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Safety and Health Management and Organizational Productivity

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Safety and Health Management and Organizational Productivity

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I. Introduction

a) Background of the Study

In this competitive era where employees' are now being viewed as assets, the implementation of an effective safety and health management system by an organization becomes sacrosanct in reducing the number and severity of workplace injuries and illnesses, thus resulting in lower accident-related costs. The quality of the workplace environment (organic solvent, temperature, noise, illumination etc.) has an important impact on the level of employees' motivation, performance, and organizational productivity, hence, the incorporation of human factor in the design of a production system should be of almost importance to an organization.

One of the best ways of reducing workplace hazards and injuries in an organization is having an exhaustive, anticipatory safety and health management system. A safety and health management system as defined by the Occupational Safety and Health Association (OSHA)is a proactive, collaborative process to find and fix workplace hazards before employees are injured or become ill. An implemented safety and health management system will no doubt protect workers, curtail accident-related costs, minimize employees' absenteeism and turnover, increase overall productivity, and improve employees' morale.

Base on industrial accident related report across all sectors of the Nigeria economy, one can say that Nigeria workers have become more proneness to accidents ranging from minor to deadly, as some have lost their lives right in the line of duty, while some have lost vital organs, therefore rendered permanently incapacitated. The issue of safety and health at the workplace which once occupied a significant place in the programme and plan of employers is now treated with levity. One such case that could not be forgotten in a hurry was the fire incident that razed a plastic factory in Ikorodu, Lagos in 2002 when many workers were roasted to death at night because the Chinese owners of the company locked the workers in the factory and went to sleep at their highly secured residence guarded by policemen (Wogu, 2011).

Still on the issue, according to occupational fatality data from NCPOSH(2016), Nigeria recorded 238 fatalities across different sectors of the economy within the last three (3) years, with the start year being 2014. From the available records NCPOSH (2016), the year 2015 recorded the highest number of work-related fatalities (2014-2015, 30, 117, & 91).Through its incident notification process, the reported occupational accidents/injuries recorded amounted to 3461 from the period of 2014-2016 (956, 1500, & 1005 respectively).

Moving from the shores of national to global, the International Labour Organization (ILO, 2015) estimates, every year over2.3 million women and men die at work from an occupational injury or disease. Over 350,000 deaths are due to fatal accidents, and almost 2 million deaths are due to inevitable work-related ill-health. Also, over 313 million workers are involved in non-fatal occupational accidents causing critical injuries and absences from work. The ILO also estimates that160 million cases of non-fatal work-related diseases occur annually. These estimates imply that everyday approximately 6,400 people die from occupational accidents or ailment and that 860,000 people are injured on the job. Furthermore, as appraisal shows, work-related diseases represent the prime cause of death at work, killing almost six times more workers than can be anticipated. The above data highlights the need for a new prevention paradigm of work place safety and health.

It is a true fact that productivity has been an indispensable support for organizational success story. Reason is that occupational health and safety has some economic implications ranging from medical cost of treatment which in some cases are borne by the

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company, working time lost by employees', the amount of compensation payable to mention but a few which will affect both the financial and non-financial performance of a corporate organization.

The aluminum industry is considered to be among the most hazardous industry for employees. Employees' working in this sector are exposed a whole lot of peril which include the use of chemicals, intricate machines and working tools, smell, noise, factory waste, unguarded machinery, poor fire precautionary act and most at times, working under duress for high productivity.

b) Statement of the Problem

Some organizations don't give the protection of their workforce the priority it deserves due to defect of awareness, capacity, and motivation, or limited staff resources. In recent years some workers have temporarily or permanently been disabled by work-related accidents as a result of inadequate safety knowledge on handling machines and equipment, neglecting to follow a simple procedure in accomplishing task or management not providing the right safety standards and resources for employees.

