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Leveraging on Vendor Managed-Inventory Practice for Sustainable Performance: An Empirical Evidence from Selected Polytechnics in Southwest, Nigeria

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ABSTRACT: *This study is on leveraging on vendor managed inventory practice for sustainable performance: an empirical evidence from selected polytechnics in Southwest Nigeria. The study used descriptive survey research design and a total of one thousand and thirty-six (1,036) management staff from federal, state and private polytechnics in south west Nigeria constitute the study population. A sample size of five hundred and forty-four (544) determined through multi-stage and stratified sampling technique was used for data analysis. Primary data were obtained through questionnaire while logit regression was employed for the inferential statistical to determine the effects and statistical significance of the relationships between the study variables. The Statistical Package for Social Sciences (SPSS) version 24.0 was applied to process the data and the hypothesis was tested at p-value of = 0.05 level of significance while descriptive statistical analysis was used to identify frequencies and percentages. The finding of the study showed that vendor managed inventory practice cannot be underestimated in determining performance of polytechnics in south west Nigeria. The study recommended that management of polytechnics in South-West Nigeria are advised* to first consider the cost of implementing their own inventory system before engaging the service of vendor to manage inventory. This is to enable them minimize the cost of keeping stock and maximize efficiency.

Keywords: vendor managed-inventory practice, sustainable performance, polytechnics, Southwest, Nigeria

INTRODUCTION

The role played by inventory management in both public and private organizations globally is important to attain their performance goals. Inventory management practices are crucial for

business performance as assets and inventory are properly managed and accurate demand forecasts are made to minimize unexpected procurement events. In this way, public and private organizations can implement effective procurement practices that meet market demand and supplier factors to improve their performance (Brigham & Gapenski, 2018). 44 However, large organizations can usually afford to only manage inventory due to large capital investments and the use of advanced technology. It is argued that regardless of the level of complexity of the control system, inventory must be properly managed to maximize inventory costs and increase inventory to the level of customer demand in the target market, thereby achieving optimal performance (Atnafu & Balda, 2018; Medard, 2018). One plausible way to achieve this is to not invest large amounts of capital in inventory. This means that warehouse personnel in the supply chain must have skills in procurement processes, as poor procurement skills can completely disrupt the performance of an organization (Medard, 2018). As a rule of thumb, in most organizations, direct materials account for up to 50% of the total product cost. With resources invested in inventory, an inappropriate inventory management system can affect an organization's profitability and competitiveness. According to Sander, Matthias, and Geoff (2020), organizations have ignored the potential savings from proper inventory management and have treated inventory as a necessary evil rather than an asset that needs to be managed. Although investments in inventory in public organizations make up a large portion of the total budget, inventory management is one of the most neglected areas of management in public organizations such as universities of applied sciences (Sander, Matthias & Geoff, 2020). Many public enterprises have an excessive amount of cash tied up to accumulation of inventory due to inadequate inventory management or inability to control the inventory efficiently. By implication, poor inventory management translates directly into strains on an organization’s cash flow and may not be unconnected with poor employee’s performance.

As argued by Agus and Noor (2020), precise forecasting of demand allows the business to reduce operating expenses, improved efficiency and on time supply of products and services for the future requirements by fulfilling the growing expectations of customers. This leads to increased consumer fulfillment as the outcome of the best value of products and services provided, also improved organizational effectiveness as well as staff efficiency. In a similar vein, previous studies have established that improper inventories control management may cost an organization a loss ranging from 25 percent to 40 percent of the expected value, resulting from lost sales as a direct consequence of customer dissatisfaction (Makweba & Xi, 2019). Thus efficient inventory control system is part and parcel of supply chain activities to enable the organization to have sustainable competitive edge in the market and to improve firm’s profitability as well.

Effective and efficient inventory management flow along the value chain is one of the key factors for the success of large and small businesses. The challenge in inventory management is finding a balance between inventory supply and demand. Ideally, a company wants to have enough stock to meet customer demand. On the other hand, the company does not want to have too much inventory on hand because of the costs of holding inventory. Inventory decisions involve high risks and

impact a company's supply chain management. According to Dimitrios (2018), inventory management practices are recognized as a key problem area that requires top priority. Therefore, training employees to acquire the necessary inventory management skills is crucial to the success of the company. Employee performance as a moderator has continuously received significant attention for decades as it affects the overall performance of both public and private companies. According to Silitonga and Sadeli (2020), employee performance is often interpreted as a representation of the company's performance and has direct and indirect effects on the company's image. Khan and Mashikhi (2017) state that performance is considered the ultimate outcome of both the organization and the employee. Creativity, innovation, and higher levels of employee engagement are the source of success and glory for the company. Prange and Pinho (2017) state that human resources are a key element in any organization, so the productivity and efficiency of an organization depends on the performance of its employees. The survival of an organization depends on providing employees with the skills they need to perform their work successfully. The development of skills, knowledge, and capabilities is the basis of an organization's competitive advantage in today's global market (Rodriguez & Walters, 2017).

