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Human Resources Intellectual Development and Performance of Small Scale Enterprises in Osun State, Nigeria

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Abstract: *This study examined the impact of Human Resources Intellectual Development (HRID) on Small and Medium Enterprises (SMEs) performance in selected manufacturing industries in Osun State., Nigeria. The specific objectives of the study were to determine training and development programs, skill acquisition and employee educational background affect employee productivity. Survey research design was used for the study. The population of the study consisted of all the 46,433 employees in manufacturing SMEs operating in Osun State, Nigeria. A sample of 397 SMEs was selected. Taro Yamane formula was used to determine the sample size. Data was collected from owners, managers and employees through a structured questionnaire. Both descriptive and inferential analyses were adopted in data analysis. Descriptive analysis (mean and standard deviation) were used to summarize data while multiple regression analysis was used to test hypotheses. Results revealed that training and development programs, skill acquisition and employee educational background all had significant positive effects on employee productivity with different level of magnitude. Based on the findings, the study concluded that HRID improves the performance of SMEs in the manufacturing industries in Osun State, Nigeria. Based on conclusion, the study recommended that the management of SMEs in the manufacturing industry in Osun States should increase funding on training and development programs, skill acquisition and encourage employees to raise their level of educational background higher.*

Keywords: employee, educational background, employee productivity, human resource intellectual development, small and medium enterprises, skill acquisition

INTRODUCTION

Human resources are widely regarded as the most strategic asset of modern organizations because of their capacity to generate value, sustain innovation, and drive competitive advantage. Unlike

physical or financial resources, human resources possess knowledge, skills, experience, and creativity that can be continuously developed and leveraged to improve organizational outcomes. In contemporary business environments characterized by rapid technological change and intense competition, organizational success increasingly depends on the intellectual quality of the workforce rather than on tangible assets alone. This has heightened scholarly and managerial interest in human resource intellectual development as a key mechanism for enhancing organizational performance, particularly in small scale enterprises operating under resource constraints (Aliyu *et al.*, 2022; Umar, 2024).

Human resource intellectual development refers to the deliberate and systematic process through which organizations enhance employees' knowledge, skills, competencies, and cognitive capabilities in order to improve effectiveness and productivity. Heathfield (2011) describes human resource intellectual development as a managerial process that involves continuous training, education, and skill development aimed at improving employee capacity and adaptability. Similarly, Adeyi et al, (2018) conceptualize human resource intellectual development as a strategic investment through which management strengthens employee competence via training and development programmes, skill acquisition initiatives, and educational advancement. Recent studies emphasize that intellectual development of employees is no longer optional but a critical requirement for organizational resilience, innovation, and sustained performance in both developed and developing economies (Ibitomi *et al.*, 2024; Peteraf, 2023).

Training and development programmes constitute a central dimension of human resource intellectual development. Training and development refer to organized learning activities designed to improve employees' job related knowledge, technical expertise, and behavioral competencies. Jayawarna et al, (2017) argued that effective training and development programmes enhance employees' ability to perform complex tasks, adapt to technological change, and contribute meaningfully to organizational goals.

Skill acquisition represents another critical component of human resource intellectual development, particularly in small scale enterprises where employee versatility is essential for operational efficiency. Skill acquisition refers to the process through which individuals obtain, develop, and refine productive skills through formal, non-formal, and informal learning mechanisms. According to Adeyi et al., (2018), skill acquisition enables workers to respond effectively to labor market demands, adjust to technological change, and exploit emerging economic opportunities. Empirical evidence indicates that organizations with higher levels of employee skill acquisition experience improvements in productivity, innovation capacity, and adaptability, especially in manufacturing oriented enterprises (Ibitomi *et al*., 2022; Mathis & Jackson, 2020).