The non-accordance of importance to employees' protection will have negative impact on the organization as employees will not be motivated to do their best on the job that triggers performance. Thus, resources that would have been used to develop staff, given as incentives or expanding the business operations would be used in paying for the medical bills, the employment of ephemeral workers, settlement of restitution and court related issues which also has its effect on the organization's productivity.

Although Management and employees are making efforts to ensure safety in the workplace, accidents in the workplace keep on increasing which indicate the work environment is still unsafe. It is on this penchant that this study chose to examine the relationship between health and safety management and organizational productivity in Aluminum Industry operating in Owerri, Imo State Nigeria and how it can boost the higher productivity of an organization.

c) Research Objectives

The key objective of this study is to investigate the relationship between safety and health management and organizational productivity. The specific goals are to;

a. Investigate how safety and health policy of an organization can reduce operating cost.
b. Evaluate the relationship between safety and health training and employees' productivity.

d) Research Question

a. To what extent has safety and health policy of an organization reduced the operating cost of an organization?
b. How has safety and health training improved employees' productivity?

e) Research Hypotheses

H_{01}: Safety and health policy of an organization does not significantly reduce organizational operating cost.

H_{02}: Safety and health training does not significantly increase employees' productivity.

II. Review of Related Literature

a) The Concept of Safety and Health Management

According to the Occupational Safety and Health Association (OSHA),"a safety and health management system is a proactive, collaborative process to find and fix workplace hazards before employees are injured or become ill. The numerous benefits accruable for implementing safety and health management systems they include workers' protection, saving an organization money in terms of medical and compensation, and in all, making an organization's hazard-specific programs more effective and efficient.''

Below is Occupational Accident/Injury Data in Nigeria as reported by NCPOSH (2016).

Table 2.1: Occupational Fatality Data

Year	Total Number of Reported Fatalities
2014	30
2015	117
2016 (January – September)	91
Total	238

Occupational fatality data (Source: NCPOSH, 2016)

From the table above, Nigeria recorded 238 fatalities across different sectors of the economy within the last three (3) years, with the start year being 2014. From available records, the year 2015 recorded the highest number of work-related fatalities.

Table 2.2: Registered Occupational Accidents/Injuries

Through its incident notification process, the reported occupational accidents/injuries recorded are summarized in the Table below.

S/N	Month Notification Was Received	Total No. of Reported Accidents/Injuries
1	2014	956
2	2015	1500
3	2016	1005
Total		3461

Reported occupational accidents trend (Source: NCPOSH, 2016)

Since 2014, a total number of 3461 reported occupational accidents /injuries across different sectors of the economy have been recorded in the country, with the peak year also being the year 2015 (NCPOSH, 2016).

Table 2.3: Occupational Accident/Injury Classification by Type of Industry and Disablement (2014 – September 2016)

S/N	Type of Industry/Sector	Registered No. of Occupational Accidents/Injuries	Percentage Composition	Recorded Number of Disablement
1	Construction	1358	39.24	83
2	Manufacturing	338	9.77	80
3	Maritime	155	4.48	5
4	Electricity and Power	100	2.89	1
5	Financial Institution	81	2.34	Nil
6	Education	36	1.04	Nil
7	Hospitality	29	0.84	4
8	Oil and Gas	24	0.69	Nil
9	Transportation	22	0.64	Nil
10	Medical and Pharmaceutical	21	0.61	1
11	Agriculture	15	0.43	Nil
12	Aviation	11	0.32	Nil
13	ICT and Telecom	9	0.26	Nil
14	Others	1262	36.46	137
	Total	3,461	100	311

Occupational accident by Sector (Source: NCPOSH, 2016)

From the NCPOSH report, the construction industry recorded the highest number of work-related accidents/injuries, accounting for over 39% of the total figures with the ICT and Telecom industry recording the least contribution of 0.26%. It is pertinent to note that ''Others'' category reported the second highest contribution but had the highest recorded number of disability recorded.

