through Reputation for Safety: Companies known for prioritizing ergonomics often attract more skilled workers and gain a competitive edge in the labor market. Also, Increased Efficiency: With a more efficient workforce, companies can

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

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produce goods at a faster rate and with higher quality, contributing to their competitive positioning in the market.

ASANTE (2012) on "The Impact of Office Ergonomics on Employee Performance". The study was to find out the impact of office ergonomics on employee performance using the Ghana National Petroleum Corporation (GNPC) as a case study. The objectives of the study were to assess the impact of office ergonomics on the performance of GNPC employees at the Petroleum House in Tema and finally propose specific ergonomically based interventions that would address employee health, comfort and wellbeing and thereby enhance optimum performance. The study was based on a sample of 88 GNPC staff randomly drawn. Data for the study obtained mainly from the administration of questionnaires was analysed quantitatively using the SPSS and Microsoft Excel and presented with the aid of frequency distributions, pie charts, tables, pictures and graphs. The study confirmed that the ergonomic deficiencies have had varying adverse effects on the performance of GNPC employees by between 20-80 percent. The study recommends the relocation of the GNPC head office to a new modern facility designed and furnished to suit the peculiar needs of the Corporation.

ANKIT, VAIBHAV and DUTTA (2016) on "Impact of Office Ergonomics on Business Performance". This study helps to assess the impact of office ergonomics on business performance in Noida region; to analyse the office design, finishes and furnishing at the offices in Noida region, to assess the impact of office ergonomics in the design, finishes and furnishing in terms of their suitability and comfort of the employees; to identify the impact of office ergonomics on employee health, safety and security. Here in this study, we use convince sampling and the target sample of 50 employees was from Noida region. We collect questionnaire by using questionnaire method and the analysis is done by using SPSS, correlation analysis and data was represented by using percentages, frequencies, mean, and standard deviation. The study demonstrated that office ergonomics deficiencies at the offices in this region by between 30 to 70 percent. The study recommends the relocation of the office to a purpose-built office facility that integrates high standards of office ergonomics, and companies should undertake post-occupancy evaluation one year after occupation of the new office. However, we remark that the research was conducted using a single variable which is Ergonomics, the sector of activity is vague and no theories to scientifically backup the research

ELHAM et al (2021) on "An Assessment of Ergonomics Climate and Organizational Performance and Employee Well-Being" This study aimed to assess the ergonomics climate at two power plants and examine its association with self-reported pain, performance, and well-being. At two power plants in Iran, survey responses from 109 and 110 employees were obtained. The questionnaires contained data on ergonomics climate, organizational performance, employee health, and self-reported pain. Results showed that the mean ergonomics climate scores between the Besat and Rey power plants were significantly different ($p < 0.001$). The overall ergonomics climate score, and all subscales' scores, were positively associated with organizational performance ($p < 0.001$). The overall ergonomics climate score, and some of its subscales, were significantly associated with employees' general health ($p < 0.001$). The ergonomics climate score was significantly higher in the group of employees who reported musculoskeletal pain than those who did not report musculoskeletal pain ($p < 0.05$). Our remark is that the research was conducted using a single variable of Ergonomics, the sector of activity is vague and no theories to scientifically backup the research.

ASIH et al (2022) on "Effects of ergonomics intervention on work accidents in the construction sector and their effect on productivity" This study aims to determine the relationship between the factors that affect work accidents in the construction sector and their effect on Productivity moderated by ergonomics. This research was conducted with 107 respondents from projects in Jakarta. The data analysis method used is Structural Equation Modelling (SEM) based on non-covariance, namely Partial Least Square (PLS). Data analysis using Smart PLS 3.0 software.

The results show that Ergonomics has no direct effect on Productivity, with p-value 0.313. Work Accidents do not directly affect Productivity with p-value 0.333. OHS Management does not directly affect Work Accidents with p-value 0.013. OHS Management has a direct effect on Productivity with p-value 0.000. Application of OHS Requirements through Ergonomics has no direct effect on Productivity with p-value 0.000. We remark that the ergonomics has no effect on the dependent variables and the research indicates does not point out any indicator or variable of Ergonomics and the absence of theories to justify the research

The above empirical evidence permits us to pose the following research hypothesis to be deduced empirically in the Cameroon context.

Hypothesis 1: Physical Ergonomics has no significant effect on Growth in Small and Medium size Industrial Enterprises in Yaounde and Douala

2.2.2. Cognitive Ergonomics and Growth

Cognitive ergonomics, which focuses on understanding how mental processes such as perception, memory, reasoning, and motor response interact with elements of a system, plays a critical role in the growth of industrial enterprises. It complements physical ergonomics by optimizing the mental and cognitive workload of workers, leading to enhanced efficiency, safety, and innovation. Here's how cognitive ergonomics contributes to the growth of industrial enterprises: Improved Decision-Making and Problem-Solving through optimized Information Processing: By designing systems that align with natural human cognitive processes, workers can process information more effectively, leading to faster and more accurate decision-making. Also, enhanced Situational Awareness because cognitive ergonomics helps in designing interfaces and work environments that enhance workers' situational awareness, reducing errors and improving response times in critical situations.

