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Department of Civil Engineering, University of Ilorin, Ilorin, Nigeria

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Relationship between Workspace Utilization (WSU) and Indoor Environmental Quality (IEQ) in Offices of University Lecturers

I. A. Jimoh¹ and B. Suleiman².

¹Federal University of Technology Minna Dept.

Quantity Surveying, University of Ilorin,

¹issa.jimoh@yahoo.com; ²bolajisule1960@gmail.com

Abstract

Academic productivity and functional comfort of university lecturers have been subjects of concern to stakeholders in the Nigerian education sector. This study investigates the relationship between Workspace Utilisation (WSU) and Indoor Environmental Quality (IEQ) in offices of lecturers in three Federal universities. Objectives include determination of the extent to which lecturers use workspaces, the quality of indoor environment for assigned academic duties and the level of satisfaction felt by the lecturers. 360 questionnaires were administered, through purposive sampling, to obtain perception of lecturers on WSU, IEQ and satisfaction with workspace. 169(47%) valid returned questionnaires were analyzed using Means, ANOVA and Spearman correlation. Overall intensity of WSU by the university lecturers was 37.81%. There was no significant difference between intensities of WSU amongst the three universities. Out of the 13 uses, WSU on formal Reading (42.13%), formal Writing, (40.94%) and Internet surfing (40.19%) ranked 1st, 2nd and 3rd respectively. Building integrity (5.83%), Control facilities (5.47%) and Size of workspace were the 3 top ranking IEQ parameters. Weak positive correlations (0.1567, 0.1729, 0.1816, 0.1909 & 0.2534) were deduced on 6 out of the 91 relationships, between WSU and IEQ, investigated. Overall WSU of 37.81% compares favourably with fairly good use category of the Space Management Group. Higher intensity could however be achieved through improved IEQ in workspaces. Retrofitting by Works and Maintenance unit of each university is recommended on contextual IEQ variables in order to raise level of comfort, intensity of WSU and academic productivity.

Keywords

Indoor Environmental Quality; Lecturers; Office; University; Workspace utilisation.

1. Introduction

Office buildings, containing workspaces for lecturers, constitute an integral part of the essential infrastructures for academic works in Nigerian universities. Office workspace, in a university setting, entails a formally allocated, equipped and furnished floor-space in a building for performance of academic works by lecturers. An office may contain one, two, three or more workspaces. Office workspace utilisation for core and auxiliary functions include reading and writing related to assigned duties, internet surfing, students' consultation, marking scripts, social interaction and relaxation.

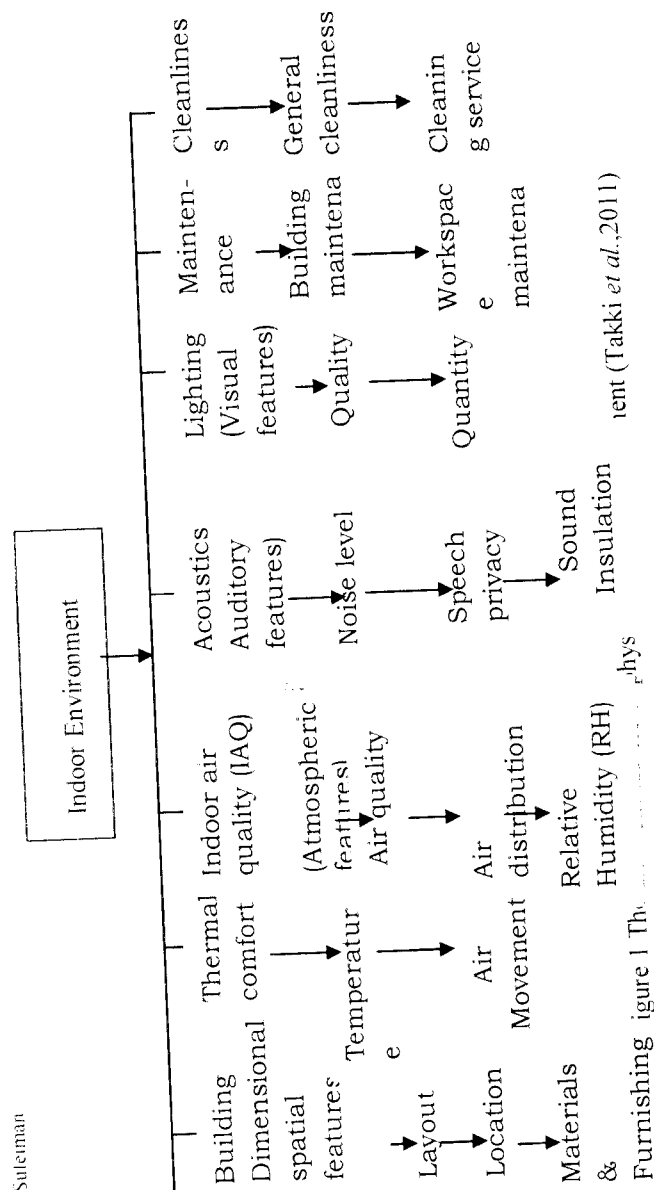
The importance of workspace in facilitating the primary tasks of workers and supporting other less formal activities has been emphasized by Ajala (2012). Office buildings are therefore designed, built, operated and maintained to create stimulating and adaptable indoor environments for supporting various styles of teaching, learning and research in universities (Lateef *et al.*, 2010; Okolie, 2011).