Underreporting of accidents to the OSH Department of the Ministry of Labour and Employment appears high in comparison to the number of accident reports sent to the NSITF and could be partly attributed due to perceptions, on the part of most employers; reviewing such strategic information may subject them to punitive measures from the enforcement authorities. On the other hand, a lot of employees' disclose the occurrence of accidents to the NSITF because of the motivation for compensation as enshrined in the Employee Compensation Scheme (NCPOSH, (2016 and FMLPID, 2016).

b) Components of an Effective Safety and Health Management Program

According to OSHA, quoted by Jeffrey,(2015) in convergence training.

A good safety and health management program has four components:

a. Management leadership and employee involvement
b. Analysis of worksite to identify hazards
c. Hazard prevention and control to protect workers from obstacle
d. Safety and health training

The above procedures have to be in place for the system to work. If just one piece of the system is broken or absent, the entire system will suffer as a result (Jeffrey,2015).

a. *Management Leadership and Employee Involvement*

Without leadership from management, the safety and health program is doomed to fail. Management provides a motivating force and, equally importantly, resources for the program. Management must genuinely consider the health and safety of workers to be a core value of the company, and this concern for safety and health must be demonstrated in all actions of the company (Jeffrey,2015). Eg if security is expensive, try an accident.

For sustaining organizational productivity, management at all level together with the employees must be committed in creating safety and health management culture. There is no side that can do it on their own, thus having an integrated system were everybody in the organization are safety conscious is important for system sustainability. According to OSHA, here are some ways for management to demonstrate its commitment and for workers to be involved:

- Executives should write a company safety and health policy.
- The safety and health programme should be posted in public for all employees to see.
- Employees should be included in creating policy on safety and health issues.
- Both sides (management & line-workers) should play an active role in safety activities.
- Such an organization should hold meetings that focus on employee health and safety.
- All members of management and rank-and-file workers should follow all safety and health rules.
- Time, effort, and money should be invested in the safety and health program–it doesn't happen on its own.

b. *Analysis of Worksite to Identify Hazards*

The second necessary component of a safety and health management program is an ongoing process of analyzing the workplace to identify hazards. The purpose of this is to identify hazards in the workplace so they can later be eliminated or controlled. The worksite hazard analysis begins with a comprehensive, baseline hazard survey followed by a periodic updates that should be performed (Jeffrey,2015). A baseline hazard survey can be achieved when a firm becomes aware of the hazards that exist in its internal environment, hence creating a system for employees to report such hazards.

c. *Hazard Prevention and Control to Protect Workers*

Jeffrey (2015) believed that once a firm's safety and health management program has been put in place, it will be important to continually analyze the work area to keep hazards in check and keep workers safe. Hazard prevention and control entails the following Jeffrey (2015):

- Inspecting and maintaining of equipment thoroughly and on a regular basis.
- Making sure that all hazard identification and correction procedures are in place.
- Continuous review of the work environment and work practices to control or prevent workplace hazards.

d. *Safety and Health Training*

Looking at the era we are, safety and health training is now vital to every work place practice hence becoming effective when it's incorporated into a company's overall training in performance and compliance requirements and job practices. It then means that the materials covered in a company's health and safety training and the methods of training presentation should reflect the unique needs and characteristics of the company's workforce. For a result-oriented training programm, it becomes crucial to perform a *needs analysis* early in the process. OSHA suggests you follow these five principles of effective health and safety training Jeffrey (2015):

- Employees should understand the purpose of the skill acquisition
- Organize information, so the training is most effective
- Employees should be allowed be to immediately practice and apply such new skills and knowledge after acquitted.
- As employees practice, provide helpful feedback
- Provide training in a variety of methods

c) *Safety & Health Management and Organizational Productivity*

Productivity is what people can produce at a given period with the least effort and resources. It is also a ratio that measures how well an organization put resources into goods and services. Muchemedzi and Charamba, (2006), view occupational health and safety as a science concerned with health in its relation to work or working environment. Oxenburgh et al., (2004), intimated that the health and safety of all employees are closely linked to the company‟s productivity in all workplaces. In most cases, occupational health safety is amply measured by negative outcomes such as workplace injury and illness but these measures have a shortfall, for instance, a low incidence of injury does not necessarily mean that adequate safety systems and controls are in place (Health and Safety Executives, 2006).