Reduced Cognitive Load through Simplified Tasks and Interfaces: By simplifying tasks and optimizing interfaces to reduce unnecessary complexity, cognitive ergonomics minimizes mental strain and reduces the likelihood of errors. Also, Automation of Routine Tasks: By automating repetitive or complex tasks, cognitive ergonomics reduces the cognitive load on workers, allowing them to focus on more critical and creative aspects of their jobs. We can also cite Improved Training and Skill Acquisition through effective training programs: Cognitive ergonomics informs the design of training programs that are aligned with how people learn best, making training more effective and helping workers acquire skills more rapidly. Also, Adaptive Learning Systems: With cognitive ergonomics, training systems can be designed to adapt to individual learning paces and styles, leading to better retention of knowledge and quicker onboarding processes. In conclusion, cognitive ergonomics is essential for industrial enterprises aiming to grow and thrive in today's competitive environment. By optimizing cognitive processes, enterprises can enhance worker performance, reduce errors, improve safety, and foster a culture of innovation. This, in turn, leads to increased productivity, better employee satisfaction, and sustained business growth

ASOGWA and NDUBUISI-OKOLO (2020) on "Effect of Ergonomic Factors on Employees Performance". The study examined the effect of ergonomic factors on employees' performance in the Nigerian banking sector, using banks in Anambra State, Nigeria as the study area. The study adopted descriptive survey design and the main statistical tool of analysis were Summary Statistics and Chi-Square ($\chi 2$) test of independence. All tests were conducted at 0.05 level of significance. Major findings from the study were that physical workplace environment significantly affects employees' performance in the banking sector in Nigeria. The sample size was at 273 employees. Similarly, the study found also that engaging on repetitive task assignment and insufficient rest time hampers employees' performance. The study concludes that having work/task design that are repetitive makes employees feel tired and bored and that insufficient rest time for the employees also leads to health conditions that negatively affects

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

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performance in the banking industry in Nigeria. It was recommended among others that the management should encourage the employees to perform better by providing conducive workplace environment both in design of tasks and indoor office environment.

LATIF, KARIMI, VALIZADEH (2022) on "The Effect of Ergonomics on the Occupational Burnout, Stress, and Productivity" In this regard, investigating the effect of employing workplace ergonomic principles on occupational productivity was determined as the aim of present study. Present research is an applied and causal-correlational study that was carried out using a cross-sectional survey and structural equation modeling. The statistical population of the study was the experts of Kerman Agricultural Jihad Organization (N=1418). The sample size was estimated to be 306 cases using Krejcie and Morgan sampling table. The direct effects of ergonomic principles on occupational stress and burnout were negative and significant. Furthermore, the direct effects of occupational stress and burnout on productivity were negative and significant. The direct effect of occupational stress on burnout was positive and significant and the indirect effect of ergonomic principles on productivity was significant, as well. Finally, the findings revealed that three independent variables (ergonomic principles in the workplace, occupational stress, and burnout) could account for 61% of the variance in productivity of experts in Kerman Agricultural Jihad Organization.

The above empirical evidence of the causal relationship between cognitive ergonomics and the growth of enterprise, permits us to hypothesize that:

Hypothesis 2: Cognitive Ergonomics has no significant impact on Growth in Small and Medium size Industrial Enterprises in Yaounde and Douala

2.2.3. Other forms of Ergonomics

Ergonomics extends beyond physical workspace design to encompass organizational, environmental, and social dimensions, all of which significantly impact employee productivity and well-being. Organizational ergonomics focuses on optimizing work processes, policies, and structures to enhance efficiency and employee satisfaction. This includes job design, workflow management, and communication strategies that align employee roles with organizational goals (Dul & Neumann, 2009). To address the lack of ergonomic implementation in Cameroon, businesses can introduce structured policies that promote ergonomic training, flexible work arrangements, and improved task distribution to prevent burnout and inefficiency. Environmental ergonomics pertains to factors such as lighting, noise levels, air quality, and temperature, all of which influence employee comfort and concentration (Clements-Croome, 1997). As a solution, organizations should assess and modify workspaces to ensure proper ventilation, noise control, and adequate lighting, creating an environment that fosters productivity. Social ergonomics addresses the impact of interpersonal relationships, teamwork, and workplace culture on employee motivation and engagement (Karwowski, 2012). Organizations in Cameroon can improve workplace culture by encouraging collaboration, providing social support systems, and fostering a sense of belonging among employees. By incorporating these ergonomic principles into workplace design, organizations can bridge the gap between employer and employee interests, enhance productivity, reduce absenteeism, and ultimately improve overall business performance. This holistic approach to ergonomics is essential for addressing the current lack of ergonomic practices in Cameroon and ensuring sustainable organizational growth.

