WORKERS' PERCEPTIONS REGARDING HEALTH AND SAFETY (H&S) PRACTICES IN THE NIGERIAN CONSTRUCTION INDUSTRY

Kukoyi, Patricia; Smallwood, John
Department of Construction Management, Faculty of Engineering, the Built Environment and Information Technology, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa

Abstract
Construction projects are reputed for their poor H&S record when compared to other industries. This can be attributed to an uncontrolled working environment, risk, workers' behaviour in relation to H&S commitment, cultural and religious beliefs, and uncertainties inherent in projects. These expose workers, engaged in productive activities on construction projects, to hazards, and risks, which result in fatalities and other injuries. The aim of this study is to explore the perceptions of workers regarding H&S and how they relate to their behaviour on construction sites. The study employed a largely qualitative research approach. Various construction workers (ironworkers, masons, carpenters, roofers, and electricians) were interviewed on sites in Lagos State, Nigeria. The findings of the study reveal that workers view productive activities on construction sites as hazardous and risky. However, H&S practices are viewed by workers as unimportant. This perception may also be attributed to their socio-economic realities, cultural and religious beliefs, and inadequate training. Therefore, it is vital for the government and stakeholders in the construction industry in Nigeria to establish localised H&S certifications, policies, and awareness through traditional and religious organisations so as to foster commitment to H&S on construction sites. Further research is needed to understand the training needs of workers in the Nigerian construction industry.

Keywords: Health and Safety, Nigeria, Perceptions, Workers

1 Introduction

The construction industry is generally viewed as an accident-prone industry. Studies on H&S in the field of construction management reiterate the poor H&S performance on construction sites as a global phenomenon (Zhou *et al*., 2013).

Previous studies have shown that poor H&S practices among workers significantly contribute to the poor H&S performance reported in construction-related studies (Haslam *et al*., 2005; Choudhry and Fang, 2008). Also, complexities experienced in the industry due to changing technology, construction methods, clients' demands, construction materials and the changing environment have made hazards and risk controls difficult (Odeyinka *et al*., 2006). Thus, there is an obvious need to improve H&S practices on construction sites.

The need to have a shift in H&S culture within the construction industry is imperative to ensure work is carried out in a healthy and safe manner. According to the International Labour Organisation (ILO, 2005), an estimated 2.3 million people die every year from work-related accidents and diseases and there are 313 million non-fatal accidents per year. Furthermore,

30% of workers suffer from musculoskeletal disorders and more than 20%-40% of work-related deaths occur on construction sites in industrialised countries. In the United Kingdom (UK), 31% of all occupational related deaths dated in 2002/2003 were from the construction industry (Haslam *et al.*, 2005). Chi and Han (2013) also state that on every work day, more than three workers do not return home due to fatalities experienced on construction sites in the United States of America (USA). Similarly, South Africa had fatalities and accident rates of 19.2 and 14 626 per 100,000 workers respectively. This is said to be lower than that of sub-Saharan countries estimated at 21 and 16 021 per 100 000 workers respectively (cidb, 2008). Cokeham and Tutesigensi (2013) note the high accident rate in Rwanda, and the increase in other sub-Saharan countries. Based on the aforementioned, it can be seen that poor H&S performance within the construction industry is a global problem.

H&S problems lead to poor performance of construction projects (Hinz, 1997). Studies have demonstrated that accidents are associated with increased operation costs due to poor productivity, cost of medical care for victims, loss of person hours, absenteeism, and an adverse impact on the image of the organisation (Hinze, 1997; Willkins, 2011). These losses suggest the need to establish effective ways to reduce accidents on construction sites. Willkins (2011) further relates the high rate of injuries and deaths to workers' non-compliance with H&S procedures, inadequate training, and inadequate knowledge of H&S practices. Thus, this necessitates the need for a study to understand how workers view H&S practices in the construction environment.

