

Relationship between Behavioural Work Environment, Physical Work Environment and Employee Productivity: Mediating role of work motivation

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Abstract

This study explores the relationship between behavioural work environments and employee productivity, with work motivation as a mediator, among Bauchi State civil servants. Drawing on social exchange theory and self-determination theory to explain how supportive interpersonal conditions satisfy employees' psychological needs and foster motivation, the study used a questionnaire survey of 372 employees in Bauchi State MDAs. Data were analysed with SPSS (reliability and regression) and PLS-SEM (path analysis). Findings indicate a significant positive relationship between behavioural work environment and employee productivity, and that work motivation mediates this relationship consistent with theory that behavioural cues (support, autonomy, relatedness) increase intrinsic motivation and thereby performance. Although the mediation effect was positive, it was statistically modest. The study is relevant to organizational managers and policymakers: it recommends strengthening behavioural workplace practices, fostering long-term supportive relationships, and developing technical and managerial capabilities to improve service quality. Results can inform Bauchi State policy actions to prioritize work-environment improvements.

Keywords: Behavioural Work Environment, Physical Work Environment Work Motivation, Employee Productivity

1. Introduction

Employee productivity is the most essential feature of an organization, as it is one of the defining factors in attaining organizational mission and vision. Management experts state that productivity is measured by employee output; Carlini and Grace (2021) recognize managing employee productivity as a planned process whose key elements are agreement, measurement, support, feedback and positive reinforcement. The workplace where a worker operates also affects organizational performance. The work environment comprises behavioural

elements peers and colleagues, team and work group interactions, leadership and management, systems, procedures, practices, values and philosophies (Awak & Augustine, 2021) as well as physical elements such as office layout, ergonomics, ventilation, lighting, noise control, and safety. In Bauchi State, where the public service includes 34,303 civil servants (Office, Head of Civil Service, Bauchi State, 2022), field reports and observations indicate unsafe and uncomfortable offices, poor ventilation, unsuitable furniture, excessive noise, inadequate lighting, insufficient safety measures, and weak managerial practices that together undermine motivation and productivity (Oriaku, 2022; Ulloa-

Unanue, 2023). Behavioural problems leadership styles, communication patterns, organizational culture and employee attitudes further influence behaviour and performance in MDAs (Sirait et al., 2022; Putra & Mujiati, 2022). Review of the literature shows that low public-sector productivity impedes national development and contributes to socioeconomic problems such as high unemployment and insecurity (Kravariti et al., 2023; National Bureau of Statistics, 2020). Although many studies have examined work environment effects in developed and other developing countries, there is a need for context-specific evidence from Bauchi State to guide local policy and interventions.

Therefore, this study examines the relationships between behavioural and physical work environments and employee productivity in selected Bauchi State MDAs, and tests the mediating role of work motivation. Specifically, the study tests these hypotheses: H1; There is a significant relationship between behavioural work environment and employee productivity in some MDAs of Bauchi State (Putra & Mujiati, 2022); H2; There is a significant relationship between physical work environment and employee productivity in some MDAs of Bauchi State (Tsai, 2023; Kiiru, 2022); H3; Work motivation mediates the relationship between behavioural work environment and employee productivity (Ajegbomogun et al., 2022; Maryani et al., 2021); H4; Work motivation mediates the relationship between physical work environment and employee productivity (Riyanto et al., 2021; Wahyudi, 2022). By focusing on Bauchi State MDAs, the study fills a local empirical gap and provides evidence to inform facility improvements and managerial reforms aimed at improving public-sector productivity.

2. Literature Review

2.1.2 Employee Productivity

Employee productivity involves factors such as quality, quantity and effectiveness of an employee's work (Khassawneh et al., 2022). Behavior shown in the workplace and social interaction are also counted in employee productivity definition. "Productivity is best if the standard is specific and challenging and there is high commitment, relevant knowledge or skill, and feedback showing progress in relation to standard." (Locke 2019). Measurement of productivity is usually performed by using human resource pre-determined productivity metrics. Such metrics are used to evaluate the output and effort by the employee to reach the individual goals and help the organization reach its organizational goals in the meantime.

2.1.3 Behavioural Work Environment

Behavioral work environment components included distraction, social interaction and office layout in terms of ease of working (Durakovic et al., 2023). Tudor et al. (2023) Behavioural work environment is the relationship between superiors and subordinates, relationships with colleagues and relations with the local community. Morgenthaler et al. (2021) the behavioural work environment is unsystematic and emphasizes freedom of expression, creativity, aesthetics, imagination and originality. This behavioural work environment is characterized by freedom and lack of structure and rules.