Therefore, managers of organizations should consider catering to the mental and physical demands of employees and improving their personal and professional performance through various means and methods such as: B. Training, Performance Appraisal and Work Design to Influence Inventory Management and Performance Interaction in Polytechnics in Southwestern Nigeria (Abdulkhaliq & Mohammadali, 2019). Governments of many countries invest huge amounts of money to ensure efficient performance of employees. For example, the Ministry of Human Resources of Malaysia spent about RM455 billion on human resource development in 2019-2020. Therefore, an important part of human capital development in Malaysia is the requirement for employees to adapt to new knowledge and improve their job performance. According to the Public Service Circular (2006), the government policy is to provide at least seven days of training per year to all personnel including those working in higher education institutions. The aim is to help employees adapt to new ways of working, carry out their tasks more efficiently and increase productivity. Consequent upon the foregoing, it is important to examine the effect of vendor managed inventory practices on performance of selected polytechnics in Southwest, Nigeria.

Statement of the Problem

The poor performance and growing inefficiency of store employees in Nigerian polytechnics is the main reason for this study. Statistical facts such as Nigeria's Human Capital Index could be used to explain the poor or declining performance of public services. For example, poverty rate in Nigeria has increased in the last three decades. It rose from 27.2% in 1990 to 46.3% in 2000 and then fell to 42.7% in 2002. By 2016, poverty rate in Nigeria had increased to 65.6% (National Bureau of Statistics, 2022). Overall, the above statistical facts indicate the poor social condition in Nigeria, which is in part a result of flawed or non-implemented policies as well as poor monitoring and evaluation of government policies and programs as a result of corruption in the public sector; scarcity of material resources; lack of political continuity (Makinde, 2022); lack of technical know-

how; corrupt officials; and poor performance of the civil service. Onyeacholem (2022) argues that the main reason for the high rate of non-implementation or poor implementation of policies, programs, and projects (designed to improve Nigeria's human capital index, gross domestic product, and physical infrastructure development) is the poor work ethics of Nigeria's private sector workers, who are often called servants.

The educational institutions, especially the polytechnics, contribute significantly to the economy in several ways such as training of technical manpower, middle level management employees as well as providing employment opportunities for both academic and non-teaching staff. The education sector in Nigeria contributes significantly to the gross domestic product of the country (National Bureau of Statistics, 2022). The contributions of the education sector are germane to the economy and more than double of the manufacturing sector, especially in the area of technological change in the economy. More so, higher education stimulates research and hereby raises productivity which undoubtedly benefit the society. Regrettably, this subsector of the industry is facing both financial and non-financial problems due to poor inventory management practices. Some studies showed that a large number of enterprises fail because of incompetent staff put in charge of inventory management (Liedholm, MacPherson & Chuta 2020). The study by Tushabomwe (2022) revealed that poor record keeping and lack of basic inventory management experience and skills by staff of most central stores are major contributors to failure. Hence, it is imperative to empirically investigate the view of Tushabomwe (2020) in the context of some selected polytechnics in Southwest Nigeria.

Public enterprises have become less competitive due to poor inventory control systems. Countless public establishments have adopted inventory management systems in their efforts to achieve performance targets as well as to improve their operational efficiency. However, it appears less emphasis is placed on just-in-time inventory management in public institutions due to the notion that public enterprise is no man's enterprise. The consequences of this seem to have lowered the bar of organisation performance such as polytechnics as a sub-sector of the economy (NBTE, 2022). Despite the perceived importance of just-in-time inventory management system in public tertiary institutions, it seems many polytechnics in the Southwest have not given the phenomenon the attention it desires and this seems to be responsible for mismanagement of tax payers' resources and lack of competence among store staff, leading to inefficiency and inadequate performances. The spirit of public service appears to have overwhelmed store staff across polytechnics in South-west Nigeria as inventory are not properly maintained.

Resulting from above, we hypothesized as follows:

H_0: Vendor managed inventory (VMI) inventory practice has no significant effect on performance of selected polytechnics in Southwest, Nigeria.

LITERATURE REVIEW

Vendor Managed Inventory

Vendor Managed Inventory (VMI) is a supply chain method whereby the vendor or supplier is given the duty of managing the purchaser's inventory (Smaros *et al*., 2023). The vendor is given access to its purchaser's inventory and demand statistics for reasons of tracking the customer's stock level. Moreover, the vendor has the authority and the obligation to replenish the purchaser's inventory according to collectively agreed inventory control concepts and targets (Smaros *et al*., 2023). Carriers generate buy orders on an as-wished foundation consistent with a longtime inventory degree plan and shared forecast records, intake records and historic income facts. As soon as the purchase order is made, a boost transport observe informs the customer of substances in- transit. The merchandize is then shipped, delivered and "logged", in line with the shipment method.

