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SAFETY PRACTICES AND THE PRODUCTIVITY OF EMPLOYEES IN MANUFACTURING FIRMS: EVIDENCE FROM NIGERIA

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ABSTRACT: *This paper investigates the nature of the relationship between safety practices and the productivity of employees in manufacturing firms. Three hypotheses were formulated and questionnaire was designed. Copies of the questionnaire were distributed to three hundred and thirty respondents cutting across ten sampled manufacturing firms in Port Harcourt. Two hundred and ninety two copies of the questionnaire were retrieved and used for the analysis. The study revealed that there is positive and significant relationship between the provision of adequate safety equipments and the work output of employees; There is a significant relationship between legal institutional safety policies and the production outputs of employees; There is a significant relationship between employer's compliance to safety rule and man hour put in by employees in the production process. This findings implies that safety in the work place significantly affects the effort put in by the workers in the production process and therefore provide evidence for the claims of Curry et al (2004), Haddel and Ojikutu (1989), Iwundu (1986) and Eninger (1983). The study recommend that: qualified safety officers should be employed to manage the safety challenges facing the organizations in their business operations; employees should be sent on regular and seasoned training courses on safety management so that they can appreciate the need for safety precautions; the safety policies of business organizations must be effectively implemented and adhered to at all time.*

KEYWORDS: Safety Practices, Productivity

INTRODUCTION

The general perception is that Nigeria is fast becoming an industrialized economy with industrial estates springing up in every state and existing plants are increasing their production capacities. The attendant effect of this development is that it offers employment opportunities, to the unemployed. The unfortunate thing about this increased opportunity for employment is that many of these employed are having their first experience and are exposed to automatic machines, fast moving assembly lines, overhead cranes, etc without adequate training. This situation exposes the workers to accidents and injuries.

The awareness and safety consciousness that is imperative in industrialization is lacking. In the developed and highly industrialized countries, industrial safety awareness and movement

have been in existence right from the days of the industrial revolution. Initially employers were indifferent to the safety of their factories and employees, due mainly to the immunity granted them under the Common Law, Hensen (1989),on the part of the employee, the Common Laws according to Adeogun (1985) provided three ways through which he can impose liability on his employer (due to injury sustained at the work place), these are; on the strength of the employee being able to show that the employer breached his (employer) personal duty not to expose the employee to unreasonable risks. Secondly, under the rule of vicarious liability and lastly, on the proof that his employer has been in breach of statutory duty, e.g. duties imposed by the factory act. Nevertheless, these and other common law doctrines had little effect on safety practices; rather, their relevance was only in the law courts.

Essentially, there is a growing manifestation of apathy in the part of employers for the safety of the employees in the work place. In effect there is still a disparity between employers' avowed concern for a safework place and its realization. Could it be that accidents are natural consequence of industrialization? This is very unfortunate, industrial injuries and deaths need not be accepted or regarded as an incredible price to pay for industrial process.

A review of industrial accident literature reveals that most studies have been carried out to analyze industrial accident in isolation from productivity. It is observed that industrial accidents reduce productivity and increase the cost of production. In an attempt to reduce industrial accidents, organizations put in place necessary safety practices. Safety practice is concerned with the behavior of employees with regard to the rules, regulations, policies and conducts that shape or govern their actions and inactions or activities in the workplace in order to reduce or even eliminate accidental losses and injuries and maximize the nominated objective of the organization. The relationship between safety practices and employees productivity performance may have been well documented for other businesses in other economies but the same cannot be said of the manufacturing firms in Nigeria. Also, the effect of safety practices on employees productivity are not well documented in an emerging economy like Nigeria, as such, this study sets out to examine the impact of safety practices on the productivity of employees in Nigeria. The Basic questions this study seeks to answer are:

i. To what extent does the provision of adequate safety equipment impact on the work output of employees?
ii. To what extent would improvement in legal institutional safety policies affect the increase in the production output of employees?
iii. Is compliance to safety rules important in influencing the man hour put in by employees in the production process?

The answers to these questions will help manufacturing firms in Nigeria and other developing countries to address the problems associated with accidents and safety. It will also help organizations to improve on their productivity which was hitherto hindered by accidents.

