Mediating role of work motivation on behavioral work environment and employee productivity of Bauchi state civil servants

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Abstract
The study explores the relationship between behavioral work environments on employee productivity through mediating role of work motivation among Bauchi state civil servants. The study adopt questionnaire survey method and data were collected from 372 employees working in ministries, departments and agencies (MDAs) of Bauchi state. Descriptive statistics and frequencies were analyzed through SPSS while measurement, structural, and path analysis were performed through Smart PLS-SEM version 4.1. The study findings show that there is a significant relationship between behavioral work environment and employee productivity. Furthermore, work motivation mediates behavioral work environment and employee productivity. The study will be significant to policy makers in government agencies. The study recommends among others that public service organizations should endeavor to maintain long term relationships through behavioral work environment, develop a technical know-how that will enable them deliver quality services which will enhance productivity and good governance. The result of this study would help the state government to draft an action plan to identify and prioritize their work environment.

Keywords: Behavioral Work Environment, Employee Productivity, Work Motivatio

1. Introduction
Financial rewards alone won't inspire workers to achieve at higher levels in the cutthroat business world of today. The working environment is one of the most important variables impacting employee performance in a firm (Torlak & Kuzey, 2019). Similarly, the bulk of workplaces in developing nations are subpar, and regrettably, most businesses do not make significant investments to maintain a comfortable working environment because they view a safe and healthy workplace as an unnecessary expense (Aghaji, et al., 2021). Nonetheless, the type of workplace that employees work in determines a company's success at all times (Lasyoudet at al., 2018).

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 the quality of employee. According to Carlini and Grace (2021), controlling staff productivity is a planned process whose essential components include support, agreement, measurement, feedback, and positive reinforcement. These factors also define the expected productivity outcomes. If an employee has a strong drive for accomplishment, they are more likely to aim for an exceptional performance. Strong social links at work increase the likelihood that employees will be motivated to complete projects on time. (Fritz et al., 2023).

Any institution or organization's work environment often consists of interactions, teams and work groups, leadership and management, and peers and colleagues with whom employees relate, systems, procedures, practices, values and philosophies (Awak & Augustine, 2021). However, the problem of work environment in ministries, departments, and agencies in Bauchi state government in Nigeria has been a topic of concern. It involves how various aspects of the behavioral work environment, including organizational culture, leadership styles, communication patterns, and employee attitudes, can influence employee behavior and performance within these government entities (Prasetya et al., 2023). Numerous theoretical issues pertaining to the work environment—both the behavioral and physical environments—have been recognized. The environment where employee work, most especially in public service (MDAs) is unsafe, always encounter challenges such as poorly designed office layout, ergonomic design, air quality, noise control, and lighting quality, workstations, unsuitable furniture, lack of ventilation, inappropriate lighting, excessive noise, insufficient safety measures in fire.

2.1 Literature Review and Hypothesis Development

According to Bortoluzzi et al. (2018), productivity is the outcome of a variety of factors, including workers' skills, motivation, work environment, and the technology they must use. Productivity is defined as "the output gained from a fixed amount of inputs," and businesses can boost productivity by either decreasing inputs (the cost approach) or increasing outputs. Similarly, employee productivity involves factors such as quality, quantity and effectiveness of an employee's work (Khassawneh et al., 2022). According to Locke and Schattke (2019), optimal

emergencies and lack of protective equipment (Oriaku 2022). Voordt and Jensen (2023) any organization must consider the work environment because it has a big impact on staff productivity and general well-being. The issue of work environment to workers has really generated a strong argument and counter argument on the part of government, labour and workers. Workers through their labour representatives have always asked for improved conditions of services and can go to any length to press home their demands (Ulloa-Unanue 2023). Based on the prevailing issues at hand, this study seeks to examine the relationship between work environments on employee productivity, with mediating effect of work motivation. Although, most of the studies were conducted in developed and other developing countries. The study aimed to uncover the challenges faced by employees in this setting and explore the potential implications of employee productivity. Hence the current study is determined to be conducted to fill the research gap from Nigeria context particularly ministries, department and agencies in Bauchi state government, Nigeria.

productivity is achieved when there is a clear and demanding standard, strong dedication, pertinent information or expertise, and feedback that demonstrates advancement towards the standard. Inuwa and Abdullahi (2016), are of the opinion that employee performance embodies the all en compassing belief of the personnel in relation their conduct and aids in the direction of the achievement of the organization.