Educational background also plays a significant role in shaping employees' intellectual capacity and performance outcomes. Educational background refers to the formal academic qualifications, certifications, and professional training obtained by employees. Human capital theory posits that

education enhances cognitive abilities, problem solving skills, and decision making capacity, which in turn increase productivity and organizational effectiveness (Becker, 1993). Organizational performance remains a central concern in management and entrepreneurship research. Performance generally reflects the extent to which an organization achieves its objectives efficiently and effectively. For small scale enterprises, non-financial performance indicators are particularly important because they reflect long term sustainability rather than short term financial outcomes. Employee productivity, in particular, serves as a critical indicator of operational efficiency and organizational effectiveness in manufacturing enterprises.

Despite the recognized importance of small and medium scale enterprises to economic development through employment creation, industrial output, and poverty reduction, there remains limited empirical evidence on how human resource intellectual development influences their performance in Nigeria. Small scale enterprises often face internal challenges such as inadequate training structures, limited access to skilled labor, and low investment in employee development. Although human capital has been identified as a key determinant of organizational performance, the extent to which specific dimensions of human resource intellectual development influence the performance of manufacturing small scale enterprises remains insufficiently explored, particularly at the sub national level.

This study therefore examines the effect of human resource intellectual development on the performance of manufacturing small scale enterprises in Osun State Nigeria. Specifically, the study focuses on training and development programmes, skill acquisition, and employee educational background as key dimensions of human capital development. By adopting a context specific and dimension specific approach, the study provides empirical evidence on how intellectual development of human resources influences employee productivity and overall enterprise performance. The findings are expected to contribute to human capital and resource based theory while offering practical insights for enterprise owners, managers, policymakers, and development agencies seeking to enhance productivity, competitiveness, and sustainable growth in the Nigerian manufacturing sector.

LITERATURE REVIEW

Conceptual Review

Organizational Performance

The subject of performance has received significant attention from scholars in the various areas of business and financial management (Okoye, 2022). In general, it is defined as the extent to which an organization achieves its objective. It has also been the primary concern of business practitioners (managements and entrepreneurs) in all types of organizations because performance is essential as exemplified in high performance organizations which are success stories because of their perceived effectiveness and efficiency in managing their operations and their positive contributions to the well-being of their stakeholders. Performance is however, a difficult concept,

in terms of definition and measurement. It has been defined as the end result of activity, and the appropriate measure selected to assess performance is considered to depend on the type of organization to be evaluated and the objectives to be achieved through that evaluation (Sun & Li, 2006). According to encyclopedia of Business (2011), performance measures can be grouped into two basic types. Those that are related to results (outputs or outcomes such as competitiveness or financial performance) and those that focus on the determinants of the results (inputs such as quality, flexibility, resource utilization, and innovation). This suggests that performance measurement frameworks can be built around the concepts of results and determinants.

Performance can also be grouped into two namely financial performance and non –financial performance. Financial performance is measured in monetary terms while non-financial performance is performance expressed in non-monetary terms. This study adopted non-financial performance due to the inadequate keeping of financial reports among SMEs. The non-financial measures adopted include customer satisfaction (market performance), productivity (operational efficiency) and innovation performance.

Productivity (Operational Efficiency)

Productivity refers to minimizing of resources utilized in production in order to reduce cost. It is computed by comparing the total output produced to inputs utilized in production (Bojke, 2012). Productivity is a measure that measures how efficient and effective resources are utilized in production. In relation to labour force, Mathis and Jackson (2020) viewed productivity as a measure shows the quantity and quality of work done bearing in mind the cost of the resource and the time taken to do the work. A high level of productivity signifies that resources are efficiently and effectively utilized and waste is minimized in the organization

Customer Satisfaction (Market Performance)

Customer satisfaction generally means meeting or exceeding the customers satisfaction. Kotler and Keller (2016), defined customer satisfaction as a person's feelings of pleasure or disappointment that arises when the performance of a product is compared to expectations.

Expectation is a pre-purchase conviction that a product or service with particular features will produce specific results. The buyer will be delighted if the performance meets or exceeds expectations. Smart businesses in their effort to please customers, promise only what they can provide and thereafter deliver more than what was promised (Kolter & Keller , 2016),.