THEORETICAL FOUNDATION

There has been the tendency towards analyzing industrial accidents in isolation from productivity. This is quite a wrong approach. Industrial accidents affect production and

reduce productivity of both the workers and the organization. Accident does not only reduce productivity, it also contributes to the cost of production. This cost can be classified into direct and indirect costs. The direct costs are made up of medical fees, compensation/insurance cost, death benefits, wage lost etc. while the indirect cost include, loss of time, damage to machineries and equipments, replacement of injured employees etc. The later costs are hardly recognized by employers' in spite of their percentage of the total accident cost.

Accidents as individual phenomenon constitute one of the major human social and economic problems of modern civilization. It permeates all aspects of human endeavour and this no doubt is the cause of variation in definition of the word. According to Collinson (1999) an accident is "a mishap resulting in damage to property and/or injury or death to persons, stressed so much on the end product or effect of accident". Cooper (2001), took into consideration the fact that accidents need not be injurious before they are recognized. As a matter of fact this forms the basis of differences among organizations in the reporting of another depending on the criteria used, but the major classifications of accidents are injurious, non-injurious, fatal and loss time accidents. Injurious accidents are accidents that result in injury to the worker depending on the nature of the industry. Research has shown that firms ignore reporting minor injurious accidents. According to Hoffman and Stretzer (1998) "only under highly controlled conditions could one be sure of amazing data which were complete and accurate and which do not merely reflect a tendency on the part of some to report these accidents". Non-injurious accidents are unexpected events, which result in no injury to the worker or damage to equipments. Fatal accidents are accidents that result in death, while loss time accidents may incorporate all the other identified forms of accidents because they all in one way or the other deprive the organization of reasonable working hours.

Generally, the causes of accidents in industrial settings have been attributed to five major sources; these are personal factors and environmental factors. In terms of the personal factors there is evidence that certain physiological and psychological agents and conditions render the individual more likely to be involved in an accident. These factors have been divided into unsafe personal acts and personal characteristics. Under the unsafe acts are failure to follow established safe working procedures, horse-play, fighting, to use designated protective clothing and removing safety devices or making them inoperative, while the personal characteristics includes intelligence, experience, vision, fatigue etc. Environmental factors are also known as unsafe conditions, and are those aspects of the physical environment which set up or make probable, the occurrence of an accident. These may involve tools, equipment, machines, materials and buildings, hazardous atmosphere, poor lighting, oily floor, noise, technological changes and temperature. The hob of all safety programmes is the prevention of the occurrence of accidents. This involves the elimination of hazards. Different methods of preventing accidents are open to the safety officer but the bulk of responsibility lies with the supervisors. Researches have shown that safeguards form the basis of all accident prevention measures. The technical measures cover the design of machines, safety devices, design of the work environment and materials handling, use of distinctive colours and notices, while the human measures involve training in safety, effective supervision, fostering good industrial relations etc. both the technical and human measures enhance safety and reduces the chance of accidents in the work place.

Traditionally, productivity has been defined as the measure of output to input. Productivity is a quantitative or statistically weighted measure of how efficient a given set of objectives are. It therefore connotes efficiency within a defined effectiveness context. There are many factors that affect the productivity of employees, work to improve productivity in organizations has been in progress for a long time, and many methods have been applied towards improving productivity. The substitution of machinery for people has been a major area of activity for improving productivity, the introduction of more capacity may restrict the flexibility of operations and impede opportunities to adapt to changing market conditions, in effect, the use of this method is gradually declining and this is why firms are looking for alternatives.

Improving methods of work has greatly influenced and still influences productivity, but this is not without some discernible shortcomings which if not presently manifesting may be felt in the near future. An unproductive practice includes work that contributes little or nothing to the achievement of enterprise objectives. Poor quality work is among the unproductive practices. Safe work environment therefore has over the years been seen as the hob of increased employee productivity.

METHODOLOGY

In this study, the cross-sectional survey was adopted. The target population constituted manufacturing firms in Port Harcourt and ten of these manufacturing firms were randomly selected by the researcher for the purpose of this study. Three hundred and thirty participants were selected randomly from ten manufacturing firms.