3. Methods

3.1.Sample and procedures

A sample of 114 full-time employees in Cameroon - who were currently working with a direct supervisor (leader) - were selected. According to Punch (1998), one cannot study everyone

everywhere doing everything and so sampling decision is required not only about which people to interview or which event to observe, but also about setting a process. A probability sampling method was used, meaning that every member of the population had a chance of being selected. Among the four main types of probability sampling, we chose the simple random sampling technique, which involves the entire population. It allows you draw conclusions by ensuring that every member of the population had a chance and was properly represented in the sample. Within the sample, gotten from the gender distribution of the participants; Males, representing 51.8% of the total sample and Females 48.2% of the total sample. Their ages ranged from 20 years and above. Std deviation Statistic lists for each variable, which represent the amount of variation or dispersion in each variable. Gender: 0.502 (indicates a relatively small amount of variation, likely due to a categorical variable with few categories), Age: 0.991 (suggests a moderate amount of variation in age), Marital status: 1.458 (indicates a relatively large amount of variation, possibly due to multiple categories), Level of education: 0.742 (suggests a moderate amount of variation), For how long have you been working for this enterprise: 0.706 (indicates a moderate amount of variation), Size of the enterprise: 0.502 (similar to gender, likely due to a categorical variable with few categories), Sector of activity: 0.188 (indicates a relatively small amount of variation, possibly due to few categories).

3.2. Measures

The model presented above has two independent variables, one dependent variable (DV), and additional control variables. Dependent and independent variables were all measured using a Likert scale (‘strongly disagree’, ‘disagree’, ‘neutral’, ‘agree’, and ‘strongly agree’). In addition, three questionnaire translation techniques were applied, to prevent any methodological problems relating to translation from English to French and vice versa (Sperber et al., 1994).

3.3. Validity and Reliability

As independent and dependent variables were collected from a single respondent and with similar methods, common method bias may lead to inflated estimates of the relationships (Podsakoff and Organ 1986). Thus, we strictly followed procedural and statistical remedies suggested by researchers to address this problem (Podsakoff et al., 2012). We minimized the bias via procedural remedies such as anonymous respondents, dependent variable was put in front of independent variables in the survey. Common method variance is signposted by the emergence of either a single factor or a general factor that explains a majority of the variance (Podsakoff et al. 2003). In our sample no single factor explained the majority of the variance.
To determine validity, the questionnaire was designed in line with the supporting objectives of the study. It refers to how well the data measure what they are supposed to measure (Denscombe, 2010). Furthermore, Denscombe (2010) mentions that validity is the significance of the data that needs to be accurate enough to meet the research objectives.
The responses on the study and from the main study questionnaire, the answers were similar. This is supported by Campbell and Vigar-Ellis (2012) state that the reliability of the study can be arrived at by the similarity of responses from the responses in repeated subsequent tests. The reliability is where the findings of a specific question or statement given to respondent and the answer are similar.

4. Findings

Table 1 and 2 below presents the correlation matrix and descriptive statistics for the variables. The results show that physical ergonomics and cognitive ergonomics are significantly correlated with growth.

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

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Table 2: Correlations

Correlations				
		Growth	Physical Ergonomics	Cognitive Ergonomics
Pearson Correlation	Growth	1.000	.902	.891
	Physical Ergonomics	.902	1.000	.919
	Cognitive Ergonomics	.891	.919	1.000
Sig. (1-tailed)	Growth	.	.000	.000
	Physical Ergonomics	.000	.	.000
	Cognitive Ergonomics	.000	.000	.
N	Growth	114	114	114
	Physical Ergonomics	114	114	114
	Cognitive Ergonomics	114	114	114

Source: Authors

Table 3: Descriptive Statistics of Variables

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Management provides a good physical environment with ventilation, lighting and sanitary	114	1	5	3.37	1.184	1.403
Employees always wear personal protective equipment such as goggles and gloves where identified in the risk assessments	114	1	5	3.24	1.139	1.297
Management makes sure people fit into their desired space to avoid awkward postures	114	1	5	3.46	.979	.959
The organization give room for a change in the pattern of your work to avoid repetitive movement injury	114	1	5	3.55	1.145	1.311
The management gives staffs a clear picture of the direction in which the organization is headed hence reducing stress	114	1	5	3.76	1.236	1.527
Management involves staff in decision making	114	1	5	4.04	.944	.892
The organization always gives more opportunities to employees to express their problems	114	1	5	3.82	1.133	1.284
All employees receive training before using any item of equipment and undergo program refresher training	114	1	5	2.92	1.122	1.259
The enterprise has increased their product line	114	1	5	2.87	.964	.929
Clients are highly satisfied with our products and tend to be loyal	114	1	5	3.14	.986	.971
New branches of the enterprise were created recently	114	1	5	3.11	1.188	1.412
The profit levels have highly increase lately	114	1	5	3.11	1.054	1.111
Valid N (listwise)	114					