Even though companies Vendor Managed Inventory (VMI) at the store's shelves, today the concept is normally applied to replenishment of inventories at retailer's distribution middle (Potilen & Goldsby, 2023). "Stock at the purchaser website online can be owned by way of the dealer and purchased by the patron handiest while used or owned by way of the client and genuinely monitored by way of the provider for alternative. Wailer *et al*. (2009), posit that Vendor Managed Inventory (VMI) is one of the maximum extensively discussed partnering tasks for improving multi-company deliver chain performance and that it is also referred to as continuous replenishment or supplier-managed inventory (SMI). However, in Potilen and Goldsby (2023) perspectives, this is incorrect. They claim that VMI entails the coordination of control of finished goods inventories outbound from a manufacturer, distributor or reseller to a retailer whilst SMI entails the flow of uncooked materials and issue parts inbound to a production process.

Management of inventory determines the way an organization will thrust itself to excessive overall performance. A few agencies have resulted to dealer controlled inventory (VMI) structures which aid the provider to reveal consumer's inventory usage. Via this VMI system, customers will avoid stock outs due to the fact the suppliers may have already replenished their inventory. The important thing here is communication which ought to be deliberate properly from the beginning of commercial enterprise members of the family between the provider and the patron (Frahm, 2023).

Employee Performance

The term "employee performance" signifies individual's work achievement after exerting required effort on the job which is associated through getting a meaningful work, engaged profile, and compassionate colleagues/employers around (Karakas, 2020; Pradhan & Jena, 2020). Effective employee performance management system is imperative if an organization want to attain success. The performance-driven objective is expected to be aligned with the organizational policies so that

the entire process moves away from being event-driven to become more strategic and a people-centric perspective (London, 2023; Mone & London, 2019; Pradhan & Jena, 2020).

Islami, Mulolli and Mustafa (2018) on their part recognize managing performance as a planned process of which the key elements are agreement, measurement, support, feedback and positive reinforcement, which shaped outcomes in terms of performance expectation. Also, Bataineh (2017) highlight Employee's performance as a combination of efficiency and effectiveness of the employee's daily tasks to meet the expectations of the stakeholders. Smith and Bititc (2017) emphasis on improving performance measurement systems and performance management practices as factors of work's environment which enhance employee's engagement levels. Also, Mensah (2018) support their ideas when considered talent management as a critical success factor within companies which become the most core managerial value in our highly dynamic and uncertain market environment of the twenty-first-century era.

According to Shmailan, 2020, employee performance is an action, what employees do in carrying out the work done by the company. Performance in carrying out its functions is not independent, but always relates to employee job satisfaction and the level of reward given, and influenced by individual skills, abilities, and traits.

In this study, employees' performance will be viewed from the perspective of Shmailan (2020) who sees performance as an action and what employees do in carrying out their day to day responsibilities.

Theoretical Framework

This theory is hinged on the theory of Constraints (TOC) postulated by Goldratt (1984). The theory asserted that the aim of all businesses is advanced towards assisting organizations continually to achieve their corporate goals which comprised of both the organization and that of the employees. The Theory facilitates the examination of assumptions underlying traditional manufacturing rules, policies, and measures (Stein, 1997). It focuses on the few critical constraints that limit the success of the system (Gary, 2014). It precludes sub optimization by ensuring that solutions to complex problems are effective at the company level. It aimed to initiate and implement breakthrough improvement through focusing on a constraint that prevented from achieving a higher level of performance (Nwangangi, *et al.*, 2015). It postulates that an organization is a system, and every system has at least one constraint limiting it from achieving its goal of making (more) money. In order to improve the performance of the system, these constraints must be identified (described) and corrective measures taken (a prescription). The theory is adjudged suitable for this study because the inhibiting factor which can hinder optimum inventory control in the polytechnic is poor staff training and development. Once this constraint is removed, performance of employees in central stores across Nigerian Polytechnics will improve tremendously.

Empirical Review

Mukopi and Iravo (2020) studied the effects of inventory management on performance in the Kenyan sugar business using a survey approach. The study polled 30 procurement employees strained from a target population of 100 at sugar businesses in Kenya Western Counts. The study found that vendor managed inventory, lean inventory systems, legal policies, and information technology all had a strong close link with inventory management, which led to improved business performance. This finding aligns with the view of this present study.

Onchoke and wanyoike (2022) examined the influence of the practices of inventory control on the procurement performance of Agrochemicals distributors in Nakuru central sub-country in Kenya. Data were sourced through the means of structured questionnaires which were administrate by the researcher through drop and pick procedure. Descriptive statistics was used in data analysis, while correlation and regression was employed to establish the influence of the independent on the dependent variable. The result of the analysis revealed that vendor managed inventory drastically cut the cost of inventory and enhance overall efficiency of the organization.