As highlighted in the opening paragraph, arguments and evidence indicates that the construction industry has a poor H&S record. Despite the fact that Nigeria is a member of the ILO, H&S provisions and conventions are not properly implemented (Umeokafor *et al.*, 2014). This is aligned to the assertion by Idoro (2008) that there are no policies prescribed for H&S in the Nigerian construction industry, therefore contractors and workers are left to use their discretion. This may be accountable for the poor productivity (Khosravi *et al*., 2014) when workers execute work in an unhealthy and unsafe environment. Furthermore, it is known that research provides a body of knowledge that guides a discipline. A review of past-published and unpublished studies in construction management-related disciplines in Nigeria and the West-African region reveal that H&S related research has been limited (Laryea and Leiringer, 2012; Ejohwomu and Oshodi, 2014). However, it should be noted that a study focused on the difference in health, safety and environment practices of construction companies; the relationship between compliance to regulations and the incidence of fatalities on construction sites in the Nigerian construction sector as reported in Windapo and Jegede (2013). Therefore, the objective of this study is to explore H&S perceptions on construction sites.

2 H&S Practices in the Nigerian Construction Industry

The Nigerian construction industry is not immune to the H&S problems of the construction industry. There are no adequate records of construction accidents (Idoro, 2004) or statistics of fatal accidents, disabilities due to construction accidents and deaths (Mohamed *et al*., 2009). Although there is no statistical data, the number of buildings that collapsed (Olusola, 2013) during construction in several parts of the country over the years points to the existence of poor H&S practices.

In addition, the construction industry lacks adequate H&S regulations and if available, they do not apply to the construction industry (Idoro, 2008). This is similar to other developing countries such as Pakistan (Mohamed *et al.*, 2009). This has prompted stakeholders such as contractors, supervisors, workers, and professionals to use their discretion to address H&S issues on construction sites. Furthermore, non-enforcement of statutory regulations and legislation, poor governance, and inadequate infrastructure has limited the progress of H&S in

developing countries (Idoro, 2004; Idoro, 2008; Mohamed *et al*., 2009). In addition, the existing framework is not tailored to meet the immediate need of the industry. There is also a lack of support from the government, a lack of concern from professional institutions, corruption in the system, and low levels of education of employees (Idubur and Oisamoje 2013; Umeokafor *et al*., 2014). These challenges have an unfavourable effect on implementing H&S best practices in the construction industry. The effects are poor project performance, poor quality of executed works and unethical practices (Cokeham and Tutesigensi, 2013). Therefore, understanding workers' perceptions on H&S practices and integrating best practices for H&S in the Nigerian construction industry could significantly improve the construction industry.

2.1 Improving H&S Performance in the Construction Industry

Implementing H&S best practice on construction sites can be challenging. This may be due to the migration of workers, method of worker employment, work standards, different backgrounds and experience (Mohamed *et al*., 2009). H&S is of little concern in developing countries because H&S issues are considered after the accident has occurred and the industry is driven by the profits to be made (Priyadarshani *et al*., 2013; Windapo, 2013). Agumba, Pretorius and Haupt (2013) define H&S management as "tangible practices, responsibilities and performance related to H&S, including the association between H&S management, climate and culture." They categorise H&S practices into five basic elements, namely top management commitment and involvement in H&S, employee involvement and empowerment in H&S, project supervision, project H&S planning and communication in H&S and H&S resources, and training. Their study reveals that employee involvement and empowerment in H&S are regarded as irrelevant. It was recommended that workers should be engaged at the project level to improve H&S performance on construction sites. However, H&S management techniques should be tailored to meet the unique needs of the worker.

Researchers such as Cheng *et al*. (2004), Cheng *et al.* (2012), and Ismail *et al*. (2012) opine that limiting human errors will reduce accidents, which can only be achieved by employing H&S management best practices on site. When the system is driven positively to reduce hazards and risks, workers will adopt good behaviours to foster positive commitment to H&S. Smallwood (1995) maintains that management commitment to H&S is reflected in the organisation's values, policy, goals, programme development, resource allocation, behaviour modeling, and injury analysis. Thus, understanding how workers perceive H&S may lead to valuable insights that can be determined to improve on-site construction H&S.