The questionnaire constituted the major instrument for the collection of primary data and it is was made up of both open and close ended questions. However, some of the materials used in the course of this study were equally obtained from secondary sources such as the individual company safety reports.

Finally, the sample percentage and frequency distribution of data analysis were used to analyze the research questions, while the spearman's rank order correlation co-efficient was used to test the proposed hypotheses. It is mathematically expressed thus;

$$rs = 1 - \frac{6(\sum d)}{(N^3 - N)}$$

Where rs=Spearman rank order correlation co-efficient

$\sum d$= Sum of the squared deviation

N= number of set of ranking

Three hypotheses formulated for the study are

Ho_1: There is no significant relationship between the provisions of adequate safety equipments and the work input of employees.

Ho_2: There is no significant relationship between legal institutional safety policies and the production outputs of employees.

Ho_3: There is no significant relationship between employers compliance to safety rules and man hour put in by employees in the production process.

Guide to decision

H_0: There is no correlation between the X_s and Y_s. (There is mutual independence between the X_s and the Y_s)

H_1: There is a correlation between the X_s and Y_s. (There is mutual dependence between the X_s and the Y_s)
Spearman's Rho Assumes values between -1 and +1 $-1 \leq p \leq 0 \leq p \leq +1$ Perfectly Negative Correlation and perfectly Positive Correlation
Decision rule: Reject Null hypothesis If p-value of correlation coefficient **<** 0.05

Strength of Correlation

Correlation	**Strong**	**Weak**
Positive up and right	0.7 to 1.0	0.3 to 0.7
Negative down and left	-1.0 to -0.7	-0.7 to -0.3

Little or No Correlation: -0.3 to 0.3

4.0 Empirical Results

Table 4.1: Provision of adequate safety equipments work inputs of employees.

Responses	X	RX	Y	RY	d	d^2
Great extent	98	5	69	4	1	1
Considerable extent	87	4	112	5	-1	1
Moderate extent	63	3	53	2	1	1
Slight extent	39	2	55	3	-1	1
Not at all	05	1	03	1	0	0
					0	4

Sources: survey data 2010

Spearman's Correlation Coefficient Test Result

			Y
Spearman's rho	X	Correlation coefficient	.800
		Sig. (2-tailed)	.104
		N	5

Researcher's computation

Hypothesis one: This hypothesis states that there is no significant relationship between the provision of adequate safety equipments and work inputs of employees in manufacturing firms in Port Harcourt.

As can be seen from the statistically testing of hypothesis one above, there is a strong positive and significant relationship between the provision of adequate safety equipments and work inputs of the employees in manufacturing firms, this is revealed by the correlation (rs) value of 0.8 (i.e. rs = 0.8). Based on this value therefore, we reject the null hypothesis one Ho_1 and accept the alternative hypothesis. Therefore, there is a significant relationship between the provision of adequate safety equipments and the work inputs of employees in manufacturing firms in Port Harcourt.

Hypothesis two: There is no significant relationship between legal institutional safety policies and the production outputs of employees of manufacturing firms in Port Harcourt.

Table 4.2: Legal Institutional Safety Policies and Production Output of Employees.

Responses	X	RX	Y	RY	D	d^2
Great extent	80	4	47	2	2	4
Considerable extent	88	5	79	5	0	0
Moderate extent	47	2	76	4	-2	4
Slight extent	55	3	68	3	0	0
Not at all	22	1	22	1	0	0
					O	**8**

Sources: surveys data 2010

Spearman's Correlations Coefficient Test Result

			Y
Spearman's rho	X	Correlation coefficient	.600
		Sig. (2-tailed)	.285
		N	5

Researcher's Computation

Hypothesis two: There is no significant relationship between legal institutional safety policies and the production outputs of employees of manufacturing organizations in Port Harcourt.

As evident in the statistical testing of hypothesis two, (see table 4.9), a strong positive and significant relationship was revealed to exist between legal institutional safety policies and the production outputs of employees of manufacturing firms in Port Harcourt, this is revealed by the correlation value (rs = 0.6). Consequent on the above therefore, we reject the null hypothesis Ho_1 and accept the alternate hypothesis Ha_1. Therefore, there is a significant relationship between institutional safety policies and the production outputs of employees of manufacturing organizations in Port Harcourt.