Similarly, Atnafu and Balda (2018) carried out an empirical study to investigate the impact of inventory management practice on firms' competitiveness and organizational performance among micro and small enterprises in Ethiopia. The main objective of the study was to examine the impact of inventory practice of micro and small enterprises competitiveness on their performance. Data were collected through the aid of structured questionnaire administered to 188 micro and small enterprises. Structural equation modeling was used in testing the hypotheses and to establish the relationship between the research variables. The results indicated that higher level of inventory management practices can lead to an enhanced competitive advantage and improved organizational performance.

METHODOLOGY

Descriptive survey research design was adjudged suitable for this study because it provides an accurate account of the behaviour, opinions, beliefs, and knowledge of a particular individual or group through the use of questionnaire. The study population is made up of 736 management staff of selected polytechnics in Southwest, Nigeria. The management staff included in the study are the Rectors, Deputy Rector Academics, Deputy Rector Administration, Registrars, Deputy Registrars, Bursars, Directors in the bursary, Librarians, Deputy Librarians, Deans of Schools and Head of Departments of sixteen (16) Polytechnics in Southwest, Nigeria which had existed for minimum of ten (10) years prior to this study.

Relying on NBTE (2023) data, there are six (6) federal polytechnics, thirteen (13) State polytechnics and twenty four (24) private polytechnics in Southwest, Nigeria. However, among these Polytechnics only sixteen (16) have existed for a minimum of ten years before the commencement of this study and they are so used for the study.

The study adopted multi stage sampling technique in which the first stage involved stratification of the Polytechnics in Southwest, Nigeria into three strata namely federal, state and private. Thereafter, purposive selection of sixteen (16) polytechnics which had existed for not less than ten (10) years from the period of conducting this study was done. Using year of establishment and a minimum of ten years prior to the time this study was conducted, four (4) federal, six (6) state and six (6) private polytechnics respectively were selected for the study. This makes a total of sixteen (16) polytechnics in all. The third stage involved selection of the entire management staff of each previously selected 16 Polytechnics using census sampling technique. Members of management staff selected for the study are 16 Rectors, 16 Deputy Rectors (Academics), 16 Deputy Rectors (Administration), 16 Registrars, 80 Deputy registrars (Representing 5 Deputy Registrars of each of the 16 Polytechnics), 16 Bursars, 64 Bursary Directors (Representing 4 Directors in each of the 16 Polytechnics), 16 Librarians, 16 Deputy Librarians, 96 Deans of Schools (Representing 6 Deans in each of the 16 Polytechnics) and 384 Head of Departments (Representing 4 Departments in each of the 6 schools in the 16 Polytechnics). The last stage involved administration of the questionnaire to 736 respondents using convenience sampling technique.

Primary data used for the study were sourced through questionnaire from the management staff of the sixteen selected Polytechnics used for the study. The five (5) items used to measure vendor managed inventory was adapted from Balanced Scorecard originally put forward by Kaplan and Norton (1992) to measure higher institutions' performance which was later modified by Kaur (2022). Exploratory Factor Analysis (EFA) through principal component extraction method was used to statistically measure construct validity of the instrument. The factor loading of the items were used to ascertain the Average Variance Extracted (AVE). The KMO and the Barlett test were utilized to decide the adequacy of the sample size. As indicated by Kaiser (1974), if the result of the Kaiser-Meyer-Olkin (KMO) is greater than 0.5, this implies that the question really measured the variables of the study.

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This study is limited by the sample size used and the number of geo-political zone captured. Only 736 respondents who are majorly principal officers from polytechnics in one out of the six geopolitical zones in the country was used for analysis; however, this does not distort the finding of the study. Data retrieved through questionnaire were summarised, coded and analysed using logit regression.

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RESULTS AND DISCUSSION

Perception of Respondents on the variable of Vendor Managed Inventory Scale Practice

Organizations sometimes contracted their inventory management to outside or vendors in order to reduce the burden of managing order and holding stock on the stock managers. This nature of inventory management was very effective when aiming to reduce both cost and associated challenges an organization faced in inventory lines. In this regard, Oginni (2023) opined vendor managed inventory practice improved the efficiency and effectiveness of an organization inventory processes through effective stock ordering aimed at reducing cost of ordering and the right economic stock level that was aimed at reducing cost of holding inventory. Thus, this section assessed the perception of respondents in relation to the variable of vendor managed inventory scale practice.