2.1.4 Physical Work Environment

Physical work environment is a subset of work environment which consist of physical and Behavioural work environment. It will be pertinent to discuss work environment first so that the concept of Physical work environment will be better appreciated. Asmussen et al. (2022) posits that work environment

involves the physical, geographical locations as well as the immediate surroundings of the work place. Typically, it involves other factors relating to the place of employment such as security, additional perks and benefits of employment.

2.1.4 Work Motivation

Guterresa et al., (2020) Work motivation is someone's desire that causes that person to act. People act for one reason, namely to achieve goals. So, work motivation is a drive that is set by goals and rarely appears in a vacuum Widowati and Satrya (2023) Work motivation is an inner strength that encourages employees to achieve personal and organizational goals. Work motivation can take a very central role in increasing productivity Previous findings have proven that individuals who are motivated in their work will have a positive impact on improving their productivity; (Guterresa et al., 2020). A person's behavior is influenced and stimulated by wants, needs, goals and satisfaction. Stimulation arises from yourself and from outside. This stimulation will create motives and motivation that encourage people to work (Novitasari et al., 2021).

2.2 Hypotheses Development

2.2.1 Behavioural Work Environment and Employee Productivity

The literature argues that behavioural work environment factors thermal comfort, air quality, lighting, noise, safety, coworker and supervisor relationships, and workspace personalization directly influence employee productivity, and that behavioural components (relationships and personalization) often exert a stronger effect than purely physical factors; the study therefore tests two main hypotheses: (1) a positive behavioural work environment increases employee productivity, and (2) behavioural components have a stronger effect on

productivity than physical components. (Choose three citations: Parashakti et al., 2020; Putra & Mujjati, 2022; Miller, 2022.)

H₁ There is a significant relationship between Behavioural Work environment and employee productivity in some (MDA) of Bauchi state

2.2.2 Physical Work Environment and Employee Productivity

The current study contains and tested the following hypothesis, which has derived from the previous literature and is also justified in the literature review. Hypothesis testing results of the influence of the physical work environment on employee productivity show that the better the physical work environment of workers will make the creation of high productivity. Based on the result of Tsai (2023) study is that the physical work environment has a positive effect on employee productivity. This means that more satisfying the physical environment for employees will improve productivity. Research from Tsai (2023) states that the physical work environment has a positive effect on employee productivity in public service in Nigeria.

H₂ There is a significant relationship between physical Work environment and employee productivity in some (MDA) of Bauchi state

2.2.3 Work Motivations has a mediating effect on the relationship between Behavioural work environment and employee productivity

The results of (Ahmed et al. 2023) showed that behavioural work environment variables influence employee productivity where the atmosphere of a comfortable and conducive behavioural work environment can make employees more motivate to work. Afif et al., (2023) which states the work environment has a significant effect on work motivation. This

shows that the work environment is a force that drives the spirit inside and outside him both in the form of reward and punishment. Linder et al. (2022) believes that the physical setting can affect the behaviour of its occupants, they also acknowledge that creating an environment for a range of different behaviours is a complex issue. An important behavioural pattern acknowledged in the service scape framework is that of the social interaction between, and among, customers and employees (Linh 2022).

H₃: There is a significant mediating role of Work motivations between behavioural work environment and employee productivity in some (MDA) of Bauchi state.

2.2.4 Work Motivations has a mediating effect on the relationship between Physical work environment and employee productivity.

Academicians and practitioners advocate the important of mediating role of work motivation in an organizational to improve employee productivity (Onubi et al., 2023). Based on the description below, it is suspected that the physical work environment and Behavioural work environment has a direct effect on employee productivity shows that there is a significant influence between the physical work environment, behavioural

work environment and employee productivity. The results of the research conducted by Ajegbomogun, et al., (2022) The results showed that physical work environment variables influence work motivation where the atmosphere of a comfortable and conducive physical work environment can make employees more motivated to work.

