Dimensionality of Supervisory Role on Employees Performance in Manufacturing Organisations in Nigeria

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Abstract— **This paper focused on three variables investigating interactions with the dependent variable of level of supervisory duty experience of workers.**

The extent to which business organizations empower their managers is encapsulated in the manner in which the supervisor's roles are designed and structured. Supervisory role logically derived from supervision is described as a term from the world of formal management and hierarchical systems.

Index Terms— **business organizations, Employees Performance.**

I. INTRODUCTION

Supervisors are the agents of the organization (Bhate, 2013). As such, they are responsible for monitoring the performance of their subordinates, conducting periodic assessments of their subordinates' work, and giving feedback to enhance their subordinates' contributions and commitment to the organization (Bhate, 2013).Given recent transformations within work organizations, supervisory roles in the workplace are expected to assume even greater importance for worker careers paths and progression over time (Hiscott, 2008). Accepting one or more supervisory duties in the workplace may potentially reduce negative consequences for workers associated with "career blockage", or may reduce the risk of reaching a "professional plateau" in the course of a career, as new responsibilities would help workers to develop additional skills to remain employable, marketable and current in their occupations or professions (Foot and Venne, 1990, Rothman, 1998, Lee, 2002).Therefore, it is natural for employees to interpret their interactions with their supervisors as indicators of the organization's judgment of their work and career promise.

Bhate (2013) defined supervisor support as the extent to which leaders value their employees' contributions and care about their well-being.The managerial responsibilities of the supervisors is dictated by the organizational structure to appropriately affirm the work of the employees, help them to do well and to help them enjoy doing well. The extent to which business organizations empower their managers is encapsulated in the manner in which the supervisor's roles are designed and structured. Supervisory role logically derived from supervision is described as a term from the world of formal management and hierarchical systems.

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Supervisors assume some types of authority based on the ability to influence rewards and punishments (Miner &Luchsinger, 1985).Supervisory roles embody activities that reflect standards, norms, competencies, skills, performance and productivity (Lee, 2002). There it is impossible to discuss new processes or strategies without first erecting a strong functional relationship that directs the various tiers that make up the management hierarchy.

A. Statement of Problem

Today's organizations are complex. Some of the complexity is due in part to a more culturally diverse workforce than ever before; molding a productive team out of a mix of full-timers, part-timers,"temps," and contract workers; and implementation of quality and productivity programs such as: ISO certification and six sigma, JIT and lean manufacturing, and organizing work usingself-directed teams.To meet all the challenges inherent in the complexity of modern organizations, therole of the front-line supervisor has changed dramatically.

It has been found that supervisors face a lot of hurdles while trying to implement the company policies. These include interpersonal relationship, workforce diversity, role definition in the management process and workforce low morale. There is no clear-cut outcome about the impact of these variables on the quality of supervision in the organization. Dealing with these variables in a less arbitrary expression tends to depict an environment of work that is characterized with varied forms of dimensionality.

II. LITERATURE REVIEW

Supervision of system is one of the several techniques employed in achieving organisations' objectives, Nwaogu (1980) defined supervision of instruction as a process or an activity by which an individual or a group or team of individuals, by means of advising and stimulating interest in employees, help to improve working situations and performance in manufacturingorganisations. According to Harris (1995), supervision is directed towards both maintaining and improving the performance of employees at workplace. In the words of Rettig (2000), supervision is an organisedbehaviour system, which has the function of interacting with the working behavior system for the purpose of improving the productive situation of workers. Adewumi (2000) remarked that behaviour of supervisor is assumed to be related to the improvement of workers' performance. In Nigeria, there has been a critical analysis on what supervisoryroles should be.Omoregie (2002) saw supervision

in organisation as an internal process (micro-inspection). He opines that micro-inspection concerns itself with regular resources utilization and processes in an organisation and the maintenance of lines of action that promote productivity.