Of all the costs affecting organizations, building and its infrastructure represent about 75% total occupation expenditure with many costs directly related to amount of space occupied (Ibrahim *et al.*, 2011). Workspace is effectively managed when its use is optimized at minimum cost. Workspace utilization survey is therefore germane in Facilities Management Practice (FMP) for achieving the aforementioned objectives. It is however worthy of note that intensity of workspace utilization depends, to a large extent, on the level of comfort felt, by lecturers, in relation to execution of assigned duties therein. Performance of academic duties by lecturers requires workspace of certain dimension, layout, shape and condition based on static and dynamic anthropometry. Pedagogical and research needs of lectures also require installation of desirable Indoor Environmental Quality (IEQ) in workspaces.

Indoor environment of an office consists of the physical, administrative and social attributes of workspaces within which lecturers carry out assigned

academic duties in a university designated building. Environmental aspects of indoor environment for academic works include ambient environmental conditions (sound, light, air-flow and heat), furniture layout and ergonomics. The behavioral or outcome measures are lecturer's satisfaction and feelings of comfort about the work-environment expressed in the sense of territory, ownership and belonging and acceptable productivity.

IEQ on the other hand, is the condition created in buildings by contextual features like characteristics of building elements, characteristics of occupants, furniture and furnishing and mechanical and electrical conditioning facilities. IEQ generally involves measurements of the quality of indoor air, lighting acoustic and thermal quality (Al Horr *et al.*, 2016). IEQ is now extended to include spatial and ergonomic parameters, building integrity, building maintenance and cleanliness (Leaman & Bordass, 2007; Collinge *et al.*, 2013).



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Research works on IEQ have been limited to the effect of one parameter of IEQ on the comfort and satisfaction of occupants. Such parametric research works like Galasiu and Veitch (2006) have not considered the relationship between workspace utilization and IEQ. This study is focused on establishing relationship if any, between intensity of workspace utilisation by lecturers and IEQ in allocated workspaces. Objectives are: evaluate the intensity of office workspace utilisation by lecturers in public universities in North Central geo-political zone of Nigeria and determine the relationship between workspace utilisation and lecturers' satisfaction with indoor environmental quality (IEQ). The two hypotheses of the study are as follow:

Research Hypothesis One: There is no significant difference between intensities of workspace utilization by lecturers in the three sampled universities.

Research Hypothesis Two: There is no significant relationship between WSU and lecturers' satisfaction with IEQ.

2. Method

Exploratory research approach was adopted, using subjective data. This approach is regarded as appropriate by Eckel (2002) in explaining complex phenomena like the relationship between contextual features of office workspace and lecturers' satisfaction (functional comfort) in performing academic works, using purposive sampling. 360 questionnaires were administered in three Federal universities in North Central geo-political zone of Nigeria. The universities are University of Ilorin, University of Agriculture Makurdi and Federal University of Technology, Minna. 169 valid questionnaires, representing 47% response, were analysed to derive descriptive and inferential statistics accordingly. The investigation entailed collection of primary data on perception of lecturers on WSU and IEQ parameters in assigned workspaces. Only lecturers in related fields like Environmental Sciences, Engineering and Life sciences were involved.