Source: Authors

This output shows the descriptive statistics for the variables in the analysis:

Table 4 Descriptive Statistics

	Mean	Std. Deviation	N
Growth	3.11	1.054	114
Physical Ergonomics	3.37	1.184	114
Cognitive Ergonomics	3.76	1.236	114

Source: Authors

The mean values represent the average scores for each variable. The standard deviation (SD) values represent the amount of variation or dispersion in each variable. Growth has a mean of 3.11 and a relatively moderate standard deviation of 1.054. Physical Ergonomics has a mean of 3.37 and a slightly higher standard deviation of 1.184. Cognitive Ergonomics has the highest mean (3.76) and standard deviation (1.236), indicating more variation in this variable. These statistics provide a general overview of the central tendency and dispersion of the variables, which can be useful for understanding the data and informing further analysis.

- **Hypothesis testing**

A hypothesis is a tentative of a research question or problem. There are two types of hypotheses, that is the null hypothesis denoted Ho which states that there is no effect of the independent variable on the dependent variable, and the alternative hypothesis denoted Hi which states that there is an effect of the independent variable on the dependent variable, or that two variables are related.

The data was analyzed using the Pearson correlation coefficient, using SPSS version 2.0. Since the variables are categorical, it is suitable for chi-square but these variables were transformed to compute variables thus making them continuous and suitable for correlation analysis. Both the dependent and independent variables were correlated. When the correlation is positive, this means r is close to +l, this shows a strong positive correlation thus showing that there is a relationship between X and Y, thus if X increases, Y also increase. On the other hand, it r is close to -1, it indicates that a perfect negative correlation exists between the variable showing that as X increases, Y decreases. Also, the correlation is said to be weak when r is closer to 0 meaning there is no relationship between X and Y. Secondly, in order to determine the strength of the relationship to know whether it is string. Moderate or weak we need to come out with the decision rule. The rule states that if the calculated value is less than the table value, we fail to reject the null hypothesis.

The Table 3 below shows the analysis of the econometric result using SPSS

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.230	.129		1.780	.078
	Physical Ergonomics	.477	.086	.536	5.549	.000
	Cognitive Ergonomics	.339	.082	.398	4.116	.000

a. Dependent Variable: Growth

Source: Authors

From the econometric package run using the 114 respondents of our sample size, this output shows the results of a linear regression analysis, including unstandardized coefficients (B), standardized coefficients (Beta), standard errors, t-values, and significance levels.

Dependent Variable: Growth and Independent Variables: Physical Ergonomics, Cognitive Ergonomics

From the results; constant (Intercept) of B: 0.230, Std Error: 0.129, t-value: 1.780 and Sig: 0.078

Physical Ergonomics of B: 0.477, Std Error: 0.086, t-value: 5.549, Sig: 0.000 and Beta: 0.536

Cognitive Ergonomics: B: 0.339, Std Error: 0.082, t-value: 4.116, Sig: 0.000 and Beta: 0.398

ISSN: 2658-8455
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For the interpretation:
- The constant (intercept) is not significantly different from zero ($p = 0.078$).
- Physical Ergonomics has a significant positive effect on Growth ($p < 0.001$), with a moderate to strong effect size (Beta = 0.536).
- Cognitive Ergonomics also has a significant positive effect on Growth ($p < 0.001$), with a moderate effect size (Beta = 0.398).

This analysis suggests that: Both Physical and Cognitive Ergonomics are significant predictors of Growth. Physical Ergonomics has a slightly stronger effect on Growth compared to Cognitive Ergonomics. Improving Physical and Cognitive Ergonomics may lead to increased Growth.

5. Discussion

Conceptualizing person-job fit as complementary fit, this study provides an insight into the link between Ergonomics and growth. Using structural equation modelling with the Ordinary Least Square method, the results show that all hypotheses are confirmed. Primarily, the results indicate that physical ergonomics and growth are positively related in the Cameroonian context, and that cognitive ergonomics and growth are also positively related. This adds to evidence regarding the importance of the influence of Ergonomics (Human Factor) on the growth of Industrial Enterprises in Cameroon. The findings provide a number of important theoretical and practical implications that are discussed below.

5.1. Practical implications

Our study provides some insights that have practical implications. It is important for organizations, especially the African context such as Cameroon, to recognize the benefits that Ergonomics would bring to organizations. They also need to pay attention to employees' well-being to enhance employees' work engagement. Below are some implications for decision makers and HR managers and practitioners, particularly in the contexts of developing countries like Cameroon.