Maryani et al., (2021) indicated that the Work Motivation as mediating variable has a significant influence between physical work environments on Employee productivity. Therefore, each employee will be able to achieve high productivity by having good work motivations from both within and outside themselves. Yildiz (2020) in his study on the Impact of work Motivation on Employee productivity at a Bank in Estonia finds out that there is a significant relationship work motivation as mediating variable physical work environment and employee productivity and it is quite natural. He further stated that employees tend to perform better when they receive extra work motivation in form of the stated motivational factors such as salary, good relationship with superiors, a suitable working environment and or some challenges and cooperation.

H₄: There is a significant mediating role of Work motivations between physical work environment and employee productivity in some (MDA) of Bauchi state

2.2.3 Research Framework

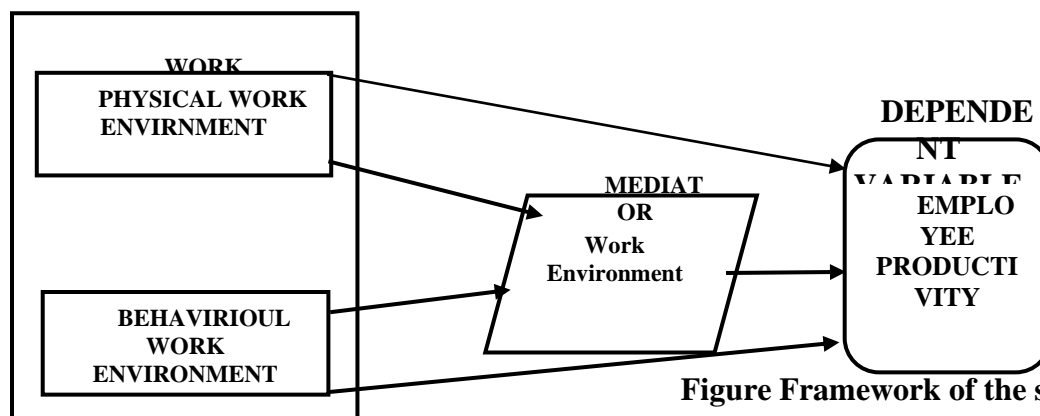


Figure Framework of the study

3. Methodology

The research aims to examine the direct effect of work motivation on behavioural work environment and employee productivity of public sector in Ministries, Departments and Agencies in Bauchi state, Nigeria. The research is based on a positivist philosophy, which is quantitative and aims to test cause-effect relationships. The sampling technique used in this study was purposive sampling technique. The purposive sampling was used in this study in order to identify employee productivity in MDAs. This method is appropriate when the study places special emphasis upon the control of certain specific variables (Klar, & Leeper, 2019; Oribhabor, & Anyanwu, 2019; Pandey & Pandey, 2021). Maulana (2020) purposive sampling is the most used in the research between 2019 and 2020. The administered questionnaire were later retrieved and analyzed using SMART-PLS 4. Further, the measurement for the physical work environment, the independent variable, five items were adapted from the studies of (Iqra et al 2019). The items were based on a 5-point Likert scale ranging from 1 to 5. For work motivation, the mediating variable, comprising five measures, were adapted from the studies of (Emmanuel 2020). The items were as well based on a 5-point Likert scale from 1 to 5. employee productivity measurements were also adopted to the work of li (2022), which comprises 5 items. Further, before the questionnaire administration, the research instruments have undergone thorough checks by experts in the field of human resource management to ensure that the questionnaire's content in terms of wording and understanding is appropriate for the research. Also, respondents' focus groups were selected to crosscheck the items for any observations and corrections. Afterwards, corrections were affected to ensure the quality of the

questionnaire and avoid response bias. The study population of Bauchi state civil service is 34,303.00. The employees is the unit of analysis in which employees in MDAs to determine the sample size. Therefore, in line with the study of Krejcie & Morgan (1970), a sample size of 379 is accepted to represent the population. Further, Previous studies such as Isreal (1996); Mirzaei et al (2021); Hanaysha, and Alzoubi (2022) recommended 30% to be added to the minimum sample size in order to take care of incomplete responses so that the needed statistical power would be achieved. Therefore, on the basis of the rule of thumb that “the larger the sample size the better the result, this present study would add 30 % (114) of the 379 minimum sample size obtained from Krejcie and Morgan, (1970). Hence the sample size for the study is 493 respondents. A total number of 493 questionnaire were administered, among which a total of 372 questionnaire were retrieved representing 84.8% percent of the total questionnaire administered, after following-ups. While for further data analysis only 372 were found usable which represents 75.5% percent of the returned sampled respondents, and were analyzed. Retrieved but Invalid 46 representing 9.3%, while not retrieved were 75 representing 15.2%. Hence, Baruch (1999) posits that social and management sciences research frequently has a 55.6% response rate. Likewise, others have considered a 60% good response rate (Babbie, 2007; Grove, 2006). Following the debate, this study's response rate of 94.4% is quite tolerable and suitable for data analysis.