There are three levels of consumer satisfaction. The first level is when performance is below expectation. The second level occurs when performance is equal to expectation while last level takes place when performance exceeds expectation. The first level results in dissatisfaction or disappointment. The second level lead to happiness or joy while the last level resultd in over happiness (Tjiptono & Fandy, 2015).

Innovation Performance

Innovation involves transforming of creative ideas into goods and services in a business (Njeri, 2017). The ability of a firm to survive in a highly competitive market depends on the extent to which creative ideas are being converted to goods and services that best meet the changing needs

and expectations of customers (Im, et al., 2013). Innovation strategy is a means through which an organization implements and develops new services and goods. Firms need to continuously cope with the changes in market demand through innovation strategy (Abdi & Ali, 2023). Innovation strategy therefore, should be employed continuously to improve the existing processes and products or to development of new products that are consistent with customers' needs and in some cases requires the creation of new market for existing products or new products (Ellonen, *et al.*, 2021).

Human Resource Intellectual Development

Human Resource intellectual development (HRID) has been defined by many scholars. Generally, it refers to the process of enhancing the knowledge, skills and competencies of employees. Heathfield (2011), view HRID as the process whereby the management contributes to increasing the skills, knowledge and capability of employees through training, education, and skill development programs. Adeyi, *et al* (2018) conceptualize HRID as a means through which the management develop employees through management training, coaching, mentoring, and guidance. The benefits of HRID cannot be overemphasized. It increases the ability of employees to discharge their duties effectively and helps in updating the skills, knowledge and capabilities of employees with internal and external changes in the business environment (Iqbal & Ahmad, 2020). Other benefits of HRID include increase in productivity, reduction in the need for supervision, decline in employee turnover, among others (Khan & Khan, 2020).

Training and Development Programmes

Training and development Programs have been subjected to different definition. It refers to attempts made within or outside the organization targeted towards increasing the job-related knowledge and skills employees and managers skills employees and managers (Jayawarna, et al., 2017). Similarly, the Industrial Training Fund conceptualizes training development as efforts being put in place in order to improve the skills, knowledge and capabilities of workers in order to increase the present and future job performance of employees. Moroever, Zigon (2012) viewed training as a process of learning that assisting in updating employees with organizational growth and changes. He stated further that training serves as a means through which employees' behaviour can be modified. The benefit of training and development programs according to Peteraf (2023) is that it affords employees the opportunity to acquire new knowledge which is needed for the achievement of organizational goals and gaining competitive advantage. Odor (2018) opined that through training and development, operational errors are minimized and productivity increases.

Skill Acquisition

This refers to the acquisition of productive skills through formal, non-formal and formal means of skill acquisition. It helps employees in adjusting their skills in order to meet the demands and opportunities that exist in the economy. It involves identifying skill gaps and learning and improving skills (Ilo, et al., 2022).

Small and Medium Enterprises

Small and Medium Scale Enterprises (SMEs) has no generally established definition, the criteria for classification of an enterprise as small, medium or large varies from one country to another, depending on whether it is a developed or emerging, developing and underdeveloped country (Abdulgaffar *et al.*, 2024; Ibitomi *et al.*, 2024) . A small business for example in one country may be a large-scale business in another. In Nigeria, the major criteria used in defining Small Scale Enterprises (SSEs) include number of employees, financial strength, sales value, initial capital outlay, relative size, independent ownership and the type of industry that are in existence (Ibitomi & Adeleke, 2022) . Small and Medium Industries Equity Investment Scheme (SMIEIS) defines SMEs as enterprises with a total capital employed not less than ₦1.5 million, but not exceeding ₦200 million, including working capital, but excluding cost of land and/or with a staff strength of not less than 10 and not more than 300. Aderemi (2003) defines SMEs as any enterprise with a maximum asset base of N200 million, (excluding land and working capital); a labour size of between 10 and 200 employees; usually small, owner or family managed business offering basic goods and services. Small and medium enterprises (SMEs) involve an amalgamation of many business issues to give a meaningful and progressive result.

