Safety Culture of Nigerian Construction Workers – A Case Study of Yola

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Abstract - This paper assesses the safety culture of the construction industry workforce in Yola, Nigeria. The study was conducted using a questionnaire survey of the construction workers opinions regarding safety practices on construction sites. Construction workers' attitude toward s safety is influenced by their perception of risk, safety rules and procedures. Lack of training of workers was ranked the most severe factor that hinders workers' safety on site. Reduce accident cost was ranked the most important benefit of safety on site while Poor understanding of the risks associated with the work was ranked second and these could all be attributed to the poor safety culture in the Industry.

Index Terms – Accident, construction Industry, Nigerian Construction Workers, Risk, Safety culture,

1 INTRODUCTION

The Construction Industry contributes persistently to high accident rates: especially fatalities. Construction is a dangerous occupation and usually full of hazards like the exposure to harmful substances such as paint, glues and asbestos, drilling which can cause explosions and fires, the risk of falling debris, workers falling from heights, motor vehicle crashes, excavation accidents, electrocution and collapsing structures. Construction activities sometimes take place on the most uninhabitable work place and the fact that the work environment is constantly changing makes it difficult to control the hazards. In most countries, the rates of accident and injury prevailing in the industry are higher than what prevail in other industries [1]. Research studies discover that accident and injury rates in many of the developing countries such as Nigeria [2, 3]. Thai [4] and Tanzania[1] are considerably higher than in European countries. Mbuya and Lema [5] in [1] opine that in most developing countries, safety consideration in construction project delivery is not given a priority and the employment of safety measures during construction is considered a burden. Enhassi et al [6] also discover that in many developing countries, the legislation governing Occupational Health and Safety is significantly limited when compared with UK. Enshassi et al [6] report further that there are rarely any special provisions for construction on workers' safety and the general conditions for workers are often not addressed. Lee and Halpin [7] in [1] earlier discover that in many of the countries where safety legislation exists, the regulatory authority is weak and non- existent and employers 'pay lip service' to regulations. Koehn *et al.* [8] in [1] further discover that in developing countries, injuries are often not reported and the employer only provides some form of cash compensation for an injury to the employee.

The builders, contractors and engineers frequently push safety in construction to the bottom rung of priorities. While monetary loss heads the list, loss of man-hours and material progress are equally irreparable. When scaffolding fails, a roof collapses or a fatal accident takes place at site of work, the human life is irreplaceable.

Generally, in developing countries laws to protect laborers may not be strictly enforced [9]. They further stated that contractors and their employees tend to ignore basic safety rules and regulations [9]. In addition, safety programs and inspection procedures have not been, or only recently have been, established or utilized to protect workers and reduce on-site hazards. In this regard, companies are also not involved with monetary payments to injured workers. Certainly in every organization, safety should be considered number one priority, hence the need for integrating safety culture into the organizational system.

Safety culture is a term used to describe the way in which safety is managed in the workplace, and often reflects "the attitudes, beliefs, perceptions and values that employees share in relation to safety" [10]. It is easy to see how the management system and culture of an organization are closely related. It is important to note that an organization's safety management system cannot consist of a set of policies and procedures on a

bookshelf [11]. The safety management system is the manner in which safety is handled in the workplace and how those policies and procedures are implemented into the workplace [12]. Reason [13] stated that it is argued that a safe culture is an informed culture and this, in turn, depends upon creating an effective reporting culture that is underpinned by a just culture in which the line between acceptable and unacceptable behaviour is clearly drawn and understood.

A successful safety program must focus on preventing catastrophic worker injuries by assuring proper engineering of critical crane lifts, preventing falls from heights, trench collapse, etc., not on preventing minor incidents. An appropriate project staff must be developed and must be supportive of the goals and means and methods of the safety program. In addition, contractor line staff and management must have appropriate resources and must be held accountable for safety results. When all appropriate components of an organization and a program are in place, a safety program can provide excellent results, well below industry norms.