A. Concept of Supervision and Motivation in Organisations

The supervision means instructing, guiding, monitoring and observing the employees while they are performing jobs in the organization (Samiksha, 2011). The word supervision is the combination of two words, i.e., supervision where super means over and above and vision means seeing. So, supervision means seeing the activities of employees from over and above. According to Samiksha (2011) Supervisor play two important roles which are the role of mediator or linking pin and role of a guide. Samiksha (2011) explained that supervisor plays the role of linking pin as he communicates the plans, policies, decisions and strategies of management to subordinates and complaints, grievances and suggestions of subordinates to management. Further he pointed that whenever subordinates are in doubt and need help the supervisor guides them to come out from their problematic situations.

Cliff (2008) pointed that developing and maintaining effectiveness as a supervisor is foundational tobecoming a leader. It is impossible to be a good leader without being a good supervisor or manager. Those who become leaders without first becoming supervisorsmust ultimately learn management skills such as setting priorities, learning to delegate, and applying other principles and techniques (Cliff, 2008). Theymust do these things to free themselves to lead. Many supervisors become sobogged down with administrative details that they do not have time to put moreleadership into their management styles, denying themselves the opportunity tomove up the ladder to higher management/leadership positions.The better you are as a supervisor, the more freedom you will have to lead.Cliff (2008) reiterated that although most people are in middle- or upper-management positions before theyhave had the opportunity to stretch their leadership "wings," it can all start at thesupervisory level. It is the combination of management and leadership that usuallycreates upward mobility

Human motivation is a complex phenomenon. Management expects employees to be motivated towards increased production by providing incentives. Berelson (1964) defines motivation as inner state that energizes, activate a person and direct his behaviours towards goals. Beach (1975) defines it as the willingness to expend energy to achieve a goal or reward. In providing a more descriptive definition of motivation, Robbins(1982) asserts that the term motivation is the willingness to do something and it is conditioned by those action and ability to satisfy some needs for the individual.An unsatisfied need creates tension which stimulates desire within the individual. These drives generate search behaviour to find particular goals that if attained, satisfy the need and lead to the reduction of tension. Unmotivated employees are in a state of tension. In order to relieve this tension, they engage in activity.

B. Dimension ofWorkplace Supervisory Roles: Experiences of Nigeria Workers

Recent transformations across a wide range of contemporary work organizations are evident in flattened hierarchies with fewer levels of graded authority, reduced ranks of middle managers and smaller core workforces (Foot and Venne, 1990; Leicht, 1998; McBrier and Wilson, 2004). Given such transformations, it is reasonable to expect an increasing proportion of regular full-time workers to assume supervisory roles in the workplace, as evolving organizational demography dictates revised divisions of labour with many such responsibilities being assigned to non-managers. Accordingly, the specific form/content and span of control of supervisory responsibilities will likely become even more important for the career development and progress of large numbers of workers. An analysis of specific dimensions of supervisory duties is essential since position or job titles may not accurately reflect the actual supervisory roles of workers (Pergamit and Veum, 1999; Rosenfeld, Van Buren and Kalleberg, 1998; Rothstein, 2001). Beyond this, the four dimensions were combined into a basic supervisory duty experience scale to distinguish broad levels of experience (from none to high). Significant bivariate and trivariate interaction effects were also explored through percentage tables to reveal the complexity of these associations.

C. Supervisory Roles in the ContemporaryWorkplace

Previous empirical research has documented considerable numbers and proportions of workers assuming supervisory roles in the workplace, especially in terms of supervising the work of others (Jacobs, 1992; Rothstein, 2001; Pergamit and Veum, 1999, Rosenfeld, Van Buren and Kalleberg, 1998, Maume, 2006).While employee-oriented supervision may represent only one of many possible skill dimensions associated with management work, supervising other workers represents a common and important dimension of supervisory responsibilities in the modern workplace (Schippman, Prien and Hughes, 1991). Yet this form of duty is often distinct from managerial or true decision-making authority within the workplace (Rosenfeld, Van Buren and Kalleberg, 1998; Rothstein, 2001; Smith, 2002). Rothstein (2001) found large percentages of workers reported supervising the work of others, but much lower proportions of these same workers indicated that they had full responsibility for setting pay or determining promotions of subordinate workers, leading him to conclude that control over pay and promotions likely represents "…a higher grade of responsibility than control over their job tasks, and may be associated with a higher rung on the job ladder." Beyond supervising other workers, thisresearch explores three other supervisory duty dimensions, including influencing budget and staffing, influencing pay and promotions, and deciding work for others. Together, these four dimensions of supervisory responsibility represent useful indicators of the scope of supervisory experiences of workers in the modern workplace.

