PHYSICAL INFRASTRUCTURE AND PERFORMANCE OF TEACHERS IN PUBLIC JUNIOR SECONDARY SCHOOLS IN LAGOS STATE

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Abstract

Work environment is a crucial factor that determines the performance level of employees within organizations. There are however a few studies on how some aspects of physical work environment [influence teachers' performance. In the light of the foregoing, this study was carried out to empirically examined how physical work environment relates to the performance of teachers in selected public junior secondary schools in Lagos State. A survey approach was used in this study to reach this goal. Teaching staff of the schools made up the population. Using the Yamane sample determination formula, a sample of 138 was determined from a population of 210. Data were gathered using a structured questionnaire and multi stage sampling technique was used. Using SPSS version 20, Pearson Product Moment was deployed for the analysis. The analysis of the data showed that there is a positive relationship between lighting and effectiveness, also a positive relationship exists between furniture and efficiency. The study draws the conclusion that there is a positive relationship between physical work environment and teachers performance in the study areas based on the findings. The study recommended among others that government should assist in enhancing teachers' performances through the provision of enabling physical work environment.

Key words: *Lighting, Furniture, Employee Performance, Effectiveness, Efficiency*

Introduction

Employee performance is one of the most significant dependent variables in organisational psychology. Enhancing employee performance is essential and a basic responsibility of the human resource practitioner in any organization. Human resource management continues to deal with significant managerial and employee related concerns, including change management, compliance, health and safety, commitment, performance and many others, despite this crucial role. Organisations that offer services, like schools, mostly depend on the qualities, aptitudes, expertise and know-how of their teachers to help students reach new heights. The physical environment in

which they operate also plays a significant role in determining how long the teachers can continue to teach. One component of work environment that has to do with the arrangement and design of the workplace is the physical workplace. It includes items like workstation, office computers, ventilation and lighting, noise level, furniture, machine layout and protective gear (Hope, Arachie & Ibrahim, 2018). According to Tayfun and Oneren (2021), an employee performance and job happiness are directly influenced by their physical work environment. Thus, this a major factor in evaluating the efficiency and effectiveness of individuals within the business. Effective and efficient services provided by the employees are major factors in determining the organization's reputation. Performance is a key driver of the organisation's reputation which refers to teachers' effective and efficient service. Huang (2012) states that to define employee performance, organisations use different measures which include; the achievement of set goals, timely completion of assigned task and the caliber of output. In the similar spirit, staff efficacy, efficiency and adaptability can be used to gauge performance (Aderibigbe, Dauda, Fapohunda, 2022). After utilizing the factors in boosting employee performance, employee performance is correlated with empowerment, work environment, employee motivation and talent management (Em, Mukhlis, Muhammad & Hizir, 2018). According to Armstrong (2015), there are aspects that can affect performance: personal factors, work system issues, internal factors and external factors.

Good physical work environmental elements such as suitable furniture, appropriate lightening amongst others can enhance and motivate workers and ultimately increase the effectiveness and efficiency of teachers.

Statement of Problem

Organizations that offer services, like schools, mostly depend on the strengths of their teachers' capacities to help the student reach new heights. Their physical environment also plays a significant role in determining how long the teachers can continue to operate in these capacities. An unfavorable atmosphere might bring about risks that impair the safety of the surroundings and consequently hinder teachers' effectiveness. According to Edo and Nwosu (2018), public schools in. Nigeria and other developing nations lack proper lighting and furnishings, among other things. Regrettably, the government does not make significant investment to maintain a decent working environment since it views them as superfluous. Even in tertiary institutions these shortcomings have negatively impacted the intelligence, mental health and performance of lecturers. (Bankole, Aremu & Oderinde, 2017), Employee job discontent can have a negative impact on the effectiveness and efficiency when it affects its workforce. Thus, teachers' performance is decreased due to the physical work environment.

Despite a large body of study on the subject matter in a variety of settings (Hope, Arachie & Ibrahim, 2018) (Tola, Omiyale & Akintan, 2018). (Rousa & Prince, 2020), the problem is still unresolved and many public schools still struggle to foster a climate that is supportive. Thus, the purpose of this study is to investigate how teachers' performance relates to physical workplace in selected public junior secondary schools in Lagos state.

Objectives of the Study

The main goal of the study is to examine the relationship between physical infrastructure and the performance of teachers in selected public junior secondary schools in Lagos State. The specific objectives of the study are to:

1. Investigate the relationship between lighting and teachers effectiveness in selected public secondary schools in Lagos State, District 1.