Pigeon and O'Leary [14] stated that a 'good' safety culture might both reflect and be promoted by at least four factors. These four factors include "senior management commitment to safety, shared care and concern for hazards and solicitude for their impacts on people, realistic and flexible norms and rules about hazards, and continual reflection upon practice through monitoring, analysis and feedback systems (organizational learning). ''It has also been argued that fundamentally leadership is the key to affecting a safety culture'' [15]. ''In a strong safety culture, everyone feels responsible for safety and pursues it on a daily basis; employees go beyond "the call of duty" to identify unsafe conditions and behaviors, and intervene to correct them'' [16].

Ali [17] opined that wherever reliable records are available, construction is found to be one of the most dangerous on safety and health criteria, particularly in developing countries. He further stated that though much improvement in construction safety has been achieved, the industry still continues to lag behind most other industries with regard to safety. In developing countries, safety rules usually do not exist; if any exist, the regulatory authority is usually very weak in implementing such rules effectively. Further, work hazards at the construction workplace are either not perceived at all, or perceived to be less dangerous than what they actually are. Construction activities in developing countries are labour intensive as compared to developed countries.

It is important to remember that an organization's culture develops over a period of time and cannot be created instantly. "Organizations, like organisms, adapt" [13]. ''The safety culture of an organization develops as a result of history, work environment, the workforce, health and safety practices, and management leadership'' [13].

2 RESEARCH METHODOLOGY

This research focused on medium sized Construction Company and specialized contractors operating within Yola, the capital of Adamawa State. Comprehensive literature review of previous works was carried out to develop a basis for the study. This paper tried to identify the causes of accidents, how it could be prevented and the most violated rules and regulations. Fifty questionnaires were distributed to construction companies' workers.

Analysis of the questionnaires was done using ranking on five-point scale to measure a range of opinions from least important to most important.

The total score was obtained by multiplying the number of respondents by the corresponding score mark and adding the results together.

Mean of each factor = total score/ sample size

Relative index (R.I.) = total score/highest score mark x sample size.

Where ties occurred, the mid rank method was used to resolve the problem by assigning the tied values the average of the ranks they would have been assigned had it not occurred.

3 DATA PRESENTATION AND ANALYSIS

Data collection was carried out between 4th March and 26th May 2012. The numbers of questionnaires retrieved duly completed were 42(84%). The data obtained from the questionnaires were displayed in tabular form and analysed. The data were categorized according to the objectives of the study.

3.1 Age distribution of respondents

4 (9.5%) out of the 42 returned questionnaires were over 50years of age, 14 (33.3%) fall within 41-50years, 16(38.1%) were within 31-40years while 8(19%) of the respondents were 21-30years old.

It has been observed that the older workers have a higher level of safety awareness, probably due to their being more experienced.

3.2 Years of experience

5 of the respondents have over 20years experience in construction job, 8 are 16-20years experienced, 10 have been involved in construction for 11-15years, 16 have being doing construction job for 6-10years while 3 have about 5years of construction experience.

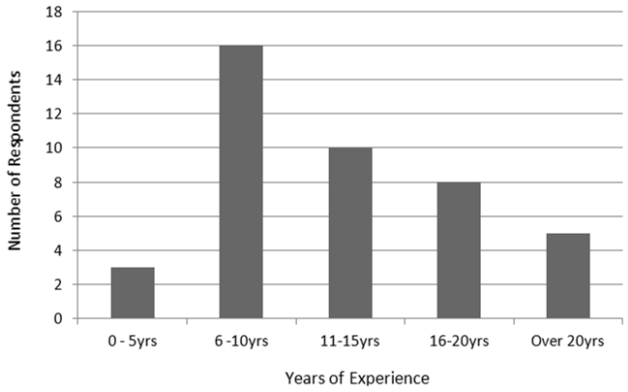

Fig. 1: Years of Experience of Respondents

3.3 Accident cases

23 (54.8%) of the 42 respondents admitted being involved in accidents during construction while the rest claimed they never had accident on site. 19 (45.24%) of the respondents report accident cases and near misses, 18(42.86%) do not report while 5 (11.9%) report only fatal cases. 20 (47.6%) confirmed that their companies have records of accidents that involve their employees while 22(52.4%) stated otherwise.