Table 1: Mean and Standard Deviation computed for the variable of Vendor Managed Inventory

S/N	Variable	N	Mean	STD	Rank	Remark
1	Given the duty of managing the purchaser's inventory to vendors has enhanced my skills.	720	4.12	0.89	4th	Determinant of VMI
2	Given vendor the authority and the obligation to manage inventory has positively influence my learning on the job.	720	4.26	0.77	3rd	Determinant of VMI
3	VMI system make Stock available on time to meet the various demand from departments and units	720	3.92	1.03	5th	Determinant of VMI
4	I have acquired on line stock monitoring skills through VMI.	720	54.2	0.76	2nd	Determinant of VMI
5	Stock-out of inventory due to late delivery of materials rarely occur in VMI	720	4.43	0.65	1st	Determinant of VMI

Source: Researcher's Fieldwork, 2023 ** Acceptable mean =3.00 on a five point likert scale **

A test item was a determinant of VMI if mean calculated> or equal to 3.00 or otherwise **STD= Standard Deviation **Rank was done on the basis of STD Table 1 presented the results of the mean and standard deviation computed for the variable of vendor managed inventory practice. Looking critically at the result in the table, it was found that a substantial number of the respondents agreed that given the duty of managing the purchaser's inventory to vendors had enhanced their skills. This inferred was based on the fact that the mean value computed for the test item of 4.12 was far better than the acceptable mean of 3.00 with a standard deviation of 0.89 that showed a slight dispersion from the mean. The value implied that with VMI the skills of the store keepers in the selected polytechnics had improved. Despite the fact the polytechnics contracted their store management procedure to vendor, the store keepers that supervised the stock might still gain tremendously particularly in relation to monitoring and managing the purchaser inventory. Vendors had been in the business of inventory for a long time; hence, they knew the intricacies of

the inventory processes than any other. Their knowledge of inventory might be of great benefits to many of the store managers since through interaction with the vendors they gained a lot from them. In addition, other showed that with the existence of vendors they were able to know how to compute the Economic quantity to be kept in stock on which cost of keeping stock might be minimized. This implied that the polytechnics that were using vendors' inventory had benefitted a lot from the arrangement since the vendor was able to pass down his or her knowledge to their store keepers. The aimed of vendors inventory management was to cut down on costs of keeping and ordering inventory in order to free more revenues for the running of an organization and to ensure quick replenishment of stock since VMI was time specific. The selected polytechnics were able to achieve this through the vendor management inventory and the passing down of knowledge to store keepers that enhanced efficiency and effectiveness in the skills of the various store managers in the selected polytechnics. The test item was found to be one of the determinants of VMI and ranked in the 4th position, hence, indicating that the variable boosted the performance of the polytechnics.

Furthermore, it was found that an adequate number of the respondents agreed that given vendor the authority and the obligation to manage inventory had positively influenced their learning on the job. This inferred was premised on the fact that the mean value computed for the test item of 4.26 was far better than the acceptable average of 3.00 with a standard deviation of 0.77 that indicated an insignificant variation from the mean. The values implied that given vendors the authority and obligation to management inventory the store keepers of the selected polytechnics might benefit tremendously from them. Vendors when engaged by organizations to manage their inventory were disposed as a rule to help train the organizations store keepers in the act of inventory management. For instance, some respondents the researcher interacted with revealed that some polytechnics were now in the habit of engaging vendors to manage its inventory and also seconded them to training their personnel in the store the act of inventory management. Other respondents' belief that vendors were engaged in order to pass over the costs of inventory management to outsider, thus, allowing the organizations to concentrate on vital priority of offering quality services of their various stakeholders. Akinteju (2021) opined that vendors due to the level of their knowledge in inventory management they were in a better position professionally to understand what inventory management entailed and this skill and knowledge if allowed to influence store official might translate to better inventory management for the organization. Vendors were professionally trained unlike store officials that only understood the act of accounting for store. Their knowledge and skills in stock ordering and stock holding if passed on to the store official might reduce costs associated with ordering and holding of stocks, thus, freeing more revenues for the polytechnics than cost. The test item was found to be a determinant of VMI and ranked in the 3rd position meaning that the variable might enhance organizational performance. In continuation, a sufficient number of the respondents agreed that VMI system make Stock available on time to meet the various demand from departments and units. This assertion was due to the fact that the mean value calculated for the test item of 3.92 was greater than the acceptable mean of 3.00 with a standard deviation of 3.00 that indicated a slight variation from the mean. The

value revealed that with vendors' management inventory organizations needs regarding materials replenishment might be melt quickly. Vendors were professionally stock keepers. As a result of this they were under obligation to persistently satisfying their clients since failure to meet the clients demand in time might lead to loss of patronage from the client. With VMI organizations were sure continuously supply of the needed materials as at when due. Ogunmodede (2022) argued that vendors were in the business of stock management; hence, the satisfaction of their clients implied better business for the vendors and vice-versa. As a result of this they were not in any way ready to deviate from the set rules of the contract. This helped to sustain the patronage of the client, thus, enhancing the profitability of the vendors. Majority of the respondents the researcher interacted with on this test item revealed that vendors always met the needs of the polytechnics no matter the circumstance. Some of the respondents pointed to the fact that even in case where their contractual payment was not forthcoming, they were still ready to meet the demand of the schools. This enabled some of the polytechnics to continue to retain the service of vendor management inventory. The test item of found to be a determinant of VMI and ranked in the 5th position indicating that the variable might enhance the performance of the polytechnics.