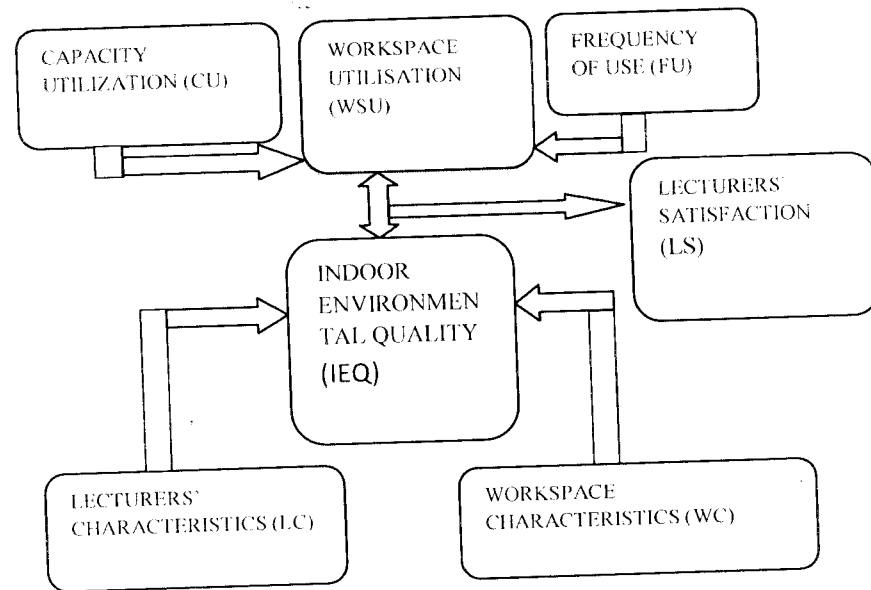


Figure 2 Conceptual Framework

As indicated in the conceptual framework (Fig.2), lecturers' satisfaction was taken as dependent variable while IEQ and WSU are the predictors. The purpose was to determine the characteristics and relationship between the variables depicted with a view to establishing generalisation about the wider population to which the studied universities belong, i.e. Federal universities in North Central geopolitical zone of Nigeria. Fig.3 shows the map of Nigeria indicating the study area.

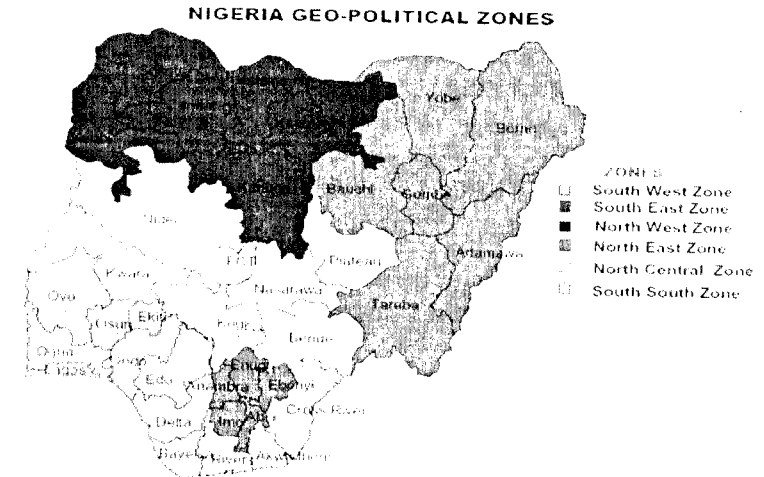


Figure 3 Map of Nigeria indicating the study area.

The questionnaire was structured into three sections, namely: characteristics of lecturers and workspaces, WSU, and IEQ. Perception were expressed in 7-point semantic Likert scale as: Extremely High = 7; Very High = 6; High = 5; Moderate = 4; Low = 3; Very Low = 2; Extremely low = 1. Validation of the questionnaire was done by two Professors, two Senior lecturers and three experienced practitioners in order to ensure that the instrument measured what it was supposed to measure. Suggested modifications were incorporated before administration of the instrument. Result of Cronbach alpha test on reliability of the instrument gave statistics of 0.732, 0.754, 0.860 and 0.915 on characteristics, workspace utilisation, IEQ and lecturers' satisfaction respectively. The instrument therefore satisfied the minimum benchmark of Cronbach alpha of 0.70 at 5% level of significance (Asika, 2004).