Esuh and Adebayo (2012) noted that SMEs are firms or businesses arising as a result of entrepreneurial activities of individual. SME sector is categorized into three namely; micro, small and medium enterprises or businesses. The micro SME's are the smallest among the three categories. In the word of Afolabi (2013) states that SMEs are businesses that employ up to 9 employees. Small businesses employ 10-49 employees while medium enterprises employ 50 to 199 employees. However, for the purpose of this study, the definition of Small and Medium enterprises Development of Nigeria (SMEDAN) was adopted, which states that enterprises less than 10 employees are micro, 10 and 49 both inclusive are small enterprises, 50 to 199 both inclusive medium. This was because SMEDAN is the Federal Government Agency that stimulates, monitors and coordinates the development of Micro, Small and Medium Enterprises Sector in Nigeria (SMEDAN Act, 2003) and as found in National Policy on MSMEs .

THEORETICAL REVIEW

Resourced Based Theory

Resource Based Theory was advanced by Jay Barney in 1991 and is grounded in the idea that organizations achieve sustainable competitive advantage through the effective utilization of their internal resources rather than relying solely on external market conditions. The theory posits that firms differ in the resources and capabilities they possess, and these differences largely explain variations in organizational performance. According to this perspective, resources that are valuable, rare, difficult to imitate, and non substitutable enable firms to outperform competitors over time.

The theory emphasizes that resources are not evenly distributed across firms. Each organization possesses a unique bundle of tangible and intangible resources that shape its strategic choices and

performance outcomes. These resources are often firm specific and cannot be easily transferred across organizations due to factors such as cost, complexity, or tacit knowledge embedded in organizational routines. As a result, firms that successfully develop and protect such resources are more likely to sustain competitive advantage.

A central argument of the Resource Based Theory is that resources must be valuable to contribute meaningfully to performance. Valuable resources enable firms to exploit opportunities or neutralize threats in their operating environment. In addition, resources must be rare in the sense that they are not widely possessed by competing firms. When resources are scarce, they become a source of differentiation that enhances a firm's competitive position. The theory further asserts that resources should be difficult to imitate, either because they are socially complex, historically conditioned, or costly to replicate. This makes it challenging for competitors to copy successful strategies. Finally, resources must be non substitutable, meaning there are no alternative resources that can deliver the same strategic benefits.

The relevance of Resource Based Theory to the present study lies in its strong emphasis on human capital as a strategic resource. Training and development programs, skill acquisition, and employee educational background represent critical intangible resources that enhance organizational capability and productivity. These human resources are valuable because they improve employees' efficiency and effectiveness, rare because they reflect firm specific investments in people, and difficult to imitate due to differences in learning processes and organizational culture. By focusing on these internal resources, the study aligns with the Resource Based Theory in explaining how manufacturing SMEs in Osun State can improve employee productivity and overall performance through strategic investment in human capital rather than relying solely on physical assets or external market factors.

Empirical Review

Okoye, *et al* (2022) examined the effect of human capital development on SMEs in South East Nigeria. The specific objectives of the study were to examine the effect of training and skill acquisition on organizational performance. Survey research design was adopted in the study. Data was collected through semi-structured interview. Descriptive analysis used to summarize data included frequency, percentage and mean while t-test and z-test were used to test hypothesis. Findings showed that both training and skill acquisition had significant positive effects on the performance of SMEs in South East Nigeria.

Umar (2024) studied the effect of training and development on employee's performance of SMEs in Maiduguri Metropolis. The study employed Survey research design. The population of the study consisted of 250 SMEs. Data was collected from 150 respondents through a structured questionnaire. Taro Yamane formula was used to determine the sample size. Regression analysis was employed in the study. Findings revealed that training and development had significant positive effect on SMEs performance. Mathew, *et al* (2015) examined the effects of training and development on performance of manufacturing SMEs in Nigeria. The study adopted Survey

research design. Data was collected from 182 staff through a structured questionnaire. Multiple regression analysis was adopted in the study. Results showed that that training and development mediated by employee skills, employee attitudes and training methods had significant effects on the performance of manufacturing SMEs.