Assuming supervisory roles in the workplaceis consistent with the emergenceof the "boundaryless career", which highlights individual worker accountabilityfor career

development andprogress in an era of downsized organizationsand flattened hierarchies (Arthur, Khapova and Wilderom, 2005). It isalso consistent with emerging "spiralcareer trajectories" entailing multiplelateral changes and fewer upwardmoves within flattened work organizations, supplantingtraditional linear career paths ofupward status mobility via formal promotionsin the workplace. Assuming supervisoryresponsibilities may alterworkers' subjective assessment of "careerplateau" reflected in their perceivedprospects for advancement within an organization(Nachbagauer and Riedl,2002). Further, numerous authors affirmed that taking on supervisoryduties in the workplace may reduce thedestruction of individual worker"human capital" (experience within agiven occupation or industry) ensuingfrom high levels of occupational/industrialmobility and may reduce thenegative economic consequences associatedwith high external mobility overtime (Dwyer, 2004; le Grand and Tåhlin, 2002; Kambourov and Manovskii, 2004).
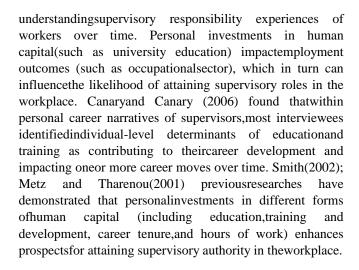
D.   Factors Influencing Supervisory ResponsibilityExperiences

This analysis focused on three importantfactors expected to influence thesupervisory responsibility experiencesof Nigerian workers – gender, attainmentof university-level education, andinitial occupational sector of employment. Beginning with gender effects,previous research has documented thatfemale workers are less likely to assumesupervisory duties relative to their malecounterparts, and also lesslikely to attain higher levels of supervisoryresponsibility (Jacobs, 1992; Rothstein, 2001; Smith, 2002; Maume, 2006). Despite the trend ofgrowing female employment in a rangeof traditional male-dominated professionaland managerial occupations, thereremains a high degree of gender occupationalsegregation in post-industriallabour markets which limit career advancementopportunities for females topositions of authority in the workplace (Hughes, 1995; Cooke-Reynolds and Zukewich, 2004)."Glass ceiling" effects continue to limitfemale workers' success in terms ofworkplace authority level, with relativelyfew women attaining senior managementpositions (Jacobs, 1992; Smith,2002). Smith (2002) identified genderdifferences in workplace authorityas a significant source of gender inequality,arguing that "The relative locationof men and women within thestructure of the economy, and their proportionalrepresentation within suchstructures, account for more of the gendergap in authority than the human capitalattributes of workers".

Hypotheses I

It is hypothesized this papersthat female workers would be morelikely to report no supervisory duty experiencein the workplace over yearsrelative to their malecounterparts. Conversely, male workersare hypothesized to exhibit 'high' levelsof supervisory duty experience (signifiedby at least some experience on allfour duty dimensions over time), relativeto female workers.

According to Banjoko (2006) the human capital model is a usefulperspective for interpreting and understandingsupervisory responsibility experiences of workers over time. Personal investments in human capital(such as university education) impactemployment outcomes (such as occupationalsector), which in turn can influencethe likelihood of attaining supervisory roles in the workplace. Canaryand Canary (2006) found thatwithin personal career narratives of supervisors,most interviewees identifiedindividual-level determinants of educationand training as contributing to theircareer development and impacting oneor more career moves over time. Smith(2002); Metz and Tharenou(2001) previousresearches have demonstrated that personalinvestments in different forms ofhuman capital (including education,training and development, career tenure,and hours of work) enhances prospectsfor attaining supervisory authority in theworkplace.