This study shows decision makers that fostering ergonomic practices should become a strategic approach to the long-term development of organizations. Previous research has shown that ergonomics can develop performance of the organization (ELHAM et al (2021). It would benefit organizations if they introduce development programs to build ergonomical practices amongst their leadership population and embed them effectively through related HR agendas

For HR managers and practitioners, matching employees to specific job requirements appears to warrant further attention in the formulation of HR policies and practices. First, management should provide adaptive workstations that is, Height-Adjustable and Flexible Workstations. They should create workstations that automatically adjust to the worker's height and posture. Invest on ergonomic software design like intuitive user interfaces. This implies designing industrial software with user-centered principles, focusing on reducing cognitive strain. Also adopt mental health and well-being programs. This simply involves Mindfulness and Stress-Reduction Initiatives that Implement programs that address cognitive ergonomics by reducing stress. Implement dynamic task allocation by developing systems that automatically rotate workers through different tasks to prevent repetitive strain and cognitive fatigue. This will really help in applying ergonomics practically in Industrial enterprises.

5.2. Limitations

This study comprises as any research task, limits which it is advisable to raise for better determination of the range of its results.

The first limit relates to the sample size and also to the specificity of our study. In effect, the study is carried out on the employees of small and medium size industrial enterprises in the

Centre region and Littoral of Cameroon with the principal objective being to evaluate the impact of Ergonomics on the Growth and in this context the sample is regarded as being small (114). As such the results of this research can have difficulties to be generalized for all SMEs in Yaounde and Douala neither in Cameroon. This is so because it is still necessary to take into account other criteria or other elements that affect the growth out of ergonomics.

The study also limited itself to information and details that could be discussed without compromising any part of the firms' business aspects due to the competitive and dynamic nature of the industry. However, this limitation did not affect data collected for study.

All these limitations will to some extent constrain generalizations of findings. Notwithstanding, it is hoped that the study would find application in the Cameroonian small and medium Industrial enterprises, and provide the building blocks for more detailed and elaborate research.

5.3. Recommendations

Based on our findings, we propose the following solutions to help create a more ergonomic environment in Cameroonian industrial enterprises. Implementing these recommendations can lead to healthier, more productive workers, reducing costs associated with workplace injuries and inefficiencies while promoting business growth. Given the unique challenges faced by Small and Medium Industrial Enterprises (SMIEs) in Cameroon, such as limited financial resources, inadequate infrastructure, and low awareness of ergonomic best practices, our recommendations have been tailored to ensure feasibility and adaptability within the local context (Dul & Neumann, 2009; Washington State Department of Labor and Industries, 2022).

❖ Affordable and Locally Sourced Adjustable Workstations. Many Cameroonian businesses struggle with acquiring ergonomic furniture due to high import costs. To address this, partnerships should be established with local artisans and manufacturers to produce height-adjustable and flexible workstations using affordable materials. These workstations should be designed to accommodate different body postures and working styles, ensuring workers maintain proper posture throughout their shifts. Additionally, workplace infrastructure should be improved by ensuring proper ventilation, adequate lighting, and sanitary facilities, particularly in industries such as agriculture, manufacturing, and construction (Heath, 2022).

❖ Provision of Cost-Effective and Locally Available Ergonomic PPE Personal protective equipment (PPE) is essential in reducing workplace injuries and ensuring worker safety. Instead of relying on expensive imported PPE, businesses should work with local suppliers to develop affordable yet effective ergonomic protective gear. For example, lightweight helmets with balanced weight distribution, gloves that reduce grip force, and anti-fatigue footwear can significantly enhance worker safety and reduce musculoskeletal strain. Additionally, training programs should be implemented to ensure workers use PPE correctly and consistently (Washington State Department of Labor and Industries, 2022).

❖ Use of Simple, Low-Cost Automation for Repetitive Tasks. Given the financial constraints of many Cameroonian SMIEs, full automation may not be immediately viable. However, small businesses can invest in simple, low-cost mechanical aids such as conveyor belts, lifting devices, and semi-automated tools to reduce physical strain from repetitive tasks. Employers can also introduce teamwork-based task-sharing approaches to minimize individual worker fatigue and prevent repetitive movement injuries. Additionally, companies should explore leasing options for ergonomic equipment to spread costs over time rather than making significant upfront investments (Carnevale, 1992).

❖ Job Rotation and Flexible Task Allocation. To prevent repetitive strain injuries and fatigue, Cameroonian enterprises should develop job rotation systems where workers switch between different tasks periodically. This can be achieved using manual scheduling methods or basic digital tracking systems to monitor worker fatigue levels and assign tasks accordingly. Task rotation not only reduces the risk of physical strain but also enhances workforce versatility

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

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and engagement. This method has been particularly successful in manufacturing and service industries, where monotonous tasks can lead to decreased motivation and productivity (Akinyele, 2020).