3. Results and Discussion of Findings

Descriptive statistics on respondents (lecturers) is important because their satisfaction is the focus of this study. As indicated in Table 1, majority (92.3%) of the respondents is male, while female (7.7%) constituted minority. 33% were within the Age bracket of 41-50 years, 30% in 31-40 years, 23% in 51-60 years, 9% in 21-30 years and 5% in 60 years and above.

The respondents are distributed among the existing cadres of lecturers in the universities namely: GA, AL, L2, L1, etc. The respondents were classified into three as GA and AL, LII and LI and, SL and above.

The results show that 45 % were in employment as LII and LI, 31% as SL and above while 24% were in GA and AL. 96% were on Tenure appointment while 4% were on Contract/Visiting appointment. Ph.D and Masters were held as highest academic qualifications by 47% and 44%, respectively.

Table 1 Characteristics of respondents

Characteristics		Number	Percentage (%)
Gender	Male	156	92.30
	Female	13	7.70
	Total	169	100.00
Age	21-30 years	15	8.90
	31-40 years	51	30.20
	41-50 years	56	33.10
	51-60 years	38	22.50
	>60 years	9	5.30
	Total	169	100.00
Employment status	G.A. and A. L	41	24.26
	L II and LI	76	44.97
	S. L and above	52	30.77
	Total	169	100.00
Nature of Employment	Tenure	162	95.86
	Contract	6	3.54
	Others	1	0.60
	Total	169	100.00

Highest academic qualification	Bachelors	15	8.88
	Masters	75	44.37
	Ph.D	79	46.75
	Total	169	100.00
Professional status	Graduate	25	14.79
	Associate	64	37.87
	Corporate	59	34.91
	Fellow	17	10.06
	Others	4	2.37
Physical challenge	Total	169	100.00
	Sighting	7	4.14
	Walking	1	0.59
	Writing	1	0.59
	Smelling	10	5.92
Period spent in workspace	Not affected	150	88.76
	Total	169	100.00
	1-5 years	125	73.96
	6-10 years	25	14.79
	11-15 years	9	5.33
	16-20 years	6	3.55
	>20 years	4	2.37
	Total	169	100.00

In terms professional status, 38% of the respondents were Associates, 35% were corporate members, 15% were Graduate members and 10% were Fellows. Only 11% of the 169 lecturers had physical challenges in sighting, walking, writing and smelling. Periods spent in allocated workspaces by respondents were 1-5 years by 74% (the majority), 6-10 years by 15%, 11-15 years 5%, 16-20 years 4% and above 20 years by 2%.

Table 2 Characteristics of workspaces

Characteristics		Number	Percentage (%)
Type of building	Bungalow	45	26.60
	One-storey	50	29.60
	Two-stories	60	35.60
	>Two stories	14	8.20
	Total	169	100.00
Floor level	Ground floor	83	49.10
	1 st floor	46	27.20
	2 nd floor	38	22.50
	Above 2 nd floor	2	1.20
	Total	169	100.00
Direction faced by window	North	50	29.60
	South	40	23.70
	West	31	18.30
	East	48	28.40
	Total	169	100.00
Proximity to external environment	<3.7m	136	80.50
	>3.7m	10	5.90
	Not applicable	23	13.60
	Total	169	100.00

Type of workspace	Enclosed single user	56	33.10
	Enclosed shared	77	45.65
	Cubicle with high partition	10	5.90
	Cubicle with low partition	5	3.00
	Open office	21	12.35
	Total	169	100.00
Workspace Environmental Conditioning	Passive (Natural)	28	16.46
	Active (Mechanical)	44	26.22
	Mixed-Mode	97	57.32
	Total	169	100.00