According to Durakovic et al. (2023), behavioral work environment components included social interaction, distraction, and office layout that promoted ease of work. Tudor et al., (2023) posits that behavioral work environment is the relationship between

superiors and subordinates, relationships with colleagues and relations with the local community. The behavioral work environment is characterized by Morgenthaler et al. (2021) as being non-systematic and emphasizing freedom of expression, creativity, aesthetics, imagination, and originality. As a result, companies with toxic workplace cultures usually experience lower employee morale, lower employee creativity, higher employee turnover, and absenteeism than their non-toxic counterparts (Elayeb & Tarofder, 2022).

According to Guterresa et al. (2020), a person's passion for work is what drives them to take action. Humans only take action in order to accomplish their aims. Therefore, motivation at work is a drive that is determined by objectives and seldom arises on its own. Workplace motivation, according to Widowati and Satrya (2023), is an inner strength that propels people to meet both personal and corporate objectives. Increasing work motivation can play a major part in raising output. Previous research has demonstrated that motivated workers will see an increase in productivity (Guterresa et al., 2020). A person's needs, ambitions, desires, and levels of pleasure all impact and stimulate their behavior. Both external and internal sources can stimulate someone. People will be motivated to work as a result of this stimulation (Novitasari et al., 2021). The definition of workplace motivation is an individual's innate desire and affection for their work, which inspires them to take initiative and complete tasks related to their profession (Yasin, 2023). An employee's internal drive and innate excitement that spur him on to take initiative and have the urge to finish work-related duties can be characterized as workplace motivation (De Silva, 2023). Motivated employees can perform effectively and be driven to increase

the productivity of the company, which can assist an organization increase the efficacy of the workplace. There is a strong and positive correlation between stress management and employee productivity according to (Chaudhary et al., 2023).

The behavioral work environment of an employee includes the working connections that are formed amongst coworkers, between subordinates and superiors, and inside the person's own work environment. (Khaddam et al., 2023). Suhariadi et al., (2023) They found that positive behavioral workplace settings have an effect on workers' productivity even in situations where behavioral work environments are negative. In addition, the study revealed that behavioral aspects of the working environment have a greater impact on employee productivity than physical aspects.

According to the findings of Ahmed et al. (2023), factors pertaining to the behavioral work environment have an impact on employee productivity. Specifically, a welcoming and accommodating work environment can increase employees' motivation to perform. According to De Silva (2023) The workplace has a big impact on job motivation. This illustrates how rewards and sanctions in the workplace shape workers' spirits both inside and externally. While Linder et al. (2022) admit that establishing an environment that supports a variety of diverse behaviors is a challenging matter, they also feel that the physical setting can alter the behavior of its residents. This study of Schots et al., (2023) which began with Frank Parsons's 1909 choosing a vocation, linked the strong and bridge ties with employee productivity to determine its level of performance in the context of Person-Environment Fit Theory. Behavioral, psychological, and motivational studies are the foundation for this research. In his book, Parsons (1909) made the case that employees'

capacity for greater productivity can result from a behaviorally compatible work environment. The social interaction between staff is a behavioral pattern that is recognized as significant in the service scape paradigm (Linh 2022). The following hypothesis is contained in and tested by the current investigation.

H1: There is a positive and significant relationship between behavioral work environment and employee productivity among civil servants in Bauchi state.

H2: There is a significant mediating role of work motivations between behavioral work environment and employee productivity among civil servants in Bauchi state.