Chigozie and Onyia (2018) studied the effect of human capital development in organizational performance in manufacturing industries in South-East Nigeria. The specific objectives of the study were to examine the effect of knowledge on product quality and determined the effect of skills promotion on innovation performance. Survey research design was utilized in the study. The population of the study comprised 6230 employees. The sample of the study was 358. This was determined through Ferund and Williams formula-statistics was used to test hypotheses. Results revealed that knowledge had significant positive effect on product quality. Moreover, skills had significant positive effect on innovations. Ilo, et al. (2022) studied the effect of human capital development on the performance of public organizations in Anambra State, Nigeria. Specifically, the study examined the effect of skill development and knowledge accessibility on efficiency of public sector organizations. Survey research design was adopted in the study. The population of the study consisted of 1500 staff. The sample size was 100. This was determined through Taro Yamane formula. Descriptive analysis adopted was mean score while Z-score while was used to test hypotheses. Results revealed that skill development had significant positive effect on service delivery. Moreover, knowledge accessibility improved the efficiency of public sector organizations in Anambra State.

Ojo and Adeyemo (2024) studied the impact of intellectual capital on the innovation of SMEs in Osun State, Nigeria The specific objectives of the study were to examine the effect human capital on product innovation and determine the effect of structural capital on process innovation. Also, the effect of relational capital on service innovation was examined. Survey research design was utilized in the study. The population of the study comprised 23, 290 registered SMEs that operated in Osun State, Nigeria. The sample size was 393 SMEs. This was determined through Taro Yamane formula. Multi-stage sampling technique was utilized. Data was collected through a structured questionnaire from the owners, managers and employees of the selected SMEs. Multiple regression analysis was used to analyze data. Findings showed that human capital, structural and relational had significant positive effects on innovation. Nwamuo (2019) examined the effect of intellectual capital on organizational productivity of Nigerian manufacturing firms in South-East. The specific objectives of the study were to examine the effect of human capital, structural capital and customer capital on organizational productivity. Survey research design was utilized in the study. The population of the study consisted of 1200 employees. The sample size 300 was determined through Taro Yamane formula. Data was collected through a structured questionnaire. Regression analysis was used to test hypotheses. Results showed that human capital, structural capital, customer capital had significant positive effects on organizational productivity.

Ali (2018) studied the effect of education level and experience on the performance of SMEs in Libya. The study utilized survey research design. The population of the study consisted of 18,000

SMEs. A random sample of 384 SMEs was selected. Data was collected through a structured questionnaire. Multiple regression analysis was used to analyze data. Results showed that educational background and experience had significant negative effect on SMEs performance. The study concluded that lack of adequate educational background and experience contribute to poor performance of SMEs in Libya.

METHODOLOGY

This study adopt Survey design. The study made utilized data collected from a sample selected from the population of owners and staff of manufacturing SMEs in Osun State, Nigeria. Survey design was adopted due to the fact that it facilitates the use of data collected directly from the field of enquiry to be used in estimating the relationship between intellectual capital and the performance of manufacturing SMEs in Ondo State, Nigeria.

The population of this study consisted of all the registered manufacturing SMEs in Osun State. However, the study targeted all the forty-six thousand, four hundred and thirty-three (46,433) manufacturing SMEs staff recorded for manufacturing SMEs in Osun State. Specifically, the study targeted all the owners and managers, and employees of the manufacturing SMEs in Osun State. The sample size of this study is three hundred and ninety seven (397). This is determined through Taro Yamane formula as follows:

$$n = \frac{N}{1+N\,(e)^2}$$

Where: - n= sample size, N= Population size, e= level of precision required (margin of error) which is represented by 0.05 and 1 = Constant

$$n = \frac{46433}{1+ 46433\,(0.05)^2}$$

$$n = \frac{46433}{1+ 46433\,(0.0025)}$$

$$n = 397.$$

Stratified random sampling was used for the study. The source of data utilized in this study was primary data. This involved collecting data directly from the field of the study (from respondents). Primary source was adopted because it more reliable than secondary source and because of the difficulty involved in obtaining secondary data on SMEs performance and Human Resources Intellectual Development. However, due to the fact that the sample of this data is large (397), data was collected through questionnaire. Questionnaire was adopted because is it permits fast, easy and cheap method of collecting data.