4. Results and Discussion

Data was entered using Statistical Package for Social Science (SPSS). Also, data screening was carried out to spot and confirm that the data is cleansed and can

reflect the actual phenomenon of the study. Descriptive statistics, frequencies, and percentages were used to analyse the

demographic variables of the respondents, as presented in the table below.

Table 1 Descriptive Statistics of Respondents

Variables	Category	Frequency	Percentage %
Gender	Male	316	84.9
	Female	56	15.1
	Total	372	100%
Age	18 - 30 years	62	16.7
	31 - 40 years	106	28.5
	41 - 50 years	128	34.4
	51 years & above	76	20.4
	Total	372	100%
Educational Qualification	SSCE	107	28.8
	ND/NCE	161	43.3
	BSc/HND	72	19.4
	MSc/MBA	21	5.6
	PhD	11	3.0
Total	372	100%	
Marital Status	Single	60	16.1
	Married	299	80.4
	Divorced	13	3.5
	Total	372	100%
Work Experience	1 - 10 years	73	19.6
	11 - 20 years	153	41.2
	21 - 35 years	146	39.2
	Total	372	100%
Employees' Grade	Middle Mgt.	94	25.2
	Lower Mgt.	219	58.9
	Top Mgt.	59	15.9
	Total	372	100%
Staff Department	Admin	121	32.5
	Logistics	30	8.1
	Services	28	7.1
	Finance	23	6.2
	Others	170	45.7
Total	372	100%	

Source: Field Survey, 2023

Table 1 shows gender, age, marital status, educational qualification, working experience, employee grade and staff department, The statistics show that from the 372 participants, 316 (84.9%) are male, while the female figure stands at 56 (15.1%). In terms of age, the higher respondents 128 (34.4%) are between the age of 41 to 50. 62 respondents (16.7%) are within the age range of 18 -30, while 106 respondents (28.5%) fall within the age range of 31-40 and 76 respondents (20.4%) fall above the age 51 and above.

153 (41.2%) respondents have working experience between 11- 20 years in service, while 146 (39.2%) have a working experience between 21-35 years in service and 73 respondents (19.6%) are between 1-10 years in service. Regarding to educational qualification, it was found that 107 (28.8%) of the respondents fall within the category of Secondary education (SSCE), 161 (43.3%) have National diploma (ND)/ NCE. BSc/HND respondents are 72 (19.4%), MSc/MBA

respondants are 21 (5.6%) and PhD respondents 11 (3%) respectively.

Furthermore marital status 299 (80.4%) respondents are married, 60 (16.1%) respondents are single while 13 (3.5%) respondents are divorce. Employee grade 219 (58.9%) respondents are lower management, 94 (25.2%) respondents are middle management and 59 (15.9%)

respondants are top management. Staff department other department has the highest respondents 170 (45.7%) Administration department 121 (32.5 %) respondents, logistic department 30 (8.1%) respondents, service department 28 (7.5 %) and finance department 23 (6.2%) respondents.

Table 2 Convergent Validity of Measurement Model

Construct	Item	Loadings	CA	CR	AVE
Behavioural Work Environment (BWE)	BWE1	0.842	0.909	0.91	0.932
	BWE2	0.882			
	BWE3	0.841			
	BWE4	0.904			
	BWE5	0.806			
Physical work environment	PWE1	0.824	0.726	0.775	0.814
	PWE2	0.598			
	PWE4	0.666			
	PWE5	0.791			
Employee Productivity (EP)	EP1	0.839	0.909	0.914	0.933
	EP2	0.893			
	EP3	0.828			
	EP4	0.904			
	EP5	0.819			
Work Motivation	WM1	0.834	0.914	0.919	0.936
	WM2	0.844			
	WM3	0.893			
	WM4	0.871			
	WM5	0.870			