2. Examine the relationship between furniture and teachers efficiency in selected public secondary schools in Lagos State, District 1.

Research Questions

In relation to the objectives of this study, this paper will provide answers to the following questions:

i. Is there a connection between lighting and teachers effectiveness in selected public secondary schools in Lagos State, District 1.

ii. What is the relationship between furniture and teachers efficiency in selected public secondary schools in Lagos State, District 1.

Research Hypotheses

H_{o1}: There is no significance relationship between lighting and teachers effectiveness in selected public secondary schools in Lagos State, District 1.

H_{o2}: There is no significant relationship between furniture and teachers efficiency in selected secondary public schools in Lagos State, District 1.

Literature Review

Conceptual Review

Workplace Environment

The collection of situational elements that make up an organization's corporate atmosphere and climate is called the work environment. Both social and physical environment are included. According to Tripathi (2014), the work environment encompasses several elements such as the physical setting, job profile, culture and market conditions in which individuals operate. Employee performance can be affected either favorably or unfavorably by the physical surroundings of their workplace. Members of an organization can perform differently depending on a variety of external circumstances. These comprise things like temperature, furnishing and lighting.

Measures of Physical Work Environment

Lighting: Research has shown that an employee work environment is a significant factor in determining their job satisfaction and can have an impact on their motivation and performance in the future (Public Health, England). Performance in the workplace can be significantly impacted by the quality of the illumination. Proper illumination can reduce mistakes by thirty to sixty percent (Health and Safety Executive, United Kingdom). Additionally, it can alleviate neck discomfort, nausea and migraines all of which are commonly caused by eye strain. People who have good lighting are able to concentrate more attentively on their tasks, which increases productivity. The type of work being done, whether it be indoors or outdoors and when it is being done, day or night, determine how much light a workplace needs. Consequently, the performance will either rise or fall (Edo & Nwosu, 2018). Sehgal (2012) states that this may put teachers in an uncomfortable working environment with a lot of glare, dim lighting or lack of natural light in the office. The office light's brightness affects one's ability to focus, stay alert and complete duties. poor lighting has the potential to lower staff morale and ultimately have a negative impact on their output.

Furniture: Desks, chairs, cabinets, shelves, drawers and boards are examples of furniture. Furniture design is a critical component. Selecting the appropriate furniture goes well beyond just making it useful. Research has revealed that workplace furniture that motivates staff members boosts productivity by 32 percent (https://www.lcorpetaesuites.com). The choice, comfort and style of motivating furniture can boost staff morale and improve company culture (https://www.lcorpetaesuites.com. June 7, 2022) The comfort, design and selection of inspiring furniture aid boosts employee morale and enhance corporate culture (www/htplcorpetaesuites.com June 7 2022). Employee will feel at home when office furniture provides their bodies optimal support.

Aside from utility and style, ergonomic support is one of the most crucial factors to take into account when purchasing office furniture (Hope, Arachie & Ibrahim, 2021). The idea furniture for supporting the human body in terms of posture, comfort, support and health is called ergonomic furniture. Furniture must be ergonomic because workers must spend their whole work day at the chair or desk. If these items are uncomfortable or difficult to use, this can negatively impact their productivity. Teachers who use ergonomic assistance experience less pain and discomfort. Additionally, it helps lower the chance that employees and students will develop specific postural defects like scoliosis and lordosis amongst others.

Teachers' Performance

Employee performance is one of the most significant dependent variables in organizational psychology. The outcome of an employee effort, aptitude and task perception is their overall performance (Plat, 2010). Increasing individual productivity at work has emerged as a primary goal for all organisations. Mcshane and Glinow (2022) asserted that companies need to have a precise definition of what constitute acceptable employee performance. Employees need to know what is expected of them in order to work effectively and efficiently. According to Nayak (2015), employee performance can be described through the display of skills, which are assessed by how well workers conduct themselves in relation to expectations at work. Ewuim and Onuorah (2020) argued that measuring performance efficiently and accurately helps management to judge and measure employee potentials which enables them to identify talented individuals at an early stage.

Measures of Teachers' Performance

Effectiveness: Effectiveness is a common metric used to assess an employee performance (Dauda, Faphounda, & Aderibigbe, 2023). According to Aderibigbe (2023), majority of organisations evaluate their work based on how effective they are. Achieving this mission, objectives and vision is their primary concern. The degree to which a teacher fulfills the goals and expectations of a school can be measured by its effectiveness.