According to Gunderson (2002) a number of researchers have been developing performance indicators to measure the impacts of a range of workplace practices on firm-level performance. Examples include gross or net sales per worker, the ratio of physical input to output, and the scrap rate and uptime for production equipment. The choice of the

outcome variable is constrained by the data available for the firms or industries under study (Stainer and Stainer, 2000).

Muchemedzi and Charamba, (2006) explain that accidents do not arise from a single cause but from a combination of factors which act simultaneously. A potentially unsafe condition does not cause an accident until someone is exposed to it. Accidents are caused by the result of unsafe acts or practices (the human element that results from poor attitudes, physical conditions and lack of knowledge or skills to enable one to work safely). They are also caused by the result of unsafe conditions of equipment or materials.

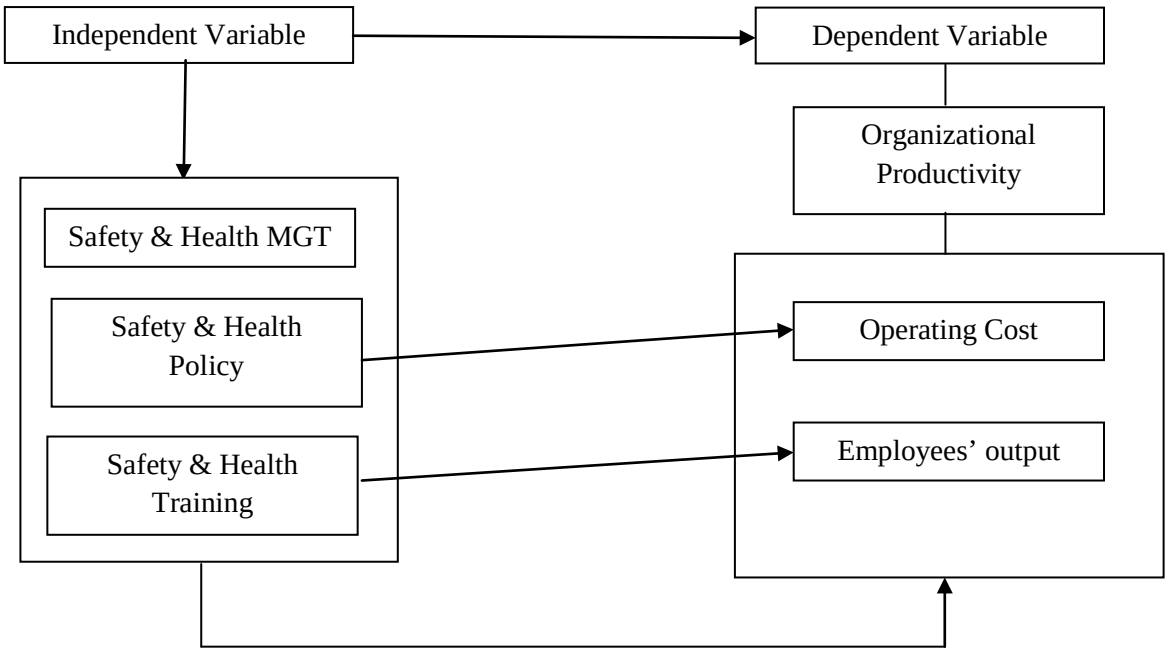
Koopman, (2001) states that accidents bring pain and suffering to the worker and his family. When it results in permanent disability, the consequences are disastrous for both the victim and the company. The victim loses his earning capacity and ability to enjoy a normal active life, and the society and company are deprived of his/her skill and contribution to production. The 1969 Frank Bird Accident Ratio study on causes of accidents found out that 88% of accidents are caused by unsafe acts of persons, 10% are caused by unsafe mechanical or physical conditions and the remaining 2% are unpreventable.