Also, the result obtained revealed that a substantial number of the respondents agreed that they had acquired online stock monitoring skills through VMI. This assertion was premised on the fact that the mean value computed for the test item of 4.25 was far better than the acceptable mean of 3.00 with a standard deviation of 0.76 that showed a slight dispersion from the mean. The values implied that with vendors' management the store officials were able to acquire online stock monitoring skills. Vendors' managed inventory was done by agent or third party that dealt purely with an organization online. As a result of this the store managers were required to possess adequate online skills and knowledge on how to monitor order from the vendor online and how to request for order through the various online platforms. In this way vendors were disposed as a rule to train the store officials on how to carry out the online activities without any hindrance. This showed that adequate knowledge was needed by store officials in this regard. This vacuum might be filed by vendors by putting the store officials through on how place an order and monitoring an order online. On this note, Ogunniyi (2023) argued that modern day inventory management has used the benefit of VMI, to ensure that stocks needed are available in time through the application of relevant advanced inventory management software that aid stock replenishment at a minimum cost. This indicated that modern inventory management had tended towards the used of vendors management inventory to manage stock through the application of relevance inventory software. This necessitated the knowledge of stock officials in inventory software which the VMI might help to fill. The test item was found to be a determinant of VMI and ranked in the 2nd position.

Furthermore, it was found that a substantial number of the respondents agreed that Stock-out of inventory due to late delivery of materials rarely occur in VMI. This assertion was hinged on the fact that the mean value obtained for the test item of 4.43 was far greater than the acceptable mean of 3.00 with a standard deviation of 0.65 that showed an insignificant dispersion from the mean. The implication of this was that in vendor management inventory the incidence of stock-out did

not occur. This was because ordering of inventory have already be contracted out to agent which profit depended greatly on his ability to meet order as at when due. In this case, the vendors were mandated as a rule to meet a specific order in order to collect their commission, thus, failure of the vendor to meet an order might the end of the relationship between the vendors and a polytechnic. Thus, in this regard the vendor would strife to fulfill the order so as not to lose his client, thus, enhancing his profit and position in the inventory arrangement. Ogunniyi (2022) opined that failure of a vendor to meet an order might end the arrangement between the vendor and the organization. This situation was difficult to come by in the vendor management inventory since the vendor was particular about the loss of client and his commission. As a result of this, it was always the desired of the vendors to continually meet his or her client order, thus, fulfilling the essence of vendor management arrangement. Most of the respondents the researcher interacted with further noted that vendor management had been used persistently by some of the polytechnics because it enhanced sustainability of inventory by ensuring that sock-out did not in any way happen. More so, VMI according to the respondents was also preferred in many of the polytechnics because it did not require continuous stock holding and such minimizing the cost of holding stock. A substantial number of the respondents also revealed that in VMI stock were order on demand, thus the need for holding stock for long did not occur at all, thus, allowing better revenues to be freed for other commitments of the polytechnics. The test item was found to be a good determinant of VMI and ranked in the 1st position, thus, showing that the variable contributed positively to the selected polytechnics performance.

Test of Hypothesis

H_{O1}: Vendor managed inventory system has no positive and significant effect on employees' performance in selected polytechnics in Southwest, Nigeria.

Table 2 Regression Result (Logit Regression)
Depended Variable = Organization Performance (OPER)

Variable	Coefficient	Standard Error	Z-calculated	P-value
C	-0.641775	0.878227	-0.730762	0.4649
EMS	0.302256	0.150833	2.003913	0.0451
IML	0.494800	0.165013	2.998553	0.0027
TAS	0.179306	0.036001	4.980584	0.0000
IMOMS	0.538883	0.149983	3.592961	0.0003
NSO	0.204926	0.072842	2.813295	0.0034
	OTHER	**TEST**	**STATISTICS**	
McFadden R-squared	0.657314		Mean dependent var	0.899160
S.D. dependent var	0.301328		S.E. of regression	0.295524
Akaike info criterion	8.633183		S.E. of regression	0.295524

Schwarz criterion	8.671594		Sum squared resid	61.83267
Hannan-Quinn criter.	8.648017		Log likelihood	-220.0463
Restr. Deviance	466.8496		Deviance	440.0926
LR statistic	26.75697		Restr. log likelihood	-233.4248
Prob(LR statistic)	0.000064		Avg. log likelihood	-0.308188