Improper lighting can prevent employees from completing their work effectively and can lead to depression which impact on teachers' performance. Visual discomfort, physiological and psychological strain such as anxiety, fatigue, migraine, headaches, poor concentration, eye strain, nausea and daytime sleepiness among workers are primarily connected with inadequate lighting in the working place and in most cases decrease effectiveness (Pauley, 2004). Management should aim for improved

leadership, direction, communication, interaction, flexibility and a positive work environment in order to increase teachers' effectiveness.

Efficiency: Efficiency, according to Marghany (2015), is the way a company uses its resources to accomplish its goals. Employee efficiency metrics such as productivity, task completion rate, error rate, time management and utilization rate can help in assessing individual contributions to organizational goal. These measurement in turn aid in assessing how effectively workers use time and resources to complete tasks. The ability of an employee to complete the most tasks in the shortest amount of time can be referred to as employee efficiency.

Theoretical Framework

This study was underpinned by the Hertzberg Motivation Theory and Social Exchange Theory

Hertzberg Motivation Theory. (Herzberg, 1959)

According to Herzberg (1959) hypothesis, there are two types of variables that can either stimulate or demotivate people. Both the satisfier and the dissatisfier. The dissatisfiers are hygienic factors that if improperly or poorly managed can result in discontent. The satisfiers are motivational elements like accomplishment, accountability, acknowledgement etc. encourage workers to perform better and want to produce better work. And for the most part, they have been shown to be correct. Yet, when people labour under unfavorable hygienic conditions such as poor lighting, inadequate office furniture etc. their efficiency and effectiveness decline.

The implication of this theory is that for teachers to be effective and efficient in delivering their services organizations should not only focus on the 'Satisfier' such as accomplishment and acknowledgement but also pay attention to the hygienic factors such the work environment.

Social Exchange Theory

Social exchange theory suggests that a relationship is determined by benefits and costs to an individual. In other words, a relationship depends on the perceptions of the balance between the effort poured into the relationship (cost) and what is acquired out of it (benefits). Thus, the relationship is believed to be strong and committed if the benefits outweigh the costs, Employees can form social exchange relationships with their organizations. For example, employees performance will increase when they are satisfied with their work environment but reduced when the work environment is not conducive.

The Hertzberg Motivation Theory was chosen because the perspective and underlying assumptions are connected to the study's goals and the variables being examined, the theory was chosen to direct the variables in this examination.

This study was anchored by the Hertzberg Motivation Theory because of it relevance to the study. To be effective and efficient, employers need to provide a conducive physical environment (Hygienic factor)

Empirical Review

Lighting and Teachers Effectiveness

In a related study, Tola, Omiyale and Akintan (2020) used the Chi Square to assess the effect of work environment (Lighting) on the performance of secondary schools in satellite town, Lagos. The study conclusion showed that the lighting has a big impact on teachers effectiveness. Similarly, Edo and Nwosu (2018) investigated the connection between teachers productivity and their working environment in secondary schools in Port Harcourt. Using the correlation coefficient of Person product moment, the results indicated that sufficient lighting, temperature and availability of space have a major impact on teachers productivity.

Furniture and Teachers Efficiency

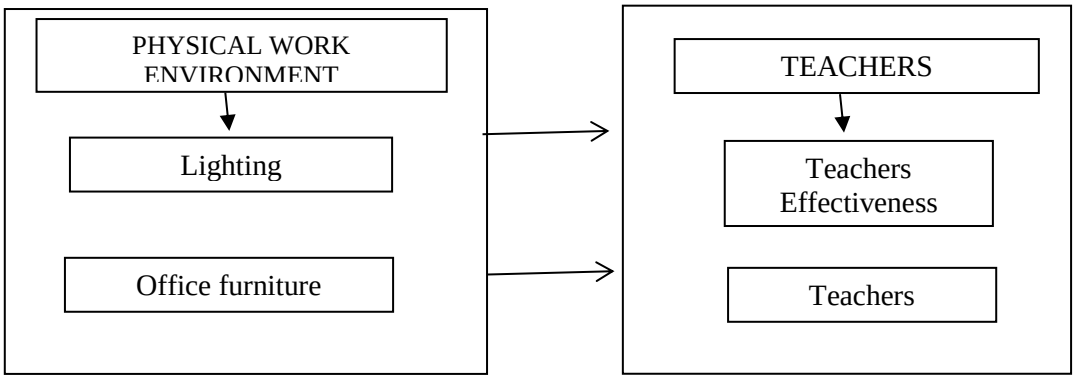
Again, Hope, Arachie & Ibrahim (2018) examined the relationship between physical work environment and employee performance using the Pearson product correlation coefficient. Analyses of the results showed that there is positive and significant relationship existing between ergonomic furniture and job performance. The result also demonstrated that the physical environment of schools has an impact on teachers comfort levels, which in turn has an impact on their job satisfaction and productivity. A review of the literature on the impact of physical environment designs (Furniture) on teachers job comfort was conducted by Rouaa and Prince (2020), The result demonstrate that teachers comfort levels are influenced by physical environment of the school.