According to McCunney, (2001) the primary beneficial impact of occupational health and safety on productivity is reduced absenteeism. McCunney, (2001), demonstrates that the health risks and failure of employees to participate in fitness and health promotion programmes are associated with higher rates of employee absenteeism. There is need for much emphasis on the employers' participation in ensuring that health and safety programmes and policies are in existence. If these health and safety practices are set, it is more likely that the worker participates in order to preserve his/her life. However, absenteeism may be encountered but may be completely neither unjustified on medical grounds nor attributable to unsafe conditions or hazardous events in the workplace. It is difficult to demonstrate conclusively the extent to which business prosperity benefits from good health and safety or on the contrary, to say that prosperous businesses have good health and safety because they are able to afford it (Health and Safety Executive, 2006).

The Health and Safety Executive, (2006) argue that there is clearly a vicious circle in that, a healthy and happy workforce is more productive, leading to increased investment in health and safety to reduce accidents, which in turn leads to further productivity gains. The Health and Safety Executive, (2006) further explains that genuine productivity gains can be realized by those businesses that invest in high performance health and safety practices. However, the Health and Safety Executive, (2006) also recognizes the need to have a positive attitude by many organisations if they are to move on from simply attaining minimum legal compliance toward implementing the best practice of health and safety. For those organisations that make the transition, the rewards are well worth the effort. In other words, when an organisation is committed to health and safety best practice and implements it in a properly managed manner.

d) Operational Framework

The above discussion on the relationship between safety and health management and organizational productivity led to following prepositions visualized in the model below.



Source: Researcher's Operational Model, 2018

Fig. 1: Operational Model

e) Empirical Analyses on Safety and Safety

There is evidence that providing a healthy and safe working environment has the potential to increase labour productivity and in turn increase organizational profits. It is also evident that there are certain requirements needed to ensure the success of health and safety intervention and subsequent increase in productivity. Such requirements include a good level of cooperation between the management and employees and the working environment in which employees are engaged to work, training of employees' on safety issues, and an organization having a safety and health policy.

A number of researches have been conducted in the manufacturing industry, construction industry, service industry, petroleum and plastics, and electronics.

Yankson (2012) studied the effect of health and safety standards on productivity. The objective was to identify the health and safety standards in Ghana Rubber Estates Limited, to determine the effect of health and safety standards on employees‟ productivity, to determine employees‟ level of understanding of health and safety policies, to assess the attitude of management towards the health and safety of employees and to identify challenges of the implementation of health and safety standards in the organization. The study was limited to the management and production staff of Ghana Rubber Estates Limited. Research questionnaire and interview guide were developed and distributed to a sample of 120 workers comprising of both production staff as well as management. Responses received were from the entire sample. The study revealed that employees‟ productivity is influence by management safety practices and safety programmes, management attitude towards health and safety, investigation of accidents, supervisors‟ safety, and training of employees on safety standards held in the organisation. It also revealed that health and safety standards if managed effectively have a positive impact on productivity.

III. Research Methodology

a) Research Design

The descriptive survey design was the researchers view, the most appropriate and helpful in determining the perception and attitude of respondents on the variables studied.

b) Study Population

For the purpose of this study, the target population comprised of management, supervisors/line managers and factory operation staff of Vinal Aluminum Product Nig. Ltd and Aify Global Aluminum Company Ldt. 40 selected staff comprising 25 for Vinal Aluminum and 15 for Aify Global.

c) Sampling Procedure

A purposeful sampling technique was used for the study. Management staff were purposively selected because they are the decision making body regarding health and safety.

d) Data Collection

The researcher applied primary data (questionnaire) in order to describe the real condition of the safety practices and safety improvement. At the same time, secondary data in this research were also used to affirm primary data collected.

Data collected were analyzed using frequencies and percentages tables. T- Test Statistic was used in testing the hypotheses with the aid of statistical Package for Service Solution (SPSS) version 16.0 was used to analyze and interpret the data collected from respondents.