Source: Researcher's Computation, 2023 (E-view 10) **EMS= VIM HAS ENHANCED MY SKILLSIMLJ= VIM HAS INFLUENCED MY LEARNING ON THE JOB**TAS= VIM HAS IMPROVED TIMELY AVAILABILITY OF STOCK**IMOMS= VMI HAS IMPROVED MY ONLINE MONITORING SKILLS**NSO= VIM HAS NO STOCK**

Organization adopted vendor inventory management in order to pass on the costs of ordering and holding of inventory to third party. This improved the capacity of the organization to be able to manage its incomes to meet its budgetary expenditures without much thought on how to defray the costs of inventory management. Table, 2 presented the regression result computed for testing the null hypothesis two. From the result in the table, it was found that the relationship between vendor inventory management had enhanced the skills of the respondents and performance of the polytechnics was positive and significant. This inferred was based on the fact that the regression coefficient computed for the variable of EMS of 0.30 was positive with a significant z-statistics value of 2.004. The values indicated that a 1% increase in EMS might cause a 0.30% improvement in the performance of the selected polytechnics. The sign of the variable of EMS was in tandem with a priori expectation for the variable; hence, EMS was a determinant of performance since the variable was significant. More so, the p-value of the Z-statistics calculated for the variable of EMS of 0.0450 was less than the critical value of 5%. This implied that EMS was significant on the performance of the polytechnics. The expectation of the management of the polytechnics concerning the use of VMI was that it might enhance the skills of the store assistants and that of the management in inventory management. Vendor inventory management practice was usually contracted to outsider, in order to improve the rate at which the organization was able to satisfy the inventory needs of which of its department and also reduce the cost of inventory. With this in mind, vendors usually dealt with the management or their store representative to enlighten him or her on how vendors inventory management practices worked. This exposure of store assistants on the intricacies of VMI contributed positively to the skills and knowledge of the management or its representative in the central store. With this knowledge at the disposal of the central store managers other store assistants might benefits, thus, enhancing the capacity of the store managers to be able to deal with the vendors directly without the need for the stressful processes from the management. This enhanced the managerial confidence in the ability of the store managers to be able to initiate order and help in holding the inventory level within the economic range that minimized cost of holding inventory. More so, as the management or her representative continued to monitor VMI

processes the skills needed to the computation of inventory costs and various control levels were learned, thus, enhancing the skills of the management regarding computation of costs and various inventory control levels.

The relationship between VMI had influenced my learning (IML) on the job and performance of the polytechnics was found to be positive and significant. This assertion was premised on the fact that the regression coefficient computed for the variable of IML of 0.49 was positive with a significant Z-statistics value of 2.999. The value of the regression showed that a 1% increase in the capacity of VMI to influence store manager learning on the job might cause a 0.49% increase in the performance of the polytechnics. The sign of the variable of IML was in tandem with a priori expectation for the variable; hence, IML was a good determinant for the performance of the polytechnics since the variable was significant. The p-value of the Z-statistics calculated for the variable of IML of 0.0027 was less than the critical value of 5%. This implied that the null hypothesis which stated that IML was not significant on the performance of the polytechnics was rejected. It was reasonable to infer that IML was significant on the performance of the institution. The essence of an organization using vendor inventory management was to expose store managers and store assistants to procedures and processes involved in inventory management practices. Vendors by virtue of their position to an organization were professional inventory experts that specialised in the management of organization resources needs, thus, their expertise were needed by the organization to help their store assistants knew their job through the process of studying and learning from the vendors. In some of the polytechnics visited by the researcher's some of the vendors permanently operated in some polytechnics, hence, they were in a better position to train and retrain store assistants and their m the act of inventory management. By so doing the central store keepers learned greatly from them. In this way the decision of the store managers was influenced by what they had learned and gained from interacting with the vendors. On this note, Aliyu (2023) opined that vendors were a blessing to an organization because they helped in bearing the burden and costs of inventory management processes without having negative influence on their commission. Thus, in this regard one could say that vendors were burden bearing that helped an organization realised its objective with regard to the management of inventory.