Hypotheses II

For the present paper,it was hypothesized that workerswith any university-level educationwould be more likely to report 'high'levels of supervisory duty experience,while those without any university educationwould be more likely to have nosupervisory duty experience over theyears.

Occupational sector of employmentwas used in this analysis as a basic indicatorof occupational status within thelabour force, broadly distinguishingmanagement, professional, white collarand blue collar occupations. Previousempirical research has not specificallyexplored the relationship between occupationalsector and supervisory duty experiencein the workplace, althoughhypotheses were articulated drawing onan understanding of the content of eachof these broad sectors.

Hypotheses III

For thispaper, it was hypothesized that workersinitially employed in the managementoccupational sector would be mostlikely to exhibit 'high' levels of supervisoryduty experience over time, giventhe obvious linkage between managerialauthority and supervisory roles in theworkplace. Second, workers initiallyemployed in professional occupationalsectors (such as natural and applied sciences,social sciences and related, andhealth occupations sectors) were hypothesizedto be more likely to report'high' levels of supervisory duty experience.Third, workers from white collar(sales and service) and blue collar occupationalsectors were hypothesized to bemost likely to have no supervisory dutyexperience over time.While there are many other factorswhich may influence or impact supervisoryresponsibility experiences overtime,

III.   RESEARCH METHODS

The research methodology employed was analysis of longitudinal survey data from the manufacturing labour force in Nigeria. This is a nationalsurvey collected 5 manufacturing organizations in Nigeria. Statistics Nigeria,designed and stratified to be broadlyrepresentative of the Nigerian manufacturinglabourforce.

This paper concentrated on these three variables investigating interactions with the dependent variable of level

of supervisory duty experience of workers. Beyond testing hypothesized relationships between each of these three influencing factors (gender, university education and occupational sector) and the level of supervisory duty experience of workers over time, trivariate interactions involving pairs of factors and the dependent variable of supervisory duty experience were also explored. Although formal hypotheses were not specified for trivariate interactions, it was generally expected that the nature and strength of associations between gender and supervisory duties, and university education and supervisory duties, would be mediated by occupational sector. Multivariate log-linear modelling techniques were applied to statistically prioritize relationships, accompanied with interpretation of specific associations found within both bivariate and trivariate percentage tables.

A. Data Analysis

Given sample sizelimitations, it was not practical to examineeach of the 64 distinct permutationsrepresenting stability and mobility in supervisoryduty experiences, so permutationswere collapsed into a smaller setof logically-coherent categories reflectingbroader patterns. The collapsed supervisoryexperience scales wereanchored by two stable end categoriesof no experience and continuous experienceover time. Intermediate scale

categoriesrepresented different forms ofmobility including being promoted tothe duty, demoted from the duty, and aresidual category for various forms ofirregular or mixed mobility. The constructedsupervisory duty experiencescale represents a continuum of theform and extent of supervisory experienceon each of these four dimensions,depicting both stability and mobility inexperience, and trends over time (promotion,demotion and irregular patterns).The supervisory duty experiencescales are presented in result of the study for eachof the four duty dimensions.

IV. RESULT OF ANALYSIS

Conversely,only about a third of the populationhad experience with influencingbudget and staffing or pay and promotions,duties which are typically associatedwith more senior managerialoccupations. At the other end of thecontinuum, continuous supervisory experienceover the six-year period rangedfrom about one in 31 workers influencingbudget and staffing, to about one inten workers supervising others.

Table 1: Summary of Pearson Product Moment Correlation Coefficient of Female workers Supervisory Duty Experience and Male Workers Supervisory Duty Experience

Variables	N	X	SD	df	r-cal	r-crit	Sig	Decision
Female workers supervisory duty experience	400	35.92	3.45	132	0.68	0.312	0.05	H$_o$: Rejected
Male workers supervisory duty experience	400	38.34	3.57					

Significant at 0.05, N = Number, X = Mean, SD = Standard Deviation, DF = Degree of Freedom, r-cal = Calculated value, r-crit. = Critical value.