In Table 2, result of analysis of subjective data on characteristics of lecturers' workspaces, in the three universities is presented. The characteristics of 169 sampled workspaces indicate adequate distribution within five types of office buildings, namely: bungalow, one-storey, two-stories and above two-stories. The results indicate that 36% of the workspaces were in two-storey buildings, 30% in one-storey building 27% in bungalow and 8% in above two stories. 49% of the workspaces were found in Ground floor, 27% in First floor, 23% in Second floor and 1% in higher than Second floor. Locations of windows in cardinal directions and proximity to workspace affect IEQ in terms of day lighting, air flow and acoustics. Directions faced by windows were North (30%), East (28%), South (24%) and West (18%). The depth of any office containing more than two workspaces affects proximity to external environment but in this study 80% of workspaces were suitably located at less than 3.7m. Types of office workspaces were 46% shared and enclosed, 33% enclosed with single occupant-user, 12% open office with many users, 6% cubicle with high partition and 3% cubicle with low partition respectively. Environmental conditions of the workspaces were in three modes namely: Passive, Active and Mixed-Mode. 57% of the workspaces were in Mixed-Mode, 25% in Active while 16% were in Passive.

The first research objective is to evaluate the intensity of use of office workspace by lecturers in sampled public universities. Intensity of WSU is the product of capacity utilization (floor area) and frequency of use of workspace within available official time (period) on each of the identified thirteen (13) academic and social activities (SMG, 2006). To achieve the objective, the data collected through questionnaire survey on capacity utilization and frequency of use, expressed in percentages, were used to determine intensity of WSU. The result in respect of the three universities combined is presented in Table 3. The mean percentage values on capacity, frequency and intensity in respect of each of the thirteen uses of the workspace are also indicated. Overall means in respect of workspace utilization by each university and the three universities combined are included.

The results in Table 3 reveal a capacity utilization of 54.69 - 64.09%, frequency of use of 59.08- 65.76% and intensity of WSU of 30.95-42.13% in the three universities combined. Specifically, formal reading (42.13%), formal writing (40.94%) and internet surfing (40.19%) ranked 1st, 2nd and 3rd out of the thirteen identified uses of workspaces respectively. The overall intensity of WSU by the three universities combined was 37.81%.

In University of Agriculture, Markudi utilisation ranged from 29.5 to 42.68% with formal drawing (42.68%), social interaction (42.68%) and receiving guests (40.01%) ranking 1st, 2nd and 3rd respectively. Federal University of Technology, Minna had utilization of 34.47 to 42.21% with relaxation (42.21%), social interaction (40.71%) and internet surfing (39.24%) ranking 1st, 2nd and 3rd respectively. Utilization in University of Ilorin ranged between 22.42 and 56.24% with formal reading (56.24%), formal writing (55.32%) and consultation by students (53.47%) in 1st, 2nd and 3rd ranks.

In comparison, University of Ilorin had intensities close to those of the three universities combined in ranks. By percentage mean, University of Ilorin also had higher intensities of WSU than the other two universities and the three universities combined. Based on SMG (2006) classification which gave < 25% as poor utilisation, 25–35% as fair and > 35% as good, University of Agriculture, Makurdi had good utilisation of workspaces on eight functions and fair utilisation on remaining five functions as indicated in Table 3. Federal University of Technology, Minna had good utilisation on ten functions and fair on remaining three. Lastly, University of Ilorin had good

utilisation on nine functions, fair utilisation on two and poor on two functions of the lecturers. It is worthy of note that the intensity of workspace utilisation in the three universities combined agreed with fairly good category of classifications.

Results in Table 3 also reveal higher intensity of utilization by University of Ilorin on core academic functions (Formal reading, Formal writing, Internet surfing and Marking scripts) than the other two universities. Utilisation on Formal reading was 56.24% in Ilorin while Makurdi and Minna had 38.03% and 34.47% respectively. On Formal writing and Internet surfing utilisations were 55.32%, 33.03%, 34.78% and 43.08%, 37.21%, 39.24% in Ilorin, Markurdi and Minna respectively. Consultation by students and Marking scripts followed similar trend as 53.47%, 35.43%, 34.84% and 40.97%, 33.03%, 36.15%.

Lecturers in Markurdi and Minna used workspaces more on non-core functions like Social interaction, Reading for leisure, Receiving guests and Relaxation. University of Ilorin is one of Nigeria's second generation conventional universities having larger number of faculties and physical infrastructure than Markurdi and Minna - which are specialised universities. University of Ilorin is also closer to South West geo-political zone where concentration of higher education institutions and enrolment in university education are very high.