❖ User-Friendly and Mobile-Compatible Industrial Software. Many Cameroonian businesses struggle with adopting complex digital tools due to a lack of IT training. To address this, organizations should invest in simple, mobile-compatible software with intuitive interfaces that minimize information overload. Given the widespread use of mobile phones in Cameroon, businesses can develop SMS-based or app-based work management systems that allow workers to receive instructions, report issues, and access relevant work information easily. Additionally, implementing training programs on digital literacy can help workers adapt to new technology and improve workplace efficiency (Dul & Neumann, 2009).

❖ Mental Health and Stress-Reduction Programs. Work-related stress is a growing issue in Cameroon due to long working hours, job insecurity, and demanding labor conditions. Employers should integrate low-cost mental health support systems, such as peer counseling groups, stress management workshops, and relaxation spaces within the workplace. Collaborations with local NGOs and health organizations can help provide affordable mental health awareness and support programs tailored to industrial workers. Providing designated rest areas and encouraging regular breaks can also help in reducing cognitive fatigue and increasing overall workplace well-being (Karwowski, 2012).

❖ Participatory Ergonomics and Worker Involvement. Instead of implementing top-down ergonomic solutions, Cameroonian SMIEs should engage workers in the design and evaluation of ergonomic interventions. Regular feedback sessions, worker-led safety committees, and participatory workshops can help ensure that ergonomic improvements are both practical and widely accepted. By involving employees in decision-making processes, businesses can create sustainable ergonomic solutions that align with both worker needs and company objectives (Herzberg, 1959).

Since this paper is the first to examine the roles of of Ergonomics on Growth of SMIEs in Cameroon, future studies are encouraged to test the link in other countries rather than Cameroon to compare findings for theory generalization. Calling from debates of best practices versus best fit (Purcell, 1999), it is suggested that scholars who are interested in localizing global management practices should involve inherent factors such as social regulation and national legislation in the framework.

6. Conclusion

We discovered that Physical Ergonomics exerts a positive and significant effect on growth of SMIEs with a regression of 0.477, implying that a unit variation of physical ergonomics will significantly increase or ameliorate the growth of SMIEs, by 0.477. Physical Ergonomics has a significant positive effect on Growth ($p < 0.001$), with a moderate to strong effect size. This finding is in line with Mutegi Tetu, et al. (2023) who noted that physical ergonomics is an important element in improving performance. It helps employees by reducing stress and discomfort at job sites. The objective of physical ergonomics is to reduce the primary risk factors for MSDs, so workers are more efficient, productive, and have greater job satisfaction. This means that the employes shall be able to make full use of their manipulative skills on the job in such a way as to aid in the achievement of organizational goals.

It was observed that, Cognitive ergonomics on its part also exerts a positive and significant effects on the growth of SMIEs in Cameroon with a coefficient of 0.339, implying that a unit variation in cognitive ergonomics will increase growth by 0.339. Cognitive Ergonomics also has a significant positive effect on Growth ($p < 0.001$), with a moderate effect size. The objective of cognitive ergonomics is to ensure the quality, usability, and safety of work systems,

as well as to monitor and improve the performance, satisfaction, and well-being of the workers. This means that the employees shall acquire new competencies, technical skills and be more acquainted with the workplace environment psychologically in such a way as to aid in the achievement of organizational goals. The regression results confirm the result of the Pearson correlation test and is in coherence with the work of spurious correlation is observed when the relationship between two variables is due to the relation of these variables to a third, unmeasured variable (Cohen and Cohen 1983).

On conclusion of the study " Ergonomics and Growth of Small and Medium Size Industrial Enterprises in Cameroon, the results obtained from the regression and the Pearson Correlation demonstrates that all the variables of Ergonomics (Physical Ergonomics and Cognitive Ergonomics) exert a positive effect on the Growth of SMIEs in Cameroon. The two hypothesis (Physical Ergonomics and Cognitive Ergonomics) which predicts no significant effect on Growth of SMIEs in Cameroon will therefore be rejected.

Despite the average level of performance in SMIEs, the organization still realizes poor expansion due to poor implementation of ergonomic practices. The results show that all the variables exert a positive and significant relationship with Personnel Productivity implying that a unit variation of in any of the variables to the benefit of the workers will increase their performance by 47.7% and 33.90% of Physical Ergonomics and Cognitive Ergonomics respectively. These results globally show that Ergonomics is an important determinant of the Growth of Small and Medium Size Industrial Enterprises in Cameroon.