Table 1 show that a calculated r-value of 0.68 resulted as the relationship between Female workers supervisory dutyexperience and male workers supervisory duty experience. This calculated r-value of 0.68 is significant since it is greater than the critical r-value of 0.31 given 132 degrees of freedom at 0.05 level of significance. Null hypothesis is rejected; hence, male workers exhibit 'high' levels of supervisory duty experience (signified by at least some experience on all four duty dimensions over time), relative to

female workers.

Thesetwo end categories of no experience andcontinuous experience represent truestability on these supervisory duty dimensions(no change over time). Intotal, these two categories accounted forbetween half of workers (51.8 percent)for supervising others, to over twothirds(71.1 percent) for influencing pay and promotions.

Table 2: Summary of Pearson Product Moment Correlation Coefficient of Workers with university-level education and levels of supervisory duty experience

Variables	N	X	SD	df	r-cal	r-crit	Sig	Decision
Workers with University Level Education	400	51.84	3.11	146	0.78	0.402	0.05	H$_o$: Rejected
Levels of Supervisory Duty Experience.	400	60.21	2.73					

Significant at 0.05, N = Number, X = Mean, SD = Standard Deviation, DF = Degree of Freedom, r-cal = Calculated value, r-crit. = Critical value.

Table 2 shows that a calculated r-value of 0.78 resulted as the relationship between workers with university-level education and levels of supervisory duty experience. This

calculated r-value of 0.78 is significant since it is higher than the critical r-value of 0.40 and 146 degrees of freedom at 0.05 level of significance. This led to the rejection of null hypothesis which implies that Workers without any

university education would be more likely to have no supervisory duty experience over years.

Conversely, between 28.9 and 48.2 percent of all workers exhibited at least some degree of mobility or change over time across these four dimensions of supervisory duties. There is a relatively tight range in promotion percentages, from almost one in thirteen for influencing pay and promotions, to one in nine for supervising others. 'Promoted to duty' signified that workers did not hold the duty at the beginning of the survey panel (1996), but assumed the role sometime after and continued to hold the duty to 2010. Demotions from duties ranged from about one in 24 workers for influencing pay and

promotions, to about one in twelve for supervising others. 'Demoted from duty' indicated that workers held the duty initially in 1996, but dropped the role some time after that, and did not resume the duty. Unfortunately, demotions could not be broken down further to distinguish voluntary or involuntary demotions– whether the decision to give up a supervisory role was that of the worker, or his/her employer. Nigerian workers were more likely to be promoted to than demoted from a given duty, with a difference of about three percentage points across the four dimensions. This implies a net gain or increase in experience on each of these duty dimensions over time.

Table 3: Summary of Pearson Product Moment Correlation Coefficient of Linkage between managerial authority and supervisory roles

Variables	N	X	SD	Df	r-cal	r-crit	Sig	Decision
Managerial authority	400	92. 48	4.21	158	0.88	0.224	0.05	H_0: Rejected
Supervisory roles	400	87.34	4.82					

Significant at 0.05, N = Number, X = Mean, SD = Standard Deviation, DF = Degree of Freedom, r-cal = Calculated value, r-crit. = Critical value.

Table 3 shows that a calculated r-value of 0.88 resulted as the relationship between managerial authority and supervisory roles in the workplace. This calculated r-value of 0.88 is not significant since it is lower than the critical r-value of 0.22 and 158 degrees of freedom at 0.05 level of significance. This led to the acceptance of alternative hypothesis that there is obvious linkage between managerial authority and supervisory roles in the workplace.

When Nigerian workers are mobile with respect to these supervisory duties, they are less likely to follow a standard path (either promotion or demotion), and more likely to exhibit an irregular form of mobility. Mixed mobility refers very broadly to all forms of irregular mobility in relation to given roles, and in total exceeds the combined percentages for the more pure forms of mobility– promoted to and demoted from duty. Between about one in six and over one-quarter of workers exhibited mixed mobility across these four dimensions. Within the residual mixed mobility category, the most common occurrence was short-term limited experience (Out-In-Out) with each of these four roles. Nigerian workers were more likely to test or try out a Out pattern), than to have a temporary interruption from a given duty (the reverse In-Out-In path). All other irregular mobility (involving multiple promotions to and demotions from a given duty over six years) accounted for about one in ten workers at most. Hiscott (2008) revealed both stability and mobility, and complex patterns of experience with respect to these four supervisory duty dimensions.