Table 3 - Workspace utilisation by lecturers in selected universities

USE OF WORKSPACE	OVERALL (N=169)				MAKURDI (N=33)				MINNA (N=78)				ILORIN (N=58)			
	C U (%)	F U (%)	W S U (%)	R A N K	C U (%)	F U (%)	W S U (%)	R A N K	C U (%)	F U (%)	W S U (%)	R A N K	C U (%)	F U (%)	W S U (%)	R A N K
Reading related to assigned duties	64 .0 7	65 .7 6	42 .1 3	1	63 .2 0	60 .1 7	38 .0 3	6	55 .6 8	61 .9 1	34 .4 7	13	75 .86	74 .1 3	56 .2 4	1
Writing related to assigned duties	63 .5 6	64 .4 1	40 .9 4	2	54 .1 1	61 .0 4	33 .0 3	9	59 .5 2	58 .4 3	34 .7 8	12	74 .38	74 .3 8	55 .3 2	2
Internet surfing	62 .7 2	64 .0 7	40 .1 9	3	64 .0 6	58 .0 9	37 .2 1	7	59 .5 2	65 .9 3	39 .2 4	3	66 .26	65 .0 2	43 .0 8	4

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Social interaction with colleagues	63 .9 8	62 .7 2	40 .1 3	4	67 .5 3	63 .2 0	42 .6 8	1	65 .3 8	62 .2 7	40 .7 1	2	60 .10	63 .0 5	37 .8 9	8
Formal meeting with colleagues	63 .7 3	60 .4 4	38 .5 2	5	63 .2 0	63 .2 0	39 .9 4	4	63 .0 0	56 .9 7	35 .8 9	9	65 .02	63 .5 5	41 .3 2	5
Consultation by students	63 .5 6	64 .4 1	38 .4 2	6	59 .3 0	59 .7 4	35 .4 3	8	56 .7 8	61 .3 6	34 .8 4	11	75 .12	71 .1 8	53 .4 7	3
Watching television/ video	62 .4 6	60 .8 6	38 .0 1	7	61 .0 4	54 .1 1	33 .0 3	9	59 .7 1	64 .1 0	38 .2 7	5	66 .99	60 .3 5	40 .4 3	6
Reading	62 .7 2	60 .0 7	37 .1 9	8	64 .0 6	61 .0 9	39 .2 1	5	63 .5 2	61 .9 3	38 .2 4	4	59 .7 2	59 .0 5	35 .3 8	9

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for leisure	.0	.5	.5		.0	.0	.1		.0	.1	.5		61	3	3
	5	2	5		6	4	0		0	7	4			6	9
Marking														62	40
students	59	62	37		54	61	33		57	62	36		66	.0	.9
scripts/ass	.9	.0	.1	9	.1	.0	.0	9	.8	.4	.1	8	01	7	7
ignments	3	5	9		1	4	3		8	5	5				
Drawing	60	60	36		67	63	42		58	62	36		58	55	32
(formal)	.1	.2	.2	10	.5	.2	.6	1	.2	.4	.3	7	62	.6	.6
	8	7	7		3	0	8		4	5	7			7	3
Receiving														54	28
guests	56	62	35		58	67	40		57	65	37		53	.1	.9
(unofficial	.5	.1	.1	11	.8	.9	.0	3	.8	.5	.9	6	45	9	7
)	5	3	4		7	7	1		8	7	5				
Relaxatio	54	59	32		53	55	29		62	67	42		44	50	<u>22</u>
n	.6	.0	.3	12	.2	.4	.5	13	.6	.3	.2	1	83	0	<u>4</u>

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	9	8	1		4	1	0		4	9	1		0	<u>2</u>
	57	53	<u>30</u>		61	55	<u>34</u>		63	56	<u>35</u>		49	23
Eating	.4	.8	<u>9</u>	13	.0	.8	<u>0</u>	12	.1	.4	<u>6</u>	10	47	.2
	8	5	<u>5</u>		4	4	<u>9</u>		9	1	<u>5</u>		78	.5
Overall			37				36				37			4
Mean			.8				.7				.3			39
			1				5				1			.3
Standard			6				4				2			6
Deviation			86				09				41			11
														.0
														6

Note: CU = Capacity Utilisation; FU = Frequency of Use;
WSU = Workspace Utilisation ((CU X FU)/100)

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3.1 Research Hypothesis One

The hypothesis derived from the first research objective is to test if there is any difference in intensity of use of office workspace by lecturers in the three universities sampled.