Source: Field Survey, 2026

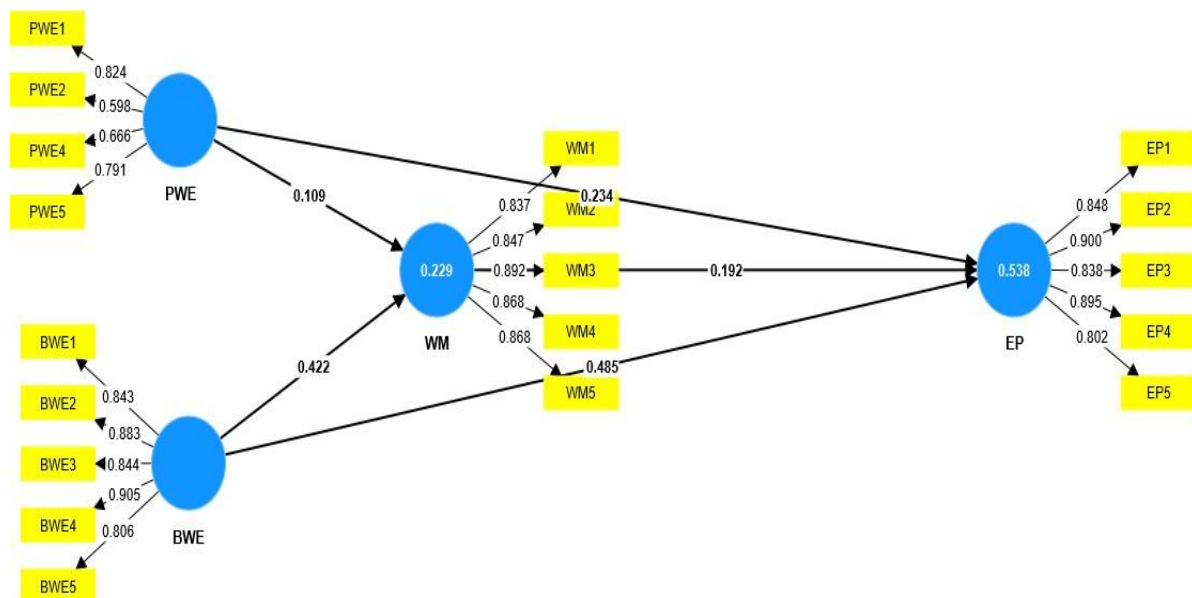


Figure Measurement Model

Table: 3 Discriminant Validity (Fornell-Larcker Criterion)

Constructs	BWE	EP	PWE	WM
Behavioural Work Environment (BWE)	0.857			
Employee Productivity (EP)	0.675	0.857		
Physical Work Environment (PWE)	0.428	0.497	0.726	
Work Motivation (WM)	0.469	0.487	0.289	0.863

Source: Field Survey, 2023

4.2 Assessment of Structural Model

After the measurement model assessment, where convergent and discriminant validity of the items and constructs were validated, the next stage examines the structural model. In the process of examining the structural model aimed at confirming the research model

empirically. Some fundamental analyses must be performed in the model, which includes collinearity assessment, assessing the significance of the path coefficients, the coefficient of determination (R^2) values, the effect size (F^2) as well as the predictive relevance (Q^2)

Table 4. Effect Size (F^2)

Constructs	R-square	Adjusted R^2
Employee Productivity (EP)	0.538	0.534
Work Motivation (WM)	0.229	0.225

Source: Field Survey, 2023

The effect size (F^2) indicates the level of impact or influence of an individual predicting variable on a directly associated or linked dependent variable (Hair et al., 2017). It presents the degree of the influence of each exogenous variable on an endogenous construct. It also reflects the disparity in R^2 value due to the direct elimination of a predicting

variable in the model. Consequently, the effect size (F^2) is applied when measuring the significance of each variable in the model. It is thus concluded that the larger the effect size of a predicting variable in the model, the higher the significant association it has with the endogenous construct.

Table 5 Significance Effects of Direct (Path Coefficient)

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV)	P values	Decision
BWE -> EP	0.485	0.484	0.059	8.288	0.000	Accepted
PWE -> EP	0.234	0.233	0.059	1.343	0.090	Rejected
PWE -> WM -> EP	0.021	0.023	0.019	1.124	0.130	Rejected
BWE -> WM -> EP	0.081	0.083	0.027	2.975	0.001	Accepted

Source: Extracted from Smart PLS 4 outputs, 2026

4.3 Hypothesis Testing of Direct Relationship

Employee productivity has received a great deal of attention by researchers in business management. However, this

research is conducted to examine the relationship between physical work environment and Behavioural work environment on employee productivity.

