

The Impact of Ergonomics on Productivity in Office Buildings in Lagos, Nigeria

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Abstract- *An office is a place where a company's personnel carry out administrative tasks to support and achieve the company's objectives. An office is a structure, a section of a structure, or a space used for desk-based commercial activities. The workplace is a functioning ecology that depends solely on people. The study of ergonomics focuses on the interaction between individuals and their workplaces. Productivity is frequently defined as the quantity of output divided by the volume of inputs. The purpose of this research is to assess the impact of ergonomics in office buildings with a view to suggestive measures of enhancing productivity in the work environment towards enhancing productivity in office buildings. The literature review discusses ergonomics, its history and how it impacts productivity. The sources of information for this research includes case study, questionnaires, personnel observation and journals. 65 questionnaires were shared, 65 questionnaires were returned and the result showed the impact of ergonomics on productivity and that most users were satisfied with the spatial configuration of their space. The study recommends that employees have control over the physical aspect their workspace such as lighting, noise, temperature and that organizations conduct training sessions for new hires on ergonomic issues.*

Indexed Terms- *Ergonomics, Productivity, Office Buildings, Workplace*

I. INTRODUCTION

The Office is used by a variety of persons for long periods of time, the specific ergonomics adapted in the design of the office affects all the occupants because they spend a lot of time in their offices. The workplace is a functioning ecology that depends solely on people (G. Kumar & S. Bezawada, 2019). An office is a structure, a section of a structure, or a space used for desk-based commercial activities. Any location

utilized for administration, clerical work, handling money, or communication is referred to as an office. The main purpose of an office building is to give management and administrative staff a place to work. Ergonomics is sometimes known as human engineering (N. Deouskar, 2017). Productivity is frequently defined as the quantity of output divided by the volume of inputs. In other words, it assesses how effectively a country uses its capital and labor as inputs to generate a specific amount of output. It is an examination of the task we do, the setting in which we operate, and the resources we employ to do it well (A. Kroemer & H. Kroemer, 2016).

The aim of this study is to assess the impact of ergonomics in office buildings with a view to suggestive measures of enhancing productivity in the work environment.

The specific objectives are to:

- i. examine the physical characteristics of the office interiors in the study area.
- ii. assess the effect of ergonomics on office productivity.
- iii. assess user satisfaction with spatial configuration in office buildings in the study area.
- iv. suggest measures of enhancing productivity in office buildings.

II. RESEARCH AND METHODS

This research is centered on the impact of ergonomics on productivity in office buildings in Lagos state will apply the qualitative and quantitative research technique to this research. Quantitative focuses on measuring and testing using numerical data, whereas qualitative research focuses on gathering and analyzing words (written or spoken) and textual data. The sources of data collection include the primary and secondary data. The primary data are facts discovered by actual observations and the include questionnaires

and observation schedule. While the secondary data are information gathered from a source that has previously been in some way published and they include information from journals and case studies.

III. RESULTS

This research was carried out in order to achieve the objectives of this paper. The research objectives were also used to achieve the research aim. As a result of this part would be used to analyze the generated data and results of the study goals.

- **PHYSICAL EXAMINATION OF THE OFFICE INTERIORS IN THE OFFICE SPACE**

This data was gotten through literature review, observation schedule and questionnaires. For this study literatures and observations were referred to in order to look out for different physical characteristics of the office interiors present in an office space. The questionnaires were used to evaluate the user satisfaction with the spaces.

Results of the Observation schedule carried out in an Office space.

S/ N	OFFICE INTERIORS	Very Good	Good	Average	Bad	Very Bad
	Office Furniture		✓			
	Lighting	✓				
	Fenestration	✓				
	Temperature	✓				
	Background Noise		✓			
	Air Quality	✓				
	Electrical Outlets			✓		
	Wall Finishes		✓			
	Floor Finishes		✓			

Table 1: the physical characteristics of the office interiors in the office space.

Source: Researchers Fieldwork (2022).

Result: The office space has good Office furniture, Background noise, Wall finished, Floor finishes, very good Lighting, Fenestration, Temperature, Air quality and average Electrical outputs respectively.

QUESTIONNAIRE.
SOCIO- ECONOMIC CHARACTERISTICS OF THE RESPONDENTS
HOURS OF WORK

Table 6: Work Hours spent in the office building by the Respondents

HOURS SPENT BY RESPONDENTS	COUNT OF RESPONDENTS	PERCENTAGE
2-4 HOURS	7	10.8%
4-6 HOURS	19	29.2%
6-10 HOURS	39	60%
TOTAL	65	100%

(Source: Researcher’s Fieldwork, 2022)

From the response gathered from the respondents on the amount of hours spent in the office building, 60% spend 6-10 hours, 29.2% spend 4-6 hours and 10.8% spend 2-4 hours.

EXAMINATION OF USER SATISFACTION LEVEL WITH THE SPATIAL CONFIGURATION IN OFFICE BUILDINGS

S/ N	SPATIAL CONFIGURATION	COUNT OF RESPONDENTS	OF TOTAL	SATISFACTION LEVEL			
		1	2	3	4	5	
1	FURNITURE ARRANGEMENT	10	8	16	27	4	65
2	CIRCULATION SPACE	5	7	24	20	9	65

3	LIGHTING	5	5	17	25	1	65
4	VENTILATION	8	6	12	26	1	65
5	ELECTRIC OUTLET	6	7	22	23	7	65
6	COLOUR OF YOUR SPACE	7	7	23	21	7	65
7	WALL & FLOOR FINISHES	11	8	15	24	9	65
8	HEAD ROOM HEIGHT	7	7	21	21	1	65