3.1.1 Null Hypothesis (H_0)

There is no significant difference between intensities of WSU by lecturers in the three universities sampled.

3.1.2 Alternative Hypothesis (H_1)

There is significant difference between intensities of WSU by lecturers in the three universities sampled.

3.1.3 Test of difference by ANOVA on intensity of workspace utilization.

A one-way Analysis of Variance (ANOVA) was conducted to explore the difference in intensities of WSU amongst the three universities - Federal University of Technology, Minna, University of Ilorin, Ilorin and University of Agriculture, Makurdi. As the result in Table 4 shows, there was no significant difference at the $p < 0.05$ level in the intensities of WSU by the three universities: $F(2, 36) = 0.507$, $p = 0.607$. The mean scores of Uni-Makurdi ($M=36.75$, $SD=4.09$); FUT Minna ($M=37.31$, $SD= 2.41$) and Unilorin ($M=39.36$, $SD=11.06$) did not differ from one another. Null hypothesis which states that there is no significant difference between intensities of WSU by lecturers in the three universities was therefore accepted.

Table 4 Result of test of difference by anova on intensity of workspace utilization

Parameter	No.	Mean	Source of variation	Sum of Squares	Df	Mean Square	F	p-value
Workspace Utilisation								
Unimakurdi	33	36.75	Between Groups	48.99	2	24.499	0.507	0.607
Futminna	78	37.31	Within Groups	1739.67	36	48.324		
Unillorin	58	39.36						
Total	169			1788.67	38			

Table 4 Ranked means of lecturers' satisfaction with IEQ.

Parameter	MS	SD	Rank
Building integrity	5.83	1.13	1
Control facilities	5.47	1.18	2
Size of workspace	5.46	1.30	3
Conditioning facilities	5.37	1.22	4
Proximity to external window	5.36	1.20	5
Accessibility	5.28	1.28	6
Ease of interaction	5.23	1.26	7
Space layout	5.30	1.35	8
Furniture	5.13	1.28	9
Ventilation	4.30	1.26	10
Indoor Air Quality (IAQ)	3.55	1.52	11
Acoustic quality	3.50	1.74	12
Thermal Quality	3.16	1.59	13

The statistical tool used for analysis was Spearman rho correlation. Relationship between the variables having p-value less than or equal to 0.05 was taken as statistically significant.

3.2.1 Null Hypothesis (H_0)

There is no significant relationship between WSU and lecturers' satisfaction with IEQ.

3.2.2 Alternative Hypothesis (H_1)

There is significant relationship between WSU and lecturers' satisfaction with IEQ.

Table 5 contains results of the test of the second hypothesis on relationship between workspace utilisation and lecturers' satisfaction with IEQ. Only six out of the ninety-one relationships investigated were significant at $p \leq 0.05$. Significant relationships were found between formal reading and indoor air quality ($r = 0.1816$; $p=0.0181$), internet surfing and visual quality ($r=0.1892$; $p=0.0138$), internet surfing and air-quality ($r=0.2534$; $p=0.0009$), internet surfing and thermal quality ($r=0.1909$; $p=0.0129$), relaxation and furniture/furnishing ($r=0.1729$; $p=0.0245$) and, relaxation and cleaning/maintenance ($r=0.1567$; $p=0.0419$). All the six significant relationships imply rejection of the null hypothesis albeit they were weak but positive.

By this result, WSU for internet surfing has been assessed by university lecturers to depend on visual quality, air quality and thermal quality of the workspace environment. Out of the thirteen uses of workspace identified, internet surfing was considered germane and satisfying demand for commensurate IEQ in this regard will lead to higher productivity. Universities studied therefore need to give appropriate attention to the three IEQ parameters. Relationship established in this study between relaxation in workspace and the two IEQ parameters is an attestation to the inevitable installation of appropriate furniture, furnishings, cleanliness and maintenance for the comfort of lecturers.

Peculiarities of the universities in terms of mandate could be responsible for the differences in intensities of workspace utilization by lecturers. University of Ilorin is conventional; Makurdi is specialized in agriculture while Minna is into technology.