2.2.3 Research Framework

Independent Variable   Mediator Variable   Dependent variable
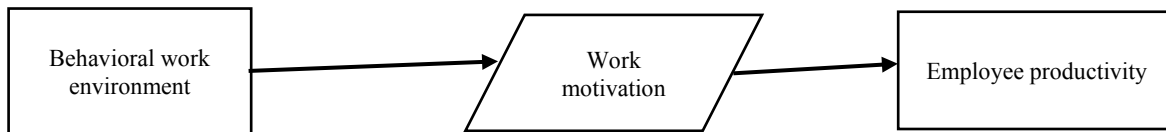

Figure 1.   Framework of the study

3. Methodology

The purpose of the study is to investigate the relationship between work motivation and employee productivity in Nigeria's public sector, both directly and indirectly. The quantitative positivist theory that underpins the study seeks to verify cause-and-effect connections. Purposive sampling was the method of sampling that was employed in this investigation. Purposive sampling is a non-probability technique in which the required information is gathered from special or specific targets or groups of people on some rational basis (Thomas 2022). Maulana (2020) points that purposive sampling is the most used in the research between 2019 and 2020. SMART-PLS 4 was then used to extract and evaluate the completed questions. Additionally, five items that measure the behavioral work environment—the independent variable—were modified based on research by (Iqra et al 2019). A 5-point Likert scale, ranging from 1 to 5, served as the basis for the items. The mediating variable for work motivation, which consists of five measures, was modified from research

by Emmanual (2020). Additionally, a 5-point Likert scale from 1 to 5 was used to base the items. Measures of employee productivity were also applied to the five components that make up Li's (2022) task.

Furthermore, prior to the administration of the questionnaire, the research instruments were thoroughly examined by human resource management specialists to guarantee that the questionnaire's phrasing and comprehension are suitable for the study. Focus groups with the respondents were also chosen in order to double-check the items for any corrections or observations. Subsequently, adjustments were made to guarantee the questionnaire's quality and prevent response bias. 34,303.00 people are part of the state civil service in Bauchi. The unit of analysis is the employees.

Thus, in accordance with Krejcie & Morgan's (1970) research, a sample size of 379 is deemed appropriate to reflect the population. Additionally, earlier research by Mirzaei et al. (2021), Hanaysha, and Alzoubi (2022) suggested adding 30% to the minimal sample size to account for incomplete replies and

ensure the necessary statistical power. 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 minimal sample size discovered in Krejcie and Morgan's 1970 study. Hence the sample size for the study is 493. A total number of 493 questionnaire were administered, among which a total of 372 questionnaire were retrieved representing 84.8% of the total questionnaire administered, after following ups. While for further data analysis only 372 were found usable which represents 75.5% of the returned sampled respondents.

4. Results and Discussion
4.1 Data analysis
The Statistical Package for Social Science (SPSS) was used to enter the data. Additionally, data screening was done to identify and validate if the data was cleaned and could accurately represent the study's phenomenon. The demographic data of the respondents were analyzed using descriptive statistics, frequencies, and percentages.
4.1.1 Demographic Profile of Respondents
Responses' descriptive information include their gender, age, marital status, level of education, length of employment, 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 respondents 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%) respondents 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 4.1 Convergent Validity of Measurement Model

Construct	Item	Loadings	CA	CR	AVE
Behavioral Work Environment (BWE)	BWE1	0.842	0.909	0.91	0.932
	BWE2	0.882			
	BWE3	0.841			
	BWE4	0.904			
	BWE5	0.806			
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			

As shown in the table above, behavioural work environment (BWE) has an AVE of 0.932, composite reliability of 0.91, and Cronbach alpha of 0.909. Employee productivity has an AVE of 0.933, CR 0.914, and CA 0.909, respectively. Also, work motivation has an AVE of 0.936, CR 0.919, and CA 0.914, respectively. This demonstrates that there is a sufficient degree of convergence between each of the constructs and the corresponding indicators (Hair et al., 2020). The outside loadings of the indicators in the measurement model are also shown in the image below.
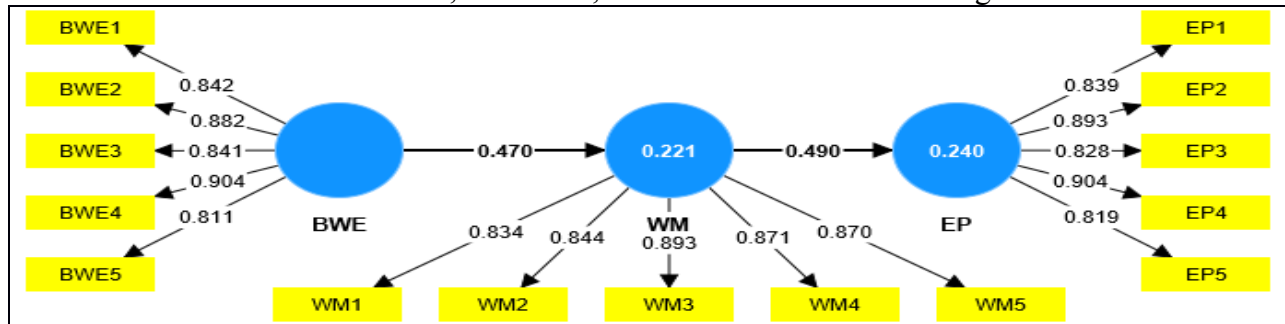