Bankole et al (2018) examined the impact of the physical work environment on workers performance in tertiary institutions. Using the multiple regression analysis, the results showed that lighting, ventilation, furniture and noise level either separately or in combination affect workers performance. They came to the conclusion that offices needed to be well ventilated and well lit, with ergonomic furniture installed and a work atmosphere that was kept quieter by controlling students' enrolment and activities.

Gap in Literature

The empirical evidence demonstrated that studies on the influence of the physical work environment on teachers performance have been carried out recently. Though majority of these studies have concentrated on secondary, elementary and tertiary institutions. There is not much done specifically in public junior secondary schools in Lagos, Nigeria. Also, despite numerous studies, these problems were still unsolved in public schools. Therefore, the purpose of this study is to look at how teachers performance relates with their physical work environment. In a similar vein, the proxies used in this study differ from the ones operationalized in earlier research regarding teachers performance.

Conceptual Framework



Source: Researcher's Construct, (2024)

Methodology

The study adopted descriptive survey research design which allows the selection of sample from the population**.** The population for this study consisted of four public junior secondary schools in Lagos State's Education District 1. The district was chosen because it is one of the state's largest education districts and has been in operation for the past twenty (20) years. The study's target population is two hundred and ten (210) teachers who work in selected schools spread over Lagos, and a multi-stage sampling technique was used to select a sample from the population. A sample size of one hundred and thirty-eight (138) respondents was selected from among the staff using the Taro Yemani (1974) statistical formula. A probability proportionate to size was applied to determine the sample size of respondents from each school. The sample for the analysis was drawn using a multi-stage sampling process.

$$\mathbf{n=}\ \frac{N}{1+ (Ne)^{2}}$$

Where n=sample size, N= population and e = error limit.

$$\mathbf{n=}\ \frac{210}{1+ 210\ (0.05)^{2}}$$

$$\mathbf{n=}\ \frac{210}{1.525}$$

$$= 138$$

Table 1: Sample Size of Respondents from the Population

Schools	Proportion	Proportionate Sample size	
		Male	Female
Vetland Junior High School	138 (43)/210	13	15
Meiran Community Junior High School	138 (54)/210	15	20
Girls Junior High School Junior High School	138 (51)/210	-	34
Government Junior High School	138 (62)/210	22	19

Source: Researcher's Fieldwork (2024)

Instruments used for this study was a close-ended and well-structured adapted questionnaire from existing scales in the literature. The research instrument is adapted from the study of Edo and Nwosu (2018) for the independent variable (physical work environment) and Aderibigbe, Dauda and Fapohunda (2022) for the dependent Variable

(teachers performance). In this study, the questionnaire is divided into two sections. Section A focused on demographic information in which the respondents were asked to provide some basic background information such as age, gender, marital status, educational qualification, length of service etc. as it applies to each respondent. Section B contained questions on the independent variable and dependent. A four-point Likert Scale type was used to elicit responses from every question in the questionnaire and this covered; Strongly Agree (SA) – 4; Agree (A) – 3; Disagree (D) – 2; Strongly Disagree (SD) – 1.

The copies of the questionnaire were administered personally by the researcher with the help of two experienced teachers. One hundred and thirty-eight (138) copies of the questionnaire were distributed; one hundred and twenty-nine (129) copies retrieved but only one hundred and nineteen (115) copies were certified valid for analysis. Data and hypotheses were analysed using the Product Pearson moment correlation to test the hypothesis at 0.10 level of significance with the aid of (SPSS) version 20 computer software for the analysis.