As proposal for future research, studies can be done to find out the impact that ergonomics will have on the growth of service enterprises in Cameroon.

references

(1). Adizes, I. (1979). Organizational Passages—Diagnosing and Treating Lifecycle Problems of Organizations. Organizational Dynamics
(2). Akinyele, S. T. (2020). Employee Motivation and Productivity in the Workplace. International Journal of Business and Social Science,.
(3). Alonjang Siriwah (2019) on Workplace Environment and Employee Performance
(4). ANKIT, VAIBHAV and DUTTA (2016) on “Impact of Office Ergonomics on Business Performance”
(5). ASANTE (2012) on “The Impact of Office Ergonomics on Employee Performance”
(6). Asih et al (2022) on “Effects of ergonomics intervention on work accidents in the construction sector and their effect on productivity”
(7). Asogwa and Ndubuisi-Okolo (2020) on “Effect of Ergonomic Factors on Employees Performance”
(8). Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. Journal of Occupational Health Psychology.
(9). Carayon, P., & Haims, M. C. (2020). Human Factors and Ergonomics in Healthcare and Patient Safety. CRC Press.
(10). Carnevale, D. G. (1992). Physical Settings of Work. Public productivity and Management Review.
(11). Carnevale, D. G. (1992). Physical Settings of Work: A Theory of the Effects of Environmental Form. Public Productivity & Management Review.
(12). Chandrasekar, K. (2011). Workplace Environment and its Impact on Organizational Performance in Public Sector Organizations. International Journal of Enterprise Computing and Business Systems
(13). Churchill, N. C., & Lewis, V. L. (1983). The Five Stages of Small Business Growth.

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

(14). Cyert and March's (1963) theory" A Behavioral Theory of the Firm"
(15). Dittmar, A., Murray, D. M., van der Veer, G. C., & Witchel, H. J. (2021). Cognitive ergonomics: A European take on HCI. Interactions.
(16). Dreyfuss, H. (2003). The Measure of Man and Woman: Human Factors in Design. John Wiley & Sons.
(17). Dul, J., & Neumann, W. P. (2009). Ergonomics contributions to company strategies. *Applied Ergonomics.
(18). Dul, J., & Neumann, W. P. (2009). Ergonomics contributions to company strategies. Applied Ergonomics.
(19). Elham et al (2021) on "An Assessment of Ergonomics Climate and Organizational Performance and Employee Well-Being"
(20). García-Acosta, G., Pinilla, M. H. S., Larrahondo, P. A. R., and Morales, K. L.:2014, Ergoecology: fundamentals of a new multidisciplinary field. Theoretical Issues in Ergonomics Science
(21). Gupta, N. (2018, December 09). Corporate Governance, Business Growth and the Role of Independent Directors.
(22). Haines, H., Wilson, J. R., Vink, P., & Koningsveld, E. (2002). Validating a framework for participatory ergonomics. Ergonomics.
(23). Haslea. P., Jensen P.:2012, Ergonomics and sustainability – challenges from global supply chains, Work.
(24). Haynes, B. P. (2008). An Evaluation of the Impact of Office Environment on Productivity. Journal of Facilities.
(25). Hedge, A. (2016).
(26). Inkeles, G.:2010, Ergonomic Living: How to Create a User-Friendly Home and Officer. Simon and Schuster.
(27). Karwowski, W.: 2005, Ergonomics and human factors: the paradigms for science, engineering, design, technology and management of human-compatible systems. Ergonomics
(28). Koradecka, D., Karwowski, W.: Wojciech Jastrzębowski – an outline of ergonomics or the science of work based upon the thruths drawn from the science of nature. In: Commemora tive edition of the 14th Triennale Congress of the IEA, CIOP, San Diego/Warsaw, Poland (2000)
(29). Kroemer, K. H. E., Kroemer, H. J., & Kroemer-Elbert, K. E. (2001). Ergonomics: How to Design for Ease and Efficiency. Prentice-Hall.
(30). Latif, Karimi, Valizadeh (2022) on "The Effect of Ergonomics on the Occupational Burnout, Stress, and Productivity"
(31). Marris W., (1964) ,"Marris Model of Managerial Enterprise,"
(32). Martha H. Saravia. M.H., Pinilla.S., Daza-Beltr.C., Acosta.G.:2016, A comprehensive approach to environmental and human factors into product/service design and development. A review from an ergoecological perspective, Applied ergonomic.
(33). McNeill, M. & O"Neill, D. (1998). Occupational Disorders in Ghanaian Subsistence Farmers, Proceedings of the Annual Conference of the Ergonomics Society, Royal Agricultural College, Cirencester, 1-3 April 1998. M.A.Hanson, (ed). 1998
(34). Meister, D.: History of Human Factors in United States, International Encyclopedia of Ergonomics and Human Factors, pp. 73–75. Taylor & Francis, London (2001)
(35). Meister, D.: The History of Human Factors and Ergonomics, LEA, London, pp. (1999)
(36). Moran, G. (2010): "Home Office Ergonomics [Online] Available from (Accessed May 17, 2012)
(37). Mutegi Tetu et al (2023) on "Workplace Safety Ergonomics and Employee Productivity"