V. DISCUSSION AND CONCLUSIONS

Over three in five **Nigerian** workers reported at least some supervisory duty experience between 2010 and 2015, with more than half deciding work for, and supervising other workers, and about a third influencing budget and staffing, and pay and promotions in the workplace. Beyond the prevalence of supervisory responsibilities revealed by the aggregate profile, the multivariate log-linear modelling results and

analysis of percentage tables provided support for each of the bivariate hypotheses stated above. Specifically, male workers, workers with any university education, and workers from management (especially) and certain professional occupational sectors exhibited markedly higher profiles of supervisory duty experience over the six-year time frame.

Conversely, female workers, those without any university education, and workers from both blue and white collar occupational sectors were more likely to report no supervisory duty experience over time. Based on the cumulative R2 analog statistic from the optimal bivariate stage model (Table 4), log-linear modelling confirmed that approximately 90 percent of variation found in the 120-cell, four-variable data array could be accounted for through the inclusion of these three bivariate interaction terms (of gender, university education and occupational sector, each by supervisory duty experience of workers).

University-educated workers from natural sciences and related occupations also exhibited a 'high' supervisory experience profile (42.7 percent), along with male workers from business, finance and administrative occupations, and social sciences and related occupations sectors (33.7 and 33.4 percent, respectively). Conversely, workers without any university education from the health occupations sector were the least likely to report a 'high' level of supervisory experience over time (5.8 percent), as well as female workers from blue collar occupational sectors (ranging from 6.2 to 11.4 percent across the three sectors).

From the other end of the scale, female workers from each of the three blue collar occupational sectors were most likely to report no supervisory duty experience (ranging from 51.7 to 67.6 percent across sectors), along with female workers from white collar sales and services occupations (50.4 percent). As well, workers without university education from blue collar sectors of processing, manufacturing and utilities occupations, and trades, transport and equipment operator occupations

weremost likely to have no supervisory dutyexperience over time (at 51.9 and 46.2percent, respectively).This analysis focused on four distinctdimensions of supervisory responsibilitiesin the workplace (influencingbudget and staffing, pay and promotions,deciding work for others, and supervisingothers).While these fourdimensions are clearly important indefining workplace supervisory roles,they are certainly not exhaustive.

Thereare other facets of supervisory responsibilitiesin the workplace – these wouldinclude the number of subordinates supervised,relative position within the organizationalhierarchy, the scope orextent of decision-making responsibilitieswithin organizations, and whetherdecision-making authority is exclusiveor shared. The primary purpose of this analysis was to explore complex interactive effects with supervisory duty experience. This was accomplished through the application of log-linear modeling techniques to a limited set of variables, supplemented by assessing and interpreting identified interaction effects within percentage tables.

Future research could explore these and other dimensionsof workplace supervisory roles to better appreciate the full scope and context of such duties.Despite limitations to the measurement of supervisory duty experiences, the data did reflect the prevalence of such experiences among Nigerian workers, and also exposed the dynamic and evolving nature of such duties over even a relatively brief time span in the careers of workers.Hiscott (2008) recommends future research could explore other factors or determinants which may influence or impact supervisory responsibility experiences over time, going beyond the gender, university education and occupational sector effects investigated here. Differences in work time arrangements (employment status, working hours, weeks worked) between male and female workers may impact supervisory duty experiences in the workplace, with consequences for careerprogression and mobility.

Amongworkers with some post-secondary education, the field or discipline of study or possession of specific educational credentials may directly influence subsequent supervisory responsibility experiences in the workplace. Other career-related factors such as tenure with a given organization, occupational and industrial mobility, as well as career interruptions may alter supervisory duty experiences. As well, individual-level socio-demographic attributes such as age, race or ethnicity (and gender interactions with these characteristics) may also have some bearing on the likelihood of assuming supervisory duties in the workplace. Future research investigating these and other factors or determinants is important given the prevalence of supervisory roles among workers, and the consequences for longer-term career development and progress for workers.

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