Results

Table 2: Demographic information of the respondents

Variable	Responses	Frequency	Percentage (%)
Gender	Male	41	35.7
	Female	74	64.3
Marital Status	Single	27	23.5
	Married	81	70.4
	Widowed	6	5.2
	Divorced	1	.9
Age	20-30 years	23	20.0
	31-40 years	55	47.8.
	41-50 years	24	20.9

	50 above	13	11.3
Educational Qualification	O'Level	10	8.7
	ND/NCE	8	7.0
	HND/BSc/BA	61	53.0
	MASTERS	36	31.1
Years of service	Below 5 years	57	49.6
	5-15 years	42	36.5
	16-25 years	9	7.8
	OVER 25	7	6.1

Source: Field Survey, (2024)

Testing of Research Hypotheses

Hypothesis One

H_o: There is no significance relationship between lighting and effectiveness in selected public secondary schools in Lagos state.

Table 3

		Lighting	Effectiveness
Lighting	Pearson Correlation	1	.172
	Sig. (2-tailed)		.066
	N	115	115
Effectiveness	Pearson Correlation	.172	1
	Sig. (2-tailed)	.066	
	N	115	115

**. Correlation is significant at the 0.10 level (2-tailed).

Interpretation: Table 3 shows the results of the Pearson Product Moment Correlation carried to test the relationship between lighting and effectiveness. the correlation coefficient r = .0.172 with a Sig. level 2 tailed is non-significant at p≤0.05. The correlation coefficient indicates a positive relationship between the variables. Here the p value is 0.066 which is greater than the level of significance. Hence, the null hypothesis is maintained. This implies that as the antecedents of lighting increases, effectiveness increases vice versa.

Hypothesis Two

H_0: There is no significant relationship between furniture and efficiency in selected secondary public schools in Lagos state.

Table 4

		Furniture	Efficiency
Furniture	Pearson Correlation	1	.145
	Sig. (2-tailed)		.121
	N	115	115
Efficiency	Pearson Correlation	.145	1
	Sig. (2-tailed)	.121	
	N	115	115

**. Correlation is significant at the 0.10 level (2-tailed).

Interpretation: Table 4. shows the results of the Pearson Product Moment Correlation carried to test the relationship between furniture and efficiency. The correlation coefficient r = .0.145 with a Sig. level 2 tailed is non-significant at p≤0.05. The correlation coefficient indicates a positive but weak relationship between the variables. Here the p value is 0.121 which is greater than the level of significance. Hence, the null hypothesis is maintained. This implies that as the antecedents of furniture increases, efficiency increases vice versa.

Findings

The results above revealed the following

Relationship between Lighting and Teachers' Effectiveness

The test result of the first hypothesis revealed that there is a positive but non-significant relationship between lighting and teachers effectiveness with a correlation value of (r=0.172). The results indicates that as the antecedents of lighting increases, the antecedents of teachers effectiveness increases vice versa. The result of this study corroborates with previous study such as Tola, Omiyale and Akintan (2020) that reported a significant relationship and influence between lighting and effectiveness.

Relationship between Furniture and Teachers Efficiency

On the second hypothesis, the result revealed that there is a positive relationship between furniture and teachers efficiency with a correlation value (r=0.14) The results indicates that as the antecedents of furniture increases, the antecedents of teachers efficiency increases in equal proportion. The result of this study corroborates with previous studies such as (Hope, Arachie & Ibrahim,2018), (Edo & Nwosu, 2018) that reported a positive relationship between ergonomic furniture and employee performance/efficiency.

The result of this study also corroborates with previous studies such as Bankole et al (2018), Edo and Nwosu (2018) which reported that lighting, ventilation, furniture and noise level either separately or in combination affect workers performance. Results obtained in this study and researches conducted by previous researchers support the hypotheses of the study. Therefore, the study hypotheses were accepted in this study.

Hertzberg theory which is of the opinion that there are two types of variables that can either motivate or demotivate people. Both the satisfier and the dissatisfier, if the dissatisfiers (hygienic factors) such as lighting and furniture are poorly managed, they can result in discontent which will negatively influence performance. The implication of this theory is that for teachers to be effective and efficient in delivering their services organizations should not only focus on the 'Satisfier' such as accomplishment and acknowledgement but also pay attention to the hygienic factors such the office lighting and furniture.