(38). Naeini, H. S., Karuppiah, K., Tamrin, S. B., and Dalal, K.: 2014, Ergonomics in agriculture: an approach in prevention of work-related musculoskeletal disorders (WMSDs). Journal of Agriculture and Environmental Sciences.
(39). NIOSH (2017). Musculoskeletal Health Program: Strategic Plan. NIOSH, U.S. Department of Health and Human Services.
(40). O"Neil, M. (2011). "Office ergonomic standards; a layperson"s guide" [Accessed 23 April, 2012]
(41). Olabode, S. O., Adesanya, A. R., & Bakare, A. A. (2017). Ergonomics awareness and employee performance: An exploratory study. Economics and Environmental Studies.
(42). Penrose, E. T. (1959). The theory of the growth of the firm. Oxford: Blackwell.
(43). Pheasant, S., & Haslegrave, C. M. (2018). Bodyspace: Anthropometry, Ergonomics and the Design of Work. CRC Press.
(44). Punch, K.F. (1998): Introduction to Social Research: Quantitative and Qualitative Approaches. London. Sage.
(45). Punnett, L., & Wegman, D. H. (2004). Work-related musculoskeletal disorders: The epidemiologic evidence and the debate. Journal of Electromyography and Kinesiology,.
(46). Rasool, S. F., Wang, M., Tang, M., Saeed, A., & Iqbal, J. (2021). How toxic workplace environment affects employee engagement: The mediating role of organizational support and employee wellbeing. International Journal of Environmental Research and Public Health
(47). Restuputri, D. P., Elvera, A. R., Nugraha, A., & Masudin, I. (2021). Ergonomic Approach on Rail Industry Workers Using Rail Ergonomics Questionnaire.
(48). Roelofsen, P. (2002): "The impact of office environments on employee performance: The design of the workplace as a strategy for productivity enhancement"
(49). Sakthi Nagaraj, T., & Jeyapaul, R. (2021). An empirical investigation on association between human factors, ergonomics and lean manufacturing. Production Planning and Control.
(50). Salvendy, G. (Ed.). (2012). *Handbook of Human Factors and Ergonomics* (4th ed.). Wiley.
(51). Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the Job Demands-Resources Model: Implications for improving work and health. Bridges to the Future: What Works at Work in the Contemporary World?
(52). SHILKY and ARORA (2021) on "Effect of Job Design and Ergonomics on Employee Performance"
(53). Silverstein, B. A., Fine, L. J., & Armstrong, T. J. (2017). Hand wrist cumulative trauma disorders in industry. Journal of Occupational Medicine.
(54). Slatter, S., & Lovett, D. (1999). Corporate Turnaround : Managing Companies in Distress.
(55). Stanton, N. A., Salmon, P. M., Walker, G. H., Baber, C., & Jenkins, D. P. (2017). *Human Factors Methods: A Practical Guide for Engineering and Design*. CRC Press.
(56). Sweller, J., Ayres, P., & Kalyuga, S. (2011). Cognitive Load Theory. Springer Science & Business Media.
(57). Then, F., Luck, T., Luppa, M., Thinschmidt, M., Deckert, S., Nieuwenhuijsen, K., Seidler, A., & Riedel Heller, S. (2013). Effect of the psychosocial working environment on cognition and dementia
(58). Tosi.F.:2012, Ergonomics and sustainability in the design of everyday use products, Work.
(59). Van Merriënboer, J. J. G., & Sweller, J. (2005). Cognitive load theory and complex learning: Recent developments and future directions. Educational Psychology Review.

ISSN: 2658-8455
Volume 6, Issue 2 (2025), pp. 495-513.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

(60). Vicente, K. J. (2003). The Human Factor: Revolutionizing the Way People Live with Technology. Routledge.
(61). Vimalanathan, & Babu T, R. (2017). A Study on the effect of ergonomics on computer operating office workers in India. Journal of Ergonomics
(62). Wanjiru Kahare (2014) on "Assessment of the Role of Strategic Ergonomics on Employee Performance"
(63). Wright, T. A. (2010). A sense of identity does matter in achieving relevance and meaning in our work. Industrial and Organizational Psychology.
(64). Young, M. S., Brookhuis, K. A., Wickens, C. D., & Hancock, P. A. (2015). State of science: mental workload in ergonomics. In Ergonomics.
(65). Zafir Khan et al (2022) on "Ergonomics workstation environment toward organisational competitiveness"
(66). Zolotova, M., & Giambattista, A. (2019). Designing cognitive ergonomics features of medical devices. Aspects of cognitive interaction. The Design Journal
(67). Zolotova, M., & Giambattista, A. (2019). Designing cognitive ergonomics features of medical devices. Aspects of cognitive interaction. The Design Journal