4.3.1 Relationship Behavioural Work Environment and Employee Productivity

The second hypothesis (H₂): states that “There is a significant relationship between Behavioural Work environment and employee productivity in some (MDA) of Bauchi state”. The results of standardized regression weights from Table 5 suggested a positive but a strong relationship between BWE and EP ($\beta = 0.484$, $t = 8.288$, $p = 0.000$). In other words, the regression weight for BWE in the prediction of EP is significantly different from zero at the p -value of 0.000. Based on the results, it can be concluded that BWE has positive but a significant relationship with EP. Thus, the hypothesis (H₂): that states there is positive relationship between relationship between behavioural work environment and employee productivity is hereby Accepted.

4.3.2 Relationship between Physical Work Environment and Employee Productivity.

The p -values indicate the level of statistical significance of the results. Therefore, a p -value less than 0.05 (indicated by 0.090) is generally considered statistically insignificant, that is there is more than a 5% chance that the expected results are obtained. The first hypothesis (H₁): states “There is a significant relationship between physical Work environment and employee productivity in some (MDA) of Bauchi state”. The results of standardized regression weights from Table 5 suggested a positive and significant relationship between PWE and EP ($\beta = 0.111$, $t = 1.343$, $p = 0.090$). In other words, the regression weight for PWE in the prediction of EP is significantly different from zero at the p -value of 0.090. Based on the results, it can be concluded that PWE has positive significant relationship with EP. Thus, the

hypothesis (H₁): that states there is positive relationship between relationship between physical work environment and employee productivity is hereby Rejected.

4.3.3 Mediating role of the work motivation on the relationship between behavioural work environment and employee productivity

H₄ Work Motivation (WM) x Behavioural Work Environment (BWE) -> Employee Productivity (EP): presumed that, work motivation mediate the relationship between BWE and EP, but the results ($\beta = 0.083$, $t = 2.957$, $p = 0.001$) also suggests that there is a mediate, but is positive relationship between behavioural work environment (BWE) and employee productivity (EP). The t -value shows that the sample mean is 2.957 standard deviations away from the population mean, that is the sample is very different from the population. The p -value of 0.001 shows that the results are mediate positive and statistically significant. In essence Work Motivation has positive mediating effect on the relationship between BWE and EP. Hence the hypothesis that states Work Motivation mediate the relationship between BWE and EP is hereby Accepted.

4.3.4 Mediating role of the work motivation on the relationship between physical work environment and employee productivity

H₃ Work Motivation (WM) x Physical Work Environment (PWE) -> Employee Productivity (EP): presumed that, work motivation mediates the relationship between PWE and EP, but the results ($\beta = 0.023$, $t = 1.124$, $p = 0.130$) also suggests that there is a positive relationship between physical work environment (PWE) and employee productivity (EP). The t -value shows that the sample mean is 1.124 standard deviations away from the population mean, that is the sample is very different from the population. The p -

value of 0.130 shows that the results are highly statistically insignificant. In essence Work Motivation has no mediating effect on the relationship between PWE and EP. Hence the hypothesis that states work motivation mediate the relationship between PWE and EP is hereby Rejected.

4.4 Importance-Performance Map Analysis Matrix (IPMA) Assessment

In order to present the findings of this study more precisely, importance-performance map analysis (IPMA) was conducted. IPMA analysis aims to identify constructs with high importance and low performance (Schloderer et al., 2014). The outcome of the analysis aids high level management in identifying key forces within organisation that need more attention and improvement (Shafaei & Razak, 2015). Hence, scores for importance were extracted from the total effects of the estimated relationships in the structural model. Similarly, the performance scores or index values computation was conducted through rescaling the latent variables scores to range from 0 as the lowest performance to 100 as the highest performance.