IV. Analysis and Discussion

a) What is the safety standards put in place in the organization ?

The research question sought the views of employees on the safety standards that have been put in place at their organisations. The objective was to identify the safety standard in the organisations. It sought the views on availability of safety policy, health and safety unit, job safety procedure handbook and risk assessment in the organisations. The views elicited from respondents have been presented in Table 4.1.1.

Table 4.1.1: Employees awareness of safety procedure

Statement		Yes	No	Total
		N (%)	N (%)	N (%)
1	Does your company have a safety policy?	37(92.5)	3(7.5)	40 (100)
2	Does the organisation have a written health and safety policy that includes programmes and procedures for environmental, health, safety (EHS) and working conditions?	40 (100)	0	40 (100)
3	Is the organisation's written health and safety policy or programs available to all employees?	35 (87.5)	5(12.5)	40 (100)
4	Are you aware of any accidents/ diseases that had occurred in your company for the past 12 months?	34 (85)	5 (15)	40 (100)
5	Does the organisation have procedures for employees for reporting pains or other diseases in relation to the job processes?	3(7.5)	37(92.5)	40 (100)
6	Does the organisation have an accident book or similar accident record system?	28 (70)	12 (30)	40 (100)

Source: Field data, 2018

b) How health and safety management affects productivity

The research question sought the views of employees and management on how health and safety standards have affected their productivity. The objective was to determine the effect of health and safety on organizational productivity in both companies. It sought the views on adequate and comfortable working environment, physical conditions, sufficiently equipped for typical operational and implementation of the health and safety act. Frequencies of respondents were calculated to aid interpretation of the responses.

Table 4.1.6: Safety & Management and productivity (N 40)

s/n	Statements	Mean	Std. Deviation
1	Implementation of health and safety act in the organisation will make employees feel safe	4.1750	1.03497
2	Adequate and comfortable working environment as well as safety practices will affect employees' productivity positively	3.8750	1.24422
3	The practice of health and safety will protect employees from injuries and illness there reducing the rate of absenteeism	3.7750	1.27073
4	To enhance productivity, Job-specific health and safety training/education must be provided to all employees prior to starting a new job.	4.1750	1.03497
5	Favorable environmental conditions (less noise, suitable temperature etc) provided at thework place will increase employees' productivity at work	3.8250	1.25856
6	Health and safety standards affects productivity	3.9250	1.18511
7	All employees are given the opportunity to voice out health and safety opinions/concerns	4.1000	1.08131
8	Cost of compensation payments or fines resulting from legal action can be minimized via safety and health practices.	4.1250	1.04237
9	Cost of medical treatment can be minimized by adopting practices	3.7750	1.36790
10	Safety and health management increases employees' morale and turnover.	4.1250	1.09046

SPSS OUTPUT (Strongly agree, Agree, Undecided, Disagree. Strongly disagree)

Also, Table 4.1.6 indicates that all items show reasonable mean score with good standard deviation.

c) Test of Hypotheses

H_{01}: Safety and health policy of an organization does not significantly reduced organizational operating cost. The above hypothesis was tested using the mean of question 3, 7, 8 & 9.

Table 4.1.7: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Effect of safety and health policy on organization's operating cost	4	3.9400	.19647	.09823

SPSS OUTPUT

Table 4.1.8: One-Sample Test

	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Effect of safety and health policy on organization's operating cost	40.108	3	0.000	3.94000	3.6274	4.2526

SPSS OUTPUT

As can be seen in Table 4.1.7 & 4.1.8, there is a strong and significant relationship between safety and health policy as dimension of safety and health management and operating cost as a dimension of organizational productivity. However, the evidence in Table 4.1.7 & 4.1.8 shows that there is a strong and significant influence of safety and health policy on organizational operating cost. The earlier hypothesis one stated in this study is not supported by statistical evidence as can be seen in Table 4.1.7 & 4.1.8. Safety and health policy with operating cost is strong and significant with a T value (t_{cal}) of 40.108 which greater than the T tab of 3.183 at 0.005 level of significant. Also the P-value of 0.000 is less than 0.005 so we reject the null hypothesis and accept the alternative which state that Safety and health policy of an organization has significantly reduced organizational operating cost.