The independent variable “Human Resources Intellectual Development” is measured using three proxies namely training & development programs, skill acquisition and employee educational background. The dependent variable SMEs performance has two dimensions namely productivity, customer satisfaction and innovation performance. In order to ensure that the questionnaire

measures the dependent variable (proxy by productivity, customer satisfaction and innovation performance) and the independent variables (training and development programs, skill acquisition and employee educational background) were presented to the supervisor for vetting. All necessary corrections were effected.

The study adapted the model of Chigozie and Onyia (2018). They expressed SMEs performance (proxy by productivity) as a linear function of Knowledge, training and skills.
However, in this study, SMEs performance is expressed as a function of human resource intellectual capital development. The functional form of the model is specified as follows:
SMEsP = f (HRICD) (1)
Where:
SMEsP = SMEs Performance
HRICD = Human Resource Intellectual Capital Development.
However, HRICD is proxy by three measures namely training & development programs, skill acquisition and employee educational background. Moreover, employee productivity is introduced into the model as a mediating variable while technological infrastructure is introduced as a moderating variable. This leads to the formulation of two models stated as:

Model one
This captures the impact of human resources capital development on employee performance.
EMP = f (TDP, SA, EDB) (2)
$EMP = \propto + \beta_1 TDP + \beta 2\ SA + \beta 3\ EDB + e$ (3)
Where:
EMP = Employee Productivity
TDP = Training & Development Programs
SA = Skill acquisition
EDB = Employee Educational Background
Where:
$\propto$ = Constant
β_1, β_2, and β_3 are regression parameters that measure the impact of training & development programs, skill acquisition and educational background of employees.
e = Error term that captures other variables affecting employee performance a part from training & development programs, skill acquisition and educational background of employees that were left out .

The parameters ($\propto, \beta_1, \beta_2, \beta_3, \beta_4$ and β_5) of the model were estimated using Ordinary Least Square (OLS). The choice of OLS was based on the fact that it produces efficient estimates that best, linear and unbiased.

Both descriptive and inferential statistics were used to analyse data. Mean and standard deviation were the descriptive analyses used for summarizing data. The mean shows the average value of the data while the spread in the data was measured using standard deviation.

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DATA ANALYSIS AND DISCUSSION

Four hundred and twenty-five (425) questionnaire were distributed to the respondents, and four hundred and six (406) were retrieved from them. Of the retrieved questionnaire, three hundred and ninety-seven (397) were valid and used for the analysis of the study.

Table 1 : Descriptive Statistics (Mean, Standard Deviation, Skewness and Kurtosis)

Variable	N	Min.	Max	Mean	Std. Dev	Skewness	Kurtosis
Training and Development Programs	397	1.00	5.00	3.7960	1.10836	-.798	-.074.
Skill Acquisition	397	1.00	5.00	3.6222	1.20743	-.609	-.565
Employee Educational Background	397	1.00	5.00	3.3426	1.18002	-.199	-.822
SMEs Performance	397	1.00	5.00	3.3552	1.25421	-.325	-.932

The descriptive analysis of the dependent variable (SMEs performance) and independent variables (Training & Development Programs), Skill Acquisition, and Employee Educational Background, are presented in Table 1. The mean scores (3.79, 3.62 and 3.34) are all greater than the criterion mean (3.00). These reveal that the respondents agreed that manufacturing SMEs in Osun State are characterized by training and development programs, skill acquisition and that the organizations have human resources having educational background. The values of the standard deviations of the variables lie between (1.10 and 1.26). These show that the spread in the data is low and a such the mean scores obtained are reliable descriptive measures.

The coefficient of skewness of all the variables (-0.78, - 0.609, -0.199, -0.374, -0.135 and -0.135) are all negative, indicating that majority of the values of the variables lie at the right of their mean scores. The coefficient of kurtosis of all the variables are less than 3.0, indicating that the variables have flat top distribution (Platykurtic distribution).