Hypothesis three: There is no significant relationship between employers compliance to safety rules and man hour put in by employees in the production process.

Table 4.3: Employers' Compliance to Safety Rules and Man Hour Put in by Employees in the Production Process.

Responses	X	RX	Y	RY	d	d^2
Great extent	57	4	103	5	-1	1
Considerable extent	123	5	61	3	2	4
Moderate extent	44	3	72	4	-1	1
Slight extent	41	2	39	2	0	0
Not at all	27	1	17	1	0	0
					0	**6**

Sources: survey data 2010

Spearman's Correlations Coefficient Test Result

			Y
Spearman's rho	X	correlation coefficient	.700
		Sig. (2-tailed)	.188
		N	5

Researcher's Computation

Hypothesis three: This hypothesis states that there is no significant relationship between employers compliance to safety rules and man hour put in by employees in the production process.As can be seen from the statistical testing of hypothesis three (see table above), there is a strong positive and significant relationship between employers compliance to safety rules and man hour put in by employees in the production process. This is revealed by the correlation value (rs = 0.7). Based on the result therefore, we reject the null hypothesis three $Ho_{3,}$ accept the alternative hypothesis. Therefore, there is a significant relationship between employers compliance to safety rules and man hour put in by employees in the production process.

The result of this research study has reinforced the claims of Curry et al (2004), Haddeth and Ojikutu (1989), Iwundu (1986), Eninger (1983) etc. who all acclaimed that safety in work place has a lot of influence on the effort put in by the workers in the production process. In the light of the above therefore, it is obvious that the outcome of this study is significant in justifying the importance of safety of the employees in the work environment.

SUMMARY OF FINDINGS

In the course of this study, three hypotheses were tested. For the first hypothesis, it was revealed that there is a significant relationship between the provision of adequate safety equipments and the work input of employees result was consequent on the statistical test of hypothesis one in which a positive correlation (rs) value of 0.8 was revealed thus establishing a significant relationship between the provision of adequate safety equipments and the work input of employees and therefore leading to a rejection of the null hypothesis one.

The second hypothesis attempted to determine the nature of relationship existing between legal institutional safety policies and the production outputs of employees. The outcome of the statistical test of hypothesis however revealed that a significant relationship exists between institutional safety policies and production outputs of employees. This result is consequent on the correlation(rs) value of 0.6 which established a positive relationship between the independent and dependent variables and as such leading to rejection of the null hypothesis two.

The hypothesis three examined the relationship between employers' compliance to safety rules and the man hour put in by employees in the production process. The statistical test of hypothesis three revealed that there exist, a significant relationship between employers compliance to safety rules and the man hour put in by employees in production, the above result is consequent on the correlation(rs) value of 0.7 which established a positive and significant relationship between the two variables under investigation. Consequently, the null

hypothesis three was rejected, establishing therefore, that there is a significant relationship between employers compliance to safety is a significant relationship between employers compliance to safety rules and man hour put in by employees in the production process.

CONCLUSION

Consequent upon the outcome of the findings, the following conclusions emerged;

1) There is a significant relationship between the provision of adequate safety equipments and the work input of employees.
2) There is a significant relationship between legal institutional safety policies and the production outputs of employees.
3) There is a significant relationship between employer's compliance to safety rules and man hour put in by employees in the production process.

RECOMMENDATIONS

Based on the outcome of this research study, and its implication on organizational effectiveness, the following recommendations have been suggested by the researcher.

1) Employers' and management of organizations should ensure that safety precautions are taken in the work environment at all instances so as to spur employees to higher productivity.
2) Qualified safety officers should be employed to manage the safety challenges facing the organizations in their business operations.
3) Employees should be sent on regular and seasoned training courses on safety management so that they can appreciate the need for safety precautions.
4) The safety policies of business organizations must not be taken for granted, such must be effectively implemented to the later and adherence monitored at every instance.
5) Government should establish a monitoring team that will visit these operational business organizations unannounced to evaluate their safety policies and measure their levels of compliance.

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