Figure 2.   Measurement Model

Once convergent validity is completed and established, discriminant validity measures the average correlation of indicators throughout the model (Lee et al., 2022). Heterotrait-Monotrait Ratio (HTMT) is a stronger criterion for calculating discriminant validity assessment. (Datti and Inuwa, 2023; Ojoajogu et al., 2023). Henseler et al., (2015) stated that all the values above 0.90 show discriminant validity issues. In the same vein, Flores-Kanter et al., (2023) claims that there is no problem with discriminant validity in such data if the value is less than 0.85. Therefore, Table 4.1.3 shows that all the constructs have achieved the requirement of discriminant validity, being empirically distinct from one another.

Table 4.3   Discriminant Validity (HTMT) Matrix

Constructs	BWE	EP	WM
Behavioral Work Environment (BWE)			
Employee Productivity (EP)	0.74		
Work Motivation (WM)	0.51	0.528	

4.2   Assessment of Structural Model

Following the evaluation of the measurement model, which confirmed the items' and constructs' convergent and discriminant validity, the structural model is examined in the following phase. The structural model was examined with the goal of objectively verifying the research model. The model needs to undergo a few basic studies, such as determining the collinearity, evaluating the

path coefficients' importance, calculating the coefficient of determination (R2), calculating the impact size (f2), and determining the predictive relevance (Q2). While Simsek (2023) hypothesized that in organizational research, a high R2 of 0.20 is acceptable. Hair et al. (2020) contend that there is no conventional threshold for R2. Consequently, it may be concluded that the endogenous construct of employee productivity has been satisfactorily affected by this investigation, with an R2 of 0.240. Cohen (1988) states that 0.02, 0.15, and 0.35 are small, moderate, and large effect sizes with respect to effect size (f2). Therefore, any predictive construct in the model that has an impact size (f2) value less than 0.02 has no effect on the associated endogenous construct. The effect size of this study indicates that a behavioral work environment has 0.061. Additionally, there is a (f2) of 0.350 for job motivation in employee performance. Because of this, all exogenous constructions on the endogenous variables have demonstrated an acceptable impact size range (f2). Furthermore, it is proposed that a Q2 with a value above (0) denotes an acceptable Q2 of the predicting constructs on the endogenous target variable with regard to predictive relevance Q2 (Hair et al., 2017). As a result, Q2 for every endogenous construct is greater than zero, as the table illustrates. The multi-collinearity between the investigated constructs was evaluated using the variance inflation factor (VIF). According to Hair et al. (2019), VIF levels ought to be around three or less. The findings indicate that the customer relationship management's multi-collinearity assessment scores of 1.00 for both organizational trust and performance. There is no collinearity between the study's constructs, as evidenced by the VIF values for each construct being below the threshold.

Figure 3. Structural Model

Table 4.4   Effect Size (F^2)

Constructs	f^2	Interpretation
Behavioral Work Environment (BWE)	0.350	Large
Work Motivation (WM)	0.061	Small

According to Hair et al. (2017), the effect size (f2) represents the degree of impact or influence that a single predictive variable has on a dependent variable that is either directly related to it or linked to it. It displays each external variable's relative impact on an endogenous component. It also shows the difference in R2 value brought about by the direct removal of one of the model's predictive variables. Therefore, while determining the significance of each variable in the model, the effect size (f2) is utilized. Thus, it may be said that a predicting variable's strong relationship with the endogenous construct increases with its impact size in the model.