3.2 Research Hypothesis Two

Objective two addresses relationship between workspace utilisation and lecturer's satisfaction with IEQ. The relationship was investigated using descriptive statistics on the two variables as in Tables 3 and 4.

4. Conclusion

This study attempted providing answers to a series of questions related to lecturers' satisfaction with IEQ in workspaces within their allocated offices. Relationship between WSU and IEQ in workspaces of lecturers were jointly investigated as concurrent and *sine qua non* moderators of satisfaction and functional comfort. Albeit WSU varies within each university and among the universities, WSU of 38% recorded on the three universities combined, was fairly above the minimum benchmark of 25% classified as poor utilization by the Space Management Group (SMG). University of Ilorin however, recorded better utilization (i.e. >35%) on reading related to assigned duties, writing related to assigned duties and consultation by students. Weak positive correlation between IEQ and WSU for reading related to assigned duties, internet surfing and relaxation is worthy of concern because these are core academic functions. Core academic functions require suitable environmental condition for productivity and comfort of lecturers. Positive relationship established between relaxation and commensurate furniture and furnishing and, cleanliness and maintenance is an essential requirement for the comfort of lecturers. Creation of benchmarks on environmental conditioning of workspaces of university lecturers by National Universities Commission (NUC) is recommended.

Table 5 - Correlation between workspace utilisation and lecturers' satisfaction

Use of Workspace	Size & Layout of Workspace	Indoor Environmental Quality (IEQ) Parameters					
		Acoustic Quality	Visual Quality	Air Quality	Thermal Quality	Furniture & Furnishings	Cleanliness & Maintenance
Reading (Formal)							
Correlation	0.0763	-0.0135	0.0812	0.1816	0.0717	0.0445	0.0730
p-value	0.324	0.861	0.294	0.018	0.354	0.565	0.345
Reading for leisure							
Correlation	-0.0999	-0.1247	-0.0556	-0.0579	0.0668	-0.0418	-0.0405
p-value	0.196	0.106	0.473	0.454	0.388	0.589	0.601
Writing (Formal)							
Correlation	0.0418	-0.0031	0.0255	0.0785	-0.0081	-0.0510	-0.0496
p-value	0.589	0.968	0.742	0.310	0.917	0.510	0.522
Drawing (Formal)							
Correlation	-0.1338	-0.1097	-0.0754	0.0659	-0.0395	-0.0659	-0.0111
p-value	0.083	0.156	0.330	0.394	0.610	0.394	0.886
Students' consultation							
Correlation	0.1428	0.0756	0.0624	0.1067	0.0918	0.1226	0.0735
p-value	0.064	0.328	0.420	0.167	0.235	0.112	0.342
Formal meeting							
Correlation	0.0209	0.0398	0.0902	0.0918	0.1295	0.0468	0.0376
p-value	0.788	0.607	0.244	0.235	0.093	0.546	0.627
Marking scripts							

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Correlation	0.1504	0.0638	0.1388	0.1226	0.0677	0.0507	0.0449
p-value	0.050	0.410	0.072	0.112	0.382	0.513	0.562
Social interaction							
Correlation	0.0394	0.0309	0.0207	0.0735	0.1338	0.1374	0.094
p-value	0.611	0.690	0.789	0.342	0.083	0.075	0.224
Internet surfing							
Correlation	0.1246	0.0809	0.1892	0.2534	0.1909	0.1414	0.0824
p-value	0.106	0.295	0.014	0.001	0.013	0.067	0.287
Watching Television/Video							
Correlation	0.0227	0.0252	0.0249	0.0715	0.1137	0.0996	0.0566
p-value	0.769	0.7449	0.748	0.355	0.141	0.198	0.465
Eating							
Correlation	-0.1021	-0.0393	-0.0481	-0.1449	-0.1009	0.0113	0.0710
p-value	0.187	0.612	0.578	0.060	0.191	0.885	0.359
Receiving guests							
Correlation	-0.0331	0.0849	0.0622	0.0226	-0.0165	0.0693	0.0031
p-value	0.670	0.272	0.422	0.771	0.832	0.370	0.969
Relaxation							
Correlation	0.0919	0.0655	0.0673	0.0533	0.0806	0.1729	0.1567
p-value	0.235	0.397	0.385	0.492	0.297	0.025	0.042

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