Conclusion

The conclusions of this study have implications that point to the need of having comfortable furniture in place, that lighting matters in improving the effectiveness and efficiency of teachers In summary, the study concludes that physical infrastructure is a key deciding factor when it comes to the performance of teachers inside the schools based on these results.

Recommendation

According to the findings, it is advised that

1. Decision makers should invest in improving the lighting system of schools as this will improve effectiveness on the part of the teachers,

2. Provide ergonomic office furniture for teaching staff since doing so will motivate them to increase their efficiency.

3. More emphasis should be placed on providing quality education through the provision of. enabling physical work environment.

References

Aderibigbe, E. A, Dauda Y. A & Fapohunda, T. M. (2022). Impact of human capital development on employees' performance: A study of two selected Chinese owned firms in Lagos State. *International Journal of Recent Research in Commerce Economics and Management (IJRRCEM), 9*(4), 77-86.

Amstrong, M. (2015). *Armstrong's Handbook of Reward Management Practice: Improving Performance Through Reward.* (3rd ed), United Kingdom: Kogan Page Ltd

Bankole, Aremo & Oderinde (2017). examined the influence of physical environment on employee's performance in Tertiary institutions. *Lasu journal of management,* 6(2), 46-55

Buchari & Nazaruddin (2017) Factors of Workplace Environment that affect Employees Performance: A case study of Miyazu Malaysia. International Journal of Independent Research and Studies, 2 (2), 66-78

Edo, B. L., & Nwosu, I. C. (2018). Working environment and teachers' productivity in secondary schools in Port Harcourt Metroplis. *International Journal of Innovative Psychology and Social Development,* 6(4), 36 – 49.

Em Y., Mukhlis Y., Muhammad A. & Hizir S. (2018). Antecedent model of empowerment and performance of ACEH government with motivation as the intervening variable, *The Journal of Social Sciences Research*, *2*, 743-747

Ewuim N. C & Onuorah O. L. (2020), Human resources development in a knowledge organizational view: industrial and commercial training. *Emerald Group publishing limited New York*, *36*(4) 175

Huang, S.M (2012) performance management organization development, safety, wellness, administration and training. Assessed from www.allbestessays.com/16445.html

Hope, Arachie & Ibrahim (2018). Physical Work Environment and Employee Performance in Selected brewing firms in Anambra. *Journal of Good Governance and Sustainable Development in Africa*, 4 (2) 131 - 145

Rouaa, P., (2020). The effects of the physical environment design on teachers workplace comfort. *International journal of Architecture Spatial and Environmental Design*, 14(3), 17-30.

Kim, Jungsoo, Christhina, C., Leena, T., & Richard, (2016). 'Desk ownership in the workplace: the effect of non-territorial working on employee workplace satisfaction, perceived productivity and health' Building and environment103:203-214. https:/doi.org/10.1016/j.buildenv.2016.04.015

McGregor, J. (2004). Space, power, and the classroom. Forum, 46(1), 13-18.

Meyer, M. & Kirsten M. (2015). Introduction to Human Resources Management New African Book pvt Ltd. Claremont. C.A. motivation an empirical Study from Pakistan. *International Journal of Business and Management*, *15*(2), 159-167

Marghany, M. (2015). Effects of empowerment on employee performance in the workplace. *See discussions, stats, and author profiles for this publication at*, Available: http://doi.org/10.13140/RG.2.1.2884.9763

Mcshane, S., & Von Glinow, M. A. (2022*). Organizational behavior* (5th ed.). London: McGraw Hill Education

Rouaa & Prince, (2020). The effects of the physical environment design on teachers workplace comfort. *International journal of Architecture Spatial and Environmental Design*, 14(3), 17-30.

Sehgal, S. (2012). Relationship between work environment and productivity. *International Journal of engineering research and applications*, 2(4), 1992-1995

Yemane, T, (1974) Statistics: An introductory Analysis. 2nd Edition, Harper and Row, New York

Woo, J. (2014). Digital game-based learning supports student motivation, cognitive success, and performance outcomes. *Educational Technology & Society*, 17: 291–307.

Tola, O., Omiyale, P., & Akintan (2021). impact of work environment on secondary schools teachers performance among secondary schools teachers in satellite town, https//www.researchgate.net/publication/353221067

Tayfun & Oneren (2021). Influence of Physical Work Environments on Employee Performance. *International Journal of Academic Research in Business and Social Sciences* 12 (12).