The result of the IPMA reveals performance of the construct as Behavioural Work Environment (BWE)

(87.378), Physical Work Environment (PWE) (83.258), Work Motivation (WM) (86.545), while the importance results shown that Behavioural Work Environment (BWE) (0.566), Physical Work Environment (PWE) (0.255) Work Motivation (WM) (0.192)

Figure and Table 6 Shows the detailed IPMA result for all the constructs. Given the above, it is argued that investing in the performance improvement of a construct (independent variable) that has smaller importance for the target variable (dependent variable) would be illogical since it would have a minute impact on improving the target construct (Hair et al., 2017). Hence, it can be suggested that Behavioural Work Environment (BWE) are particularly important for explaining the target construct. Impliedly, a one-unit increase in the performance of Behavioural Work Environment (BWE) increases employee productivity (EP) by the value of the total effect, which is 0.448, 0.264 and 0.086, respectively. Consequently, the PLS path indicates that Behavioural Work Environment (BWE) are the most relevant to EP factors for managerial decisions when it comes to the assessment of employee productivity in Bauchi state ministries, Departments and Agencies.

Table 6 IPMA Results

Constructs	IMPORTANCE	PERFORMANCE
Behavioural Work Environment (BWE)	0.566	87.378
Physical Work Environment (PWE)	0.255	83.258
Work Motivation (WM)	0.192	86.545

Source: Field Survey, 2026



Importance Performance Map

4.5 Discussion of Findings

This study was primarily designed to examine the Relationship between work environment on employee productivity in Bauchi state Ministries, Departments and Agencies. The mediating role of work motivation. There were several outcomes the study found with the help of data analysis.

(H₁): states that “There is a significant relationship between Behavioural Work environment and employee productivity in some (MDA) of Bauchi state”.

The Behavioural working environment includes a working relationship formed between a fellow employee and a working relationship between the subordinate and superiors and the behavioural work environment in which the employee works (Putra & Mujati 2022). They found that healthy behavioural workplace condition yields positive consequences on employees’ productivity even if behavioural work environmental conditions are unfavorable, another finding of the study was: behavioural components of working environment affect employee productivity more significantly than physical components. Babapour et al. (2022) to ensure office environments work, from both an organizational and individual perspective, consideration needs to be given to the types of behaviour the office needs to enable. Increasingly, offices are

becoming environments that need to create and transfer knowledge to other team members. Thus, based on the finding of this study the hypothesis (H₂): that states there is positive relationship between relationship between behavioural work environment and employee productivity is hereby Accepted.

(H₂): states “There is a significant relationship between physical Work environment and employee productivity in some (MDA) of Bauchi state”.

The results of standardized regression weights suggested a positive but a weak relationship between physical Work environment (PWE) and employee productivity (EP) Based on the result of Tsai (2023) study is that the physical work environment has a positive effect on employee productivity. This means that more satisfying the physical environment for employees will improve productivity. Research from Tsai (2023) states that the physical work environment has a positive effect on employee productivity in public service in Nigeria. Kiiru (2022) investigated whether there is a relationship between the physical environments (comfort level; temperature) with employee productivity in public health sector in Nairobi Kenya. 152 civil servants were selected from four (4) main units in Ministry of Health, Putrajaya. Findings of the results showed

that physical environment (comfort level, temperature) strongly influences the employee productivity.

Thus, based on the finding of this study the hypothesis (H_1): that states there is positive relationship between relationship between physical work environment and employee productivity is hereby Rejected.

(H₃) Work motivations (WM) x behavioural work environment (BWE) -> employee productivity (EP): presumed that, Work motivations mediating the relationship between behavioural work environment (BWE) and employee productivity (EP).

But the results ($\beta = 0.083$, $t = 2.975$, $p = 0.001$) also suggests that there is a mediating and positive relationship between behavioural work environment (BWE) and employee productivity (EP).

The results of Afif et al. (2023) which states the work environment has a significant effect on work motivation. This shows that the work environment is a force that drives the spirit inside and outside him both in the form of reward and punishment. Based on analysis of the effect of work motivation on employee productivity. Showed that the variables of motivation work influence on employee productivity where increasingly higher work motivation will increase the productivity of employees. Research conducted by Hajjali, et al. (2022) found that the role of work motivation is vital to improve employee productivity. Hajjali et al. (2022) states that motivation has a positive and significant effect on employee productivity. Hence the hypothesis that states Work Motivation mediate the relationship between BWE and EP is hereby Accepted.

(H₄) Work motivations (WM) x physical work environment (PWE) -> employee productivity (EP): presumed that, Work motivations mediating the relationship

between physical work environment (PWE) and employee productivity (EP).

But the results ($\beta = 0.023$, $t = 1.124$, $p = 0.130$) also suggests that there is a strong but negative relationship between physical work environment (PWE) and employee productivity (EP).