In response to their reaction if a serious accident occurred on site, 38% opted for stop work until the risk is cleared, 43% said they would continue work and study the cause, 12% asserted to review their construction procedure while 7% indicated they would administer first aid to accident victims and find out the cause and who is responsible.

The opinion of the respondents regarding who should be responsible for industrial accidents during construction on site is displayed below:

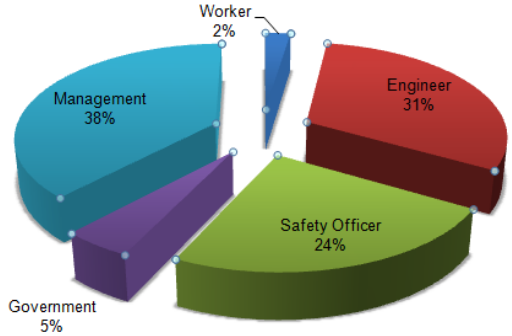

Fig. 2: Responsibility for accidents

3.4 Safety Programs

The result showed that 29(69%) of respondents stated their companies' have safety programs where 20(69%) of the affirmers admitted that the companies undertake formal safety induction training for all new employees, they attend safety courses and also use safety clothing and equipment on site. 5(56%) of the 9(31%) of those that admitted having safety programs affirmed the lack of safety induction training for new employees; they do not use safety clothes or equipment on site but have attended safety courses. 4 out of the 29 of those that admitted having safety programs confirmed not wearing safety clothes on site but have attended safety trainings.

60% of the respondents that claimed their companies do not have safety programs affirmed to wearing safety clothes on construction sites despite never attending safety courses. The rest of the 40% acknowledged not using safety clothes or equipment because their companies do not make provision for them.

3.5 Main Causes of Accidents on Site

Table 1: Ranking of causes of accidents on site

Variables	*Responses/score*					*Total*	*Mean*	*R.I.*	*Rank*
	1	2	3	4	5				
Lack of safety training	1	12	8	6	15	148	3.5	0.70	1
Over confidence	7	11	4	19	1	111	2.6	0.53	4
Influence of unsafe behaviour by workmates	6	11	10	7	8	126	3.0	0.60	3
Poor understanding of the risks associated with the work	2	4	21	10	5	138	3.3	0.66	2
Shortage of equipment	12	12	7	8	3	104	2.8	0.50	5

Lack of safety training of construction workers was considered the most severe cause of accident on site, followed by Poor understanding of the risks associated with the work. The third factor was the influence of unsafe behavior by workmates. Over confidence was thought as the fourth cause while the shortage of equipment was rated the least important causal factor.

The frequencies of respondents' opinions regarding the main causes of accident on site were tabulated in table 1 above.

3.6 Benefits of Safety

The most important benefit of safety as ranked in the table below is reduced accident cost. Raised firm image was ranked the least important factor with regards to construction safety benefits.

Table 2: Ranking of benefits of safety on site

Variables	*Responses/score*					*Total*	*Mean*	*R.I.*	*Rank*
	1	2	3	4	5				
Reduced accident costs	9	3	4	10	16	147	3.5	0.70	1
Increased productivity	10	3	6	11	12	138	3.3	0.66	2
Improved human relations	4	12	12	8	6	126	3.0	0.60	3
Raise firms image	6	8	9	9	10	129	3.1	0.61	4

4 CONCLUSION AND RECOMMENDATION

Managing a project successfully means not just executing it according to specifications within the stipulated time and with budgeted funds but also with optimum safety. It is clearly obvious that most of the construction companies do not give safety the required concern. It is the responsibility of every construction worker to identify unsafe conditions and behaviors, and try to correct them.

It is apparent from the survey results that the benefit of keeping accident and near misses records in safety improvement and prevention of future accidents is obviously not recognized.

Incorporating a strong safety culture on construction sites will make everyone feel responsible and reduce the possibilities of accidents. Fewer accidents during construction will allow continued focus on quality and reduce delays, hence greater productivity.

It is of utmost importance to ensure that every new employee on project site is given appropriate orientation regarding safety.

Safety on site should be discussed of at management meetings and safety recognition and incentive programs should be developed.

Safety inspections should be conducted on sites and any identified hazards should be taken care of as soon as detected.

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