Table 2: Model Summary (Model 1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.796[a]	.633	.684	.32604
a. Predictors: (Constant), Employee Educational Background, Training and Development Programs, Skill Acquisition				

The R-Squared of model one is presented in table 2. The value of the R-Squared (0.633) shows that 63.3 percent variation in employee productivity is explained by training and development programs, skill acquisition and employee educational background while the remaining 36.4 percent variation is due to other determinants of employee productivity that have been left out from the model.

Table 3: Analysis of Variance (ANOVA) (Model One)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	594.923	3	198.308	1865.467	.000[b]
	Residual	41.778	393	.106		
	Total	636.700	396			
a. Dependent Variable: Employee productivity						
b. Predictors: (Constant), Employee Educational Background, Training and Development Programs, Skill Acquisition						

The Analysis of Variance of Model one is shown in table 3. The F-statistic of the model is 1865.467. The estimate is significant at 5 percent, shown by probability (0.00) which is less than 0.05. This shows that the model has overall goodness of fit.

Table 4: Regression Coefficients (Model One)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.332	.060		-5.530	.000
	Training and Development Programs	.168	.048	.147	3.466	.001
	Skill Acquisition	.325	.051	.309	6.414	.000
	Employee Educational Background	.572	.038	.532	14.868	.000
a. Dependent Variable: Employee productivity						

The regression results for Model One, as presented in table 4, show the effects of training and development programs, skill acquisition, and employee educational background on employee productivity. Employee productivity was specified as the dependent variable, while the three explanatory variables were included as predictors.

The coefficient for training and development programs is positive and statistically significant. The standardized coefficient of 0.147 indicates that training and development programs have a positive effect on employee productivity. The associated t value of 3.466 exceeds the critical value of 1.96, while the probability value of 0.001 is less than the 0.05 level of significance. This implies that training and development programs significantly enhance employee productivity. In practical terms, improvements in training activities such as teamwork and idea sharing are associated with increases in the quantity and quality of work performed by employees in manufacturing SMEs in Osun State.

Skill acquisition also exhibits a positive and statistically significant relationship with employee productivity. The standardized coefficient of 0.309 suggests that skill acquisition contributes substantially to productivity improvement. The t statistic of 6.414 is well above the critical threshold, and the probability value of 0.000 confirms significance at the 5 percent level. This result indicates that as employees acquire relevant skills, their productivity improves significantly, leading to better work output and efficiency within manufacturing SMEs in Osun State.

Employee educational background shows the strongest influence on employee productivity among the variables examined. The standardized coefficient of 0.532 reveals a strong positive relationship between educational background and productivity. The t value of 14.868 far exceeds the critical value, while the probability value of 0.000 indicates high statistical significance. This finding implies that higher educational qualifications enhance employees' capacity to perform effectively, thereby improving both the quality and quantity of work produced in manufacturing SMEs.

In relation to the specific objectives of the study, the first objective examined the extent to which training and development affect employee productivity in manufacturing SMEs in Osun State. The regression results confirm that training and development programs have a significant positive effect on employee productivity, holding other factors constant. This demonstrates the importance of structured training initiatives in improving employee performance.

The second objective assessed the effect of skill acquisition on employee productivity. The results indicate that skill acquisition significantly improves employee productivity, suggesting that continuous skill development is essential for enhancing employee performance in manufacturing SMEs.

The third objective focused on the effect of employee educational background on productivity. The findings reveal that employee educational background has a significant positive effect on productivity, implying that employees' educational qualifications play a crucial role in determining their effectiveness and output level.

Overall, the regression results indicate that training and development programs, skill acquisition, and employee educational background are all significant determinants of employee productivity

in manufacturing SMEs in Osun State, with employee educational background exerting the strongest influence among the variables considered.