Table 7: Assessment of User Satisfaction level with the spatial configuration in office buildings (Source: Researcher’s Fieldwork, 2022)

Result: It was found that 18 (28%), 16(25%) and 31 (47%) of them were dissatisfied, satisfied and very satisfied respectively with the furniture arrangement. This implies that most of the workers are satisfied with the furniture arrangement. It was also found out that 12(18%), 24(37%) and 29(45%) of them were

dissatisfied, satisfied and very satisfied with the circulation space. This implies that most of the workers are satisfied with the circulation space. However, 10(16%), 17(27%) and 37(57%) of them were dissatisfied, satisfied and very satisfied respectively with the lighting. 14(22%), 12(18%) and 38(58%) of them were dissatisfied satisfied and very satisfied respectively with the ventilation in their office space. 13(20%), 22(34%) and 30(46%) of them were dissatisfied, satisfied and very satisfied respectively with the electric outlets. 14 (22%), 23(35%) and 28(43%) of them were dissatisfied, satisfied and very satisfied with the colour of their space respectively. 19(29%), 15(23%) and 31(48%) of them were dissatisfied, satisfied and very satisfied respectively with the wall and floor finishes. Lastly, 14(22%), 21(32%) and 35(54%) of them were dissatisfied, satisfied and very satisfied with the head room height respectively.

INVESTIGATING THE EFFECT OF ERGONOMICS ON PRODUCTIVITY IN OFFICE BUILDINGS

Table 8: Assessment of the impact of ergonomics on user productivity in office buildings.

S/N	VARIABLES	COUNT OF RESPONSES					TOTAL
		STRONGLY AGREE	AGREE	INDIFFERENT	DISAGREE	STRONGLY DISAGREE	
1	Do you think the office layout and design of the office building affect your productivity level ?	34	24	4	3	0	65
2	Does the background noise in your office space affect your concentration level?	27	34	3	1	0	65
3	How comfortable are you with the furniture in your office and does	27	31	6	1	0	65

	it affect your task performance?						
4	Does the room temperature in the office building affect your task performance?	27	33	4	1	0	65
5	How comfortable are you with the color of your office space and does it affect your task performance?	24	26	9	3	3	65
6	Does the glare from monitor screens affect your task performance?	30	32	3	0	0	65
7	Does the air quality of your office space affect your task performance ?	31	27	5	2	0	65

(Source: Researcher’s Fieldwork, 2022)

Table 8 presents the result of the investigation of the impact of ergonomics on productivity in office buildings. The results demonstrated that all the ergonomic workplace elements the study asked the respondents have an impact on the productivity of employees in the office buildings.

This finding is confirmed in previous studies by (R . Pickson, S. Bannerman & P. Ahwireng, 2017) and (P. Roelofsen, 2002)

IV. DISCUSSION

- Summary of Findings.

The research assesses the various office ergonomic factors in the study area to present the impact of ergonomics on productivity in Lagos state. The aim of this study is to assess the impact of ergonomics in office buildings with a view to suggestive measures of enhancing productivity in the work environment while the objectives To examine the physical characteristics of the office interiors in the study area, to assess the effect of ergonomics on office productivity, to assess user satisfaction with spatial configuration in office buildings in the study area, to suggest measures of enhancing productivity in office buildings. Thei) literature review focuses on Ergonomics, its history,

Workplace ergonomics, and ergonomic factors in the office buildings. It also focuses on different ideas and studies done on the subject. The third chapter looked at the methods the research was going to be done with, the research method adopted was the use of case studies, questionnaires and personal observations. Structured questionnaires were used as one of the method of data collection for the research. A total of 60 questionnaires were administered to people who work in the office buildings, the presentation of the personal data was done using percentage, tables and charts. The forth chapter is about the results collected from users of the spaces and the analysis of this result in tables and bar charts. It also includes the case study and personal observation of the said office building.

- Recommendations.

Ergonomics programs must be in line with the strategic plan of any organization because it's critical to understand how to align a company's mission and vision through small details like the type of wood used for desks, the amount and quality of light, and the temperature, all of which are elements that reflect a company's culture performance, productivity, absenteeism, and staff turnover may all be impacted as a result.

- i. The study's results clearly demonstrate that the ergonomics of the office design and décor are somehow lacking, which has an adverse effect on employees' performance. Any effort to upgrade the facility will increase productivity and necessitate a significant financial outlay and time commitment given the condition of the offices.
- ii. Employees must have control over the physical aspects of their workspace, such as lighting, noise, and temperature. This will involve the employee in creating the settings that they desire. Additionally, since you will feel sentimental about the items you selected or that you personally developed and modified, this will boost employee productivity and comfort levels within the company.
- iii. Organizations must conduct training sessions for new hires on office ergonomics issues such proper seating position and computer modifications to reduce stress. These courses are crucial for increasing productivity and providing comfort for employees.

CONCLUSION

The impact of ergonomics on productivity cannot be overstated. Research has shown that Ergonomics has an impact on the productivity of workers in office buildings and their satisfaction level. The workplace ergonomics of any office building has a significant impact on the occupant's productivity. In that sense the Ergonomic factors typically determine productivity level. Ergonomics can impact productivity positively or negatively.

Based on the findings of this research, it was found that majority of individuals that participated in the research are the white-collar workers. This is because they are at the receiving end. They are usually the ones who interact with the office environment and can also help to determine the impact of ergonomics in office buildings. From interviews with some white-collar workers one of their major complaints was about the furniture used which are not ergonomic furniture and are uncomfortable and lead to muscular strain and of musculoskeletal diseases. Other complaints include background noise level, office layout, circulation space and so on.

This study has shown the impact of ergonomics on productivity in office buildings and should be properly incorporated into considerations in the design of office buildings.

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