4.3   Effect of Path Coefficient

For each of the three hundred valid samples used in this investigation, a multiple regression analysis was carried out utilizing the bootstrapping technique to evaluate the structural model. The bootstrapping process was carried out using five thousand (5000) subsamples, as recommended by the literature (Hair et al., 2017; Wong and Wong 2011). Testing the major impact of each of the direct and indirect linkages is the main goal of this investigation. Since all of the relationships in this study's hypotheses are directional, the t-values and significant effects of each route coefficient were evaluated using the one-tailed test (Hair et al., 2017).

Table 4.5   Path Coefficient of Direct and Indirect Effects

Hypothesis	O/sample	S mean	SD	T statistics	P values	Decision
BWE -> EP	0.485	0.484	0.059	8.288	0.000	Accepted
BWE -> WM -> EP	0.081	0.083	0.027	2.975	0.001	Accepted

4.4 Importance-Performance Map Analysis Matrix (IPMA) Assessment

To provide a more precise presentation of the study's findings, importance-performance map analysis (IPMA) was used. The goal of IPMA analysis is to pinpoint high-importance and low-performing constructs (Schloderer et al., 2014). As a result, the overall effects of the estimated linkages in the structural model were used to extract significance ratings. In a similar vein, the latent variable scores were rescaled to range from 0 for the lowest performance to 100 for the highest performance in order to calculate the performance scores or index values. The result of the IPMA reveals performance of the construct as behavioral Work Environment (BWE) (87.378), Work Motivation (WM) (86.545), while the importance results shown that behavioral Work Environment (BWE) (0.566), Work Motivation (WM) (0.192). Given the above, it is argued that investing in the performance improvement of a Given that behavioral work environments (BWEs) are more likely to improve the target construct of employee performance, it makes sense (Hair et al., 2017).

Figure 4.   Importance Performance Map

4.5   Discussion of Findings

In Bauchi State Ministries, Departments, and Agencies, this study investigates the mediating function of work motivation in the relationship between the work environment and employee productivity. In certain (MDA) of Bauchi state, H1 reveals a substantial and favorable association between employee productivity and the behavioral work environment. The findings show Bauchi state civil servants have a harmonious working environment which promote good behavior among coworkers and their superior, hence enhancing productivity of employees. The findings are in line with the study of According to Putra & Mujiati (2022), a workplace with healthy behavioral conditions has a positive impact on employees' productivity.

H2, indicates that the connection between the behavioral work environment and the productivity of civil officials in Bauchi State is largely mediated by work motivation. This suggests that the positive work environment fostered by MDAs in Bauchi State raises employee productivity levels and motivates employees. The results align with the research conducted by Salim and Ernanda (2023) which indicates that work environment significantly influences job motivation. The results also align with a study by Hajiali et al. (2022), which discovered that increasing staff productivity requires a strong focus on work motivation.

4.6 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.

By demonstrating the direct and indirect links between employee productivity and the behavioral work environment, this study will make an empirical contribution. This study, which began with Frank Parsons's (1909) choosing a vocation, linked the strong and bridge ties with employee productivity to determine its level of performance in the context of Person-Environment Fit Theory. Behavioral, psychological, and motivational studies are the foundation for this research. In his book, Parsons (1909) made the case that employees' capacity for greater productivity can result from a behaviorally compatible work environment. The current study will help academics and practitioners understand the positive effects of a work environment on employee productivity. It will also add to the body of knowledge by analyzing the mediating role that work motivation plays in employee productivity. The questionnaire from earlier research (Iqra et al., (2019) was utilized in this study. The study employed PLS-SEM, a cutting-edge multivariate analysis method that has a track record of estimating theoretically supported cause-and-effect relationship models. Additionally, data analysis was done to broaden the understanding of the work environment and its impact on employee productivity by providing actual evidence to support the framework.

5. Conclusion and Recommendations

The study conclude that Ministries, Departments and Agencies should develop a platform on which behavioral work environment can be improved to allow employees contribute their quota toward achieving desired service quality expected by the organizations. The study recommends that Ministries, Departments and Agencies should develop and improved work motivation in an organization in order to achieve organizational goals. Future studies may consider other predictors other than behavioral 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 use Regression SEM, Process SEM, Finite Mixture (FIMIX) Segmentation or AMOS.

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