Riyanto et al. (2021) investigated the effect of work motivation and job satisfaction on employee productivity: Mediating role of employee engagement". The findings proved that the motivation variable has a positive effect on employee productivity variables (Nasution, & Priangkatara. 2022). Wahyudi (2022) Based on work motivation is important because with its employee will work hard and enthusiastically to achieve high work productivity. Also, explained by Mitchell in that the contribution of work motivation to productivity cannot be ignored (Kajwang 2022). Although the ability of employees is already good during low motivation, but their productivity will also become low (Padi et al., 2022). Hence the hypothesis that states Work Motivation mediate the relationship between PWE and EP is hereby Rejected.

The findings stronger effects of behavioural than physical work environment on productivity, full mediation by work motivation for behavioural factors, and no mediation for physical factors align with social exchange and self-determination theory: supportive relationships and opportunities for autonomy and relatedness (behavioural environment) enhance intrinsic motivation and thus performance, whereas mere physical improvements yield weaker returns unless they satisfy psychological needs or are embedded in job design. Theoretical propositions: (1) Behavioural work environments increase employee productivity primarily by satisfying

intrinsic motivational needs; (2) Physical work environment affects productivity only when it improves psychological needs or is coupled with supportive job design; (3) Work motivation mediates behavioural but not necessarily physical environment effects on productivity because behavioural cues directly signal social support and autonomy.

4.6 Summary of Findings

The study established the causal relationship between work environment and employee productivity of Bauchi State ministries, departments and agencies. The study was underpinned by person–environment fit theory. The outcome reported in the analysis in the preceding chapter established empirical evidence that this assumption is in line with other previous studies. This chapter discussed the detail procedures for data analysis and interpretations based on the outcome of the analysis done in this study. The chapter consists of the following; data screening/cleaning, assessment of missing value, test of normality (Kolmogorov-Smirnov and Shapiro Wilk), determination of response rate and descriptive statistics of the respondents. It also outlined items that constitute assessment of measurement model and structural models. They are; convergent validity, discriminant validity, multicollinearity assessment, coefficient of determination (R^2), PLS predict, predictive relevance (Q^2) and effect size (F^2) assessment. The various hypotheses used in the study were outlined alongside with importance performance map analysis (IPMA), followed by the discussion of findings based on the results of the current study in consistent with previous studies carried out.

Discussion and Research Implication

The findings of the study substantiate the conceptual model and provide a number of managerial implications, theoretical and methodological implications Firstly, it offers a practical approach for

ministries, departments and agencies of Bauchi state government as decision-makers., Secondly, the study stressed the effectiveness of work environment in increasing the employee productivity, therefore, decision-makers should adopt work environment. Policy makers the finding of this study may guide government on possible way of improving employees' productivity and communicate back to the organization for implementations.

This study will contribute empirically by establishing the direct and indirect relationships between behavioura work environment and employee productivity. This study which linked the strong tie and bridge tie with Employee Productivity to ascertain its level of performance in the view of Person–environment fit theory is set in behaviroural, psychology and motivational studies and originates from Frank Parsons's (1909) choosing a Vocation. In his book, Parsons (1909) argued that a good fit of behaviroural work environment can lead to employee's abilities to increased productivity. The present study will be beneficial to the academicians and practitioners to enable them in understanding the positive Work Environment on Employee Productivity, as well as contributing to existing literature by examining the mediating effect of work motivation. This study adopted the questionnaire used from previous studies (Iqra et al, 2019; Iqra et al, 2019; Emmanuel 2020; Li et al 2019). The study used PLS-SEM as a modern multivariate analysis technique with a demonstrated ability to estimate theoretically established cause-effect relationship models. Also data was analysed in order to provide empirical evidence to support the framework and help to expand the scope of Work Environment and its effect on employee productivity.

5. Conclusion and Recommendations for Future Research

The study recommends that Ministries, Departments and Agencies should develop a platform on which behavioural work environment can get in touch with them and try to be improved in their productive capacity to achieve desired service quality by exceeding the delivering expectations in the organisations. The study recommends that Ministries, Departments and Agencies should develop and improved

work motivation in an organization in order to achieved organizational goals. Future studies may consider other predictors other than behavioural work environment, and use work motivation as moderator rather than mediator as used in this study. Or future study can add other dimension of work environment as a predictor. Finally, future study can used Regression SEM, Process SEM, Finite Mixture (FIMIX) Segmentation or AMOS.

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