DISCUSSION OF FINDINGS

The findings of this study demonstrate that training and development programs have a significant positive effect on employee productivity in manufacturing SMEs in Osun State, Nigeria. This result suggests that both on the job and off the job training, as well as structured development initiatives, play a critical role in enhancing employees' efficiency, competence, and overall work output. By equipping employees with relevant knowledge and practical experience, training and development programs strengthen organizational capabilities and improve productivity levels. This finding is consistent with the Resource Based Theory, which emphasizes that investment in human capital constitutes a strategic resource that can generate sustained competitive advantage. Empirically, the result aligns with the study by Umar (2024), which found that training and development significantly improved employee productivity among SMEs in Maiduguri, Nigeria.
The study further reveals that skill acquisition has a significant positive effect on employee productivity. This indicates that the acquisition of relevant skills such as managerial, entrepreneurial, leadership, accounting, and information and communication technology skills contributes meaningfully to improved employee performance within manufacturing SMEs. Skill acquisition enhances employees' ability to perform tasks more efficiently, adapt to changing work demands, and contribute innovatively to organizational goals. This finding supports the assumptions of the Resource Based Theory, which views employee skills as valuable and rare resources that enhance firm performance. It also corroborates the findings of Ilo, et al., (2022), who reported that skill acquisition significantly enhanced employee performance among SMEs in Anambra State.

In addition, the study shows that employee educational background has a significant positive effect on employee productivity. This implies that employees with higher educational qualifications and relevant certifications tend to perform better in terms of both the quantity and quality of work delivered. Educational background improves employees' analytical capacity, problem solving ability, and understanding of job related processes, thereby enhancing productivity. This result further reinforces the Resource Based Theory, which posits that formal education enhances the value of human capital within organizations. The finding is also supported by Ali (2018), whose study revealed that inadequate educational qualifications contributed to poor performance among SMEs in Libya.

Overall, the discussion of findings suggests that training and development programs, skill acquisition, and employee educational background are critical drivers of employee productivity in manufacturing SMEs. These factors represent key human capital investments that organizations can leverage to improve performance, competitiveness, and long term sustainability.

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CONCLUSION AND RECOMMENDATIONS

This study examined the impact of human resource intellectual capital development on the performance of small and medium enterprises in selected manufacturing industries in Osun State, Nigeria. The study specifically assessed the influence of training and development programs, skill acquisition, and employee educational background on employee productivity, while also examining the mediating role of employee productivity in the relationship between human resource intellectual capital development and SMEs performance. In addition, the study explored the moderating role of technology infrastructure in strengthening this relationship.

The findings reveal that training and development programs, skill acquisition, and employee educational background all have significant positive effects on employee productivity, although the magnitude of their effects differs. Employee productivity was also found to have a positive and significant effect on SMEs performance. This indicates that investments in employees' knowledge, skills, and competencies enhance their productivity, which in turn improves the overall performance of manufacturing SMEs. The results further demonstrate that employee educational background exerts the strongest influence on productivity, followed by skill acquisition, while training and development programs show the least effect among the three dimensions. This suggests that formal education and relevant qualifications provide a strong foundation for effective job performance, while continuous skill development and training further reinforce productivity outcomes.

Based on these findings, the study concludes that human resource intellectual capital development is a critical driver of performance in manufacturing SMEs in Osun State. Increased investment in employee education, skill acquisition, and training enhances employee productivity and ultimately leads to improved organizational performance. The study underscores the importance of viewing human capital as a strategic asset capable of generating sustainable performance gains rather than as a cost to be minimized.

In line with the conclusions drawn from the findings, several recommendations are proposed. Manufacturing SMEs should place greater emphasis on continuous training and development initiatives, particularly those aligned with contemporary business practices and twenty first century skills, as this will enhance employee competence and productivity.

Organizations should also encourage employees to acquire relevant job related skills through structured on the job learning and professional development programs in order to improve efficiency and adaptability in a dynamic business environment.

Furthermore, SMEs should prioritize the recruitment and development of employees with relevant educational backgrounds and support continuous learning opportunities that strengthen problem solving abilities and job relevance. By adopting these strategies, manufacturing SMEs can

improve employee productivity, strengthen organizational capability, and achieve sustained performance growth.

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