More so, it was discovered that the effect of timely availability of stock (TAS) on the performance of the selected polytechnics was positive and significant. This inferred was based on the fact that the regression coefficient computed for the variable of TAS of 0.18 was positive with a significant Z-statistics value of 4.98. The regression coefficient indicated that a 1% increase in the variable of timely availability of stock could cause a 0.18% increase in the performance of the selected polytechnics. The sign of the variable of TAS was in tandem with a priori expectation for the test item. As a result of this the variable of TAS was a determinant of the performance of the polytechnics since the variable was significant. Also, the p-value of the Z-statistics computed for the variable of TAS of 0.0000 was less than the critical value of 5%. This implied that TAS was significant on the performance of the selected polytechnics. Polytechnics performance in terms of the ability of a unit, department and directorate to get thing done in time might increase in

inventory management technique utilized by the institutions made materials needed by the departments and directorates available in time. Many polytechnics utilized VMI in this regard simply because it aided the availability of stock in time. With VMI stocks required by a unit, department and directorate to achieve its goal were made available timely since the vendors were agents to the institution. Thus, the vendors knew that they might lose their clients if materials needed by the polytechnics were not provided in time. Thus, the goal of the vendors in VIM was to make stock available as at when needed for the polytechnics since any deviation from this could cause the vendors to lose the patronage of the polytechnics. As a result of this departmental and directorates goals were achieved timely since the resources needed to achieve the goals were timely supplied by the vendors.

In addition, it was discovered that the relationship between no stock out and performance of the selected polytechnics was positive and significant. This inferred was based on the fact that the regression coefficient computed for the variable of NSO of 0.20 was positive with a significant Z-statistics value of 2.81. The value indicated that a unit increase in the ability of VMI to ensure that there was no stock out could cause a 0.20% increase in the performance of the polytechnics. The sign of the variable of NSO was in tandem with a priori expectation for the variable. As a result of this NSO was a good determinant of the performance of the polytechnics. In continuation, the p-value of the Z-statistics computed for the variable of NSO of 0.0034 was less than the critical value of 5%. This implied that the variable of no stock out was significant on the performance of the selected polytechnics. Polytechnics were established to provide quality educational services for the students through the implementation of meaningful school curriculum that aided the knowledge of the student in proving solutions to societal problem. In this regard, polytechnics were said to perform if they were able to achieve the objective but achieving this objective depended on the extent the institution was able to meet the various materials needs of its departments, units and directorates. In this way, the existence of a stock-out in a department could impede the capacity of the department either academic or administrative, thus, affecting the achievement of the goal of the department which eventually affected the realisation of the overall goal of the polytechnics. With VMI this kind of scenario rarely occur since the vendors realised that failure to fulfill an order could cause him or her to lose that client patronage. As a result of this, the vendors did everything within his or her power to sure that the most importance resources needs of a department was melt in order to enhance the functionality of the system. This facilitated the achievement of the goal of this department quickly and that of the overall performance of the polytechnics. Vendors were agents to an organization, thus, the availability of stock for the smooth functioning of the various segments of an institution was assured under this inventory management approach. This boosted the efficiency and effectiveness of the organization, thus, giving the institution better leverage in the provision of quality education service.

Also, the result of the other test statistics computed for the variables of VMI showed that VMI was a good predictor for the performance of the polytechnics. For instance, the McFadden R2 obtained for the test of 0.66 revealed that approximately 66% of the performance of the polytechnics might

be traced to the utilization of vendor inventory management. As a result of this VMI was a good explanatory determinant for the performance of the selected polytechnics. More so, the p-value of the LR-statistics calculated for the test for testing the significant of the overall null hypothesis two of 0.000064 was less than the critical value of 5% with a significant LR-Statistics of 26.76. The values indicated that the joint null hypothesis two which stated that Vendor managed inventory system had no positive and significant effect on employees' performance in selected polytechnics in Southwest, Nigeria, was rejected. It was reasonable to infer that Vendor managed inventory system had a positive and significant effect on employees' performance in selected polytechnics in Southwest, Nigeria. The result of the information criterions obtained for the test showed that VMI provided better information on the performance of the selected polytechnics. All deviances for the test were within the acceptable limit; hence, showing that vendor inventory management boosted the performance of the polytechnics. As a result of this its adoption and utilization in the polytechnics might influence the performance of the institutions positively.

CONCLUSION AND RECOMMENDATION

This study was triggered by the decreasing performance occasioned by increasing cases of inefficiency among store employees in Nigerian polytechnics. The theoretical underpinning of this study is the theory of Constraints (TOC) postulated by Goldratt (1984). The study adopted was a survey research with the population comprising of principal officers of selected polytechnics in south west Nigeria. The sample size of 736 was used for the study. Data collected through the questionnaire was analysed using logit regression. It was concluded that VMI inventory system enhance the efficiency of the selected polytechnics in South-West Nigeria in the area of gains they received from vendors who are experts in the field as well the ability to cut down operational cost of supplying and keeping stock.

On the basis of the findings of the study, it was recommended that in using Vendor managed Inventory (VMI), the polytechnics are advised to first consider the cost of implementing their own inventory system before engaging the service of vendor to managed inventory. This can be done by first considering the cost implication of engaging vendor with the predictive cost of managing the inventory by the polytechnic itself; thereafter, the lower of the cost may be eventually taken and use.

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