H_{02}: Safety and health training does not significantly improve employees' productivity.

Table 4.1.9: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Effect of safety and health training on employees' output	6	4.0117	.15943	.06509

SPSS OUTPUT

Table 4.1.10: One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Effect of safety and health training on employees' output	61.637	5	.000	4.01167	3.8444	4.1790

SPSS OUTPUT

As can be seen in Table 4.1.9 & 4.1.10, there is a strong and significant relationship between safety and health training as dimension of safety and health management and employees' output as a dimension of organizational productivity. However, the evidence in Table 4.1.9 & 4.1.10 shows that there is a strong and significant influence of safety and health training on employees' output. The earlier hypothesis two stated in this study is not supported by statistical evidence as can be seen in Table 4.1.9& 4.1.10. Safety and health training with employees' output is strong and significant with a T value (t_{cal}) of 61.637 which is greater than the T tab of 2.571 at 0.005 level of significant. Also the P-value of 0.000 is less than 0.005 so we reject the null hypothesis and accept the alternative which state that Safety and health training of an organization has significantly increased employees' output.

The above findings were consistent with the study of Yankson (2012) who studied the effect of health and safety standards on productivity. The study

revealed that employees' productivity is influence by management safety practices and safety programmes, management attitude towards health and safety, investigation of accidents, supervisors' safety, and training of employees on safety standards held in the organisation. It also revealed that health and safety standards if managed effectively have a positive impact on productivity.

V. Conclusion

The alarming rate of the industrial accidents especially in the construction and manufacturing sectors, and the general lethargy of the employers in addressing the issue recently set researchers on a course to find a way to reduce the rate of industrial accidents through preventive measures as well as to create awareness on the rights of victims of industrial accidents. Safety of employees is primarily important at any workplace be it the manufacturing, construction, utility, educational institution or hospital. The importance of safety at work place cannot be over simplified. Labour productivity measures the extent to which labour is efficiently used. From the study, it can also be deduced that according priority to the health and safety of the worker is the best means to the boost productivity. Therefore, if an organisation does not adequately invest in the competence of its labour force, in modernizing its plants and factories or in improving the efficiency of its operations, it would affect the organisation. Adaptation of safety measures, policies and procedures not only ensure safety of life of the employee and fellow workers but also their family dependents.

The findings of the study have shown that organizational productivity in the Aluminum industry is influenced positively by good management of safety practices and safety programmes/policies, good management attitude towards health and safety, and training of employees on safety standards in the organisation. Therefore all stakeholders should play active roles accordingly in measuring safety compliance and continuous improvement in integrated safety management systems.

VI. Recommendations

From the findings and conclusions of the study, the following recommendations are made.

i. *There is need in making sure that management's Role in Safety and Health is apparent to Workers.* Reason is that if workers don't see management's involvement in safety and health, and the importance management places on safety and health, things will go sour quickly. It then means that management should be involved in and actively participates in the safety and health committee, meetings.

ii. *Employees should be involved in Safety and Health Management. This is because* the rank-and-file workers are the ones who interact most closely with health and safety hazards. As a result, they have the most to win from an effective health and safety training program. Also, workers are more likely to participate in a program they helped to create. On the flip-side, they're less likely to participate if they feel it's a "top-down" approach.

iii. *There should be an Employee Hazard Reporting System* that will allow employees who may be uncomfortable reporting a hazard one way to do it another. This can be done through Supervisor chain of command, Safety and health committee member or even Suggestion box.

iv. The need for for a HSE officer to be engaged in an organization for the enforcement and compliance of policies and periodical review and test running of policies can not be over emphasized.

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