Windapo and Jegede (2013) are of the opinion that fatalities, injuries, and deaths are mainly caused by unsafe and unhealthy practices of contractors and workers. Contractors prefer to spend less on PPE, employ less experienced workers for cheap labour and care only for the profits to be made. Similarly from a qualitative survey, Khosravi *et al*. (2014) identified 8 main categories of factors that influence workers' unsafe and unhealthy behaviours on construction sites. These factors include society, organisation, project management, supervision, contractor, site conditions, work group, and individual characteristics. Workers' perceptions of risk, H&S management, H&S regulations and procedures have been linked to their attitude towards H&S on construction sites (Mohamed *et al*., 2009). The aforementioned study reveals that workers have a self-rated competence and their behaviour relates to their own H&S responsibilities.

3 Research Methodology

This study is part of an on-going study on construction workers' H&S practices on construction sites. The objective of the qualitative study is to explore workers' perceptions on H&S practices in the construction industry. Qualitative methods process variables as an exploration of ideas and concepts. It is inductive by giving detailed descriptions and interactions between the inquirer and the respondent at their natural state. This method was adopted because it is

adequate for a small sample size (Levy & Henry, 2001; Creswell, 2012). To obtain the data for the study, a semi-structured interview was employed. The interview questions were designed based on the literature review conducted prior to the actual data collection. The data provides actual words of the respondents, hence adequate to achieve deeper insights into the problems being explored. The findings of Baradan and Usmen (2006) determine that roofers, iron workers, electricians, painters, and masons were more at H&S risk and ranked highest in fatalities when compared to other work trades in the construction industry. Based on this finding, a worker from each of the trades was selected and interviewed. The small size of respondents (interviewees) was to allow an in-depth discussion and for the workers to fully express their ideas without restrictions.

The questions were structured to allow the respondents to discuss their general impression of H&S on site, work environment, and how work is conducted in a healthy and safe manner. All ethical issues were addressed such as formally requesting to visit and interview the respondents, explaining the purpose for the research, and requesting for the workers' consent based on a voluntary decision to be interviewed. The interviewees selected are outsourced employees of contracting firms. The contracting firms selected for this study are registered with the Nigerian Institute of Building (NIOB). There are 191 construction firms registered with the NIOB. Ninety-two (92) of these firms are based in Lagos. The selected firms were those undertaking projects at the time of the research. Further questions were asked to prompt discussions in relevant areas during the interview. The interviews were recorded with permission, and were conducted in local languages before translating into English, then transcribed. The interview sessions were conducted during the lunch breaks and after-work hours. This was because two of the workers interviewed, preferred to be interviewed after work. Their ages, educational status, and years of experience were noted.

3.1 Interviewees' Characteristics

Table 1. Characteristics of the interviewees

Interviewee code	Trade	Gender	Age	Highest Qualification	Years of experience
R1	Roofer	Male	Adult	Primary education	10
R2	Ironworker	Male	Adult	Secondary education	16
R3	Electrician	Male	Adult	Trade school certificate	13
R4	Painter	Male	Adult	Secondary education	9
R5	Mason	Male	Adult	Primary education	9

The interviewees (Table 1) were all male adults between the ages of 30-49 and they all had more than 8 years' work experience, which indicates adequate work experience to provide responses that reflect actual practices on construction sites. The interviewees have been engaged in several projects ranging from engineering works (dam, road, and bridge construction) and building structures (residential and commercial buildings). This reveals that the interviewees' had varied work experiences on different construction sites. This will enhance the quality of the responses on H&S. Of the five respondents, only one had a trade school certificate. The other four were primary and secondary school leavers; they all learned their trade through informal training, i.e. working as an apprentice until they were set to work on their own.

4 Findings and Discussion

4.1 Workers' Trade Union

Interviewee R2 and R5 are members of their Trade Unions. The benefits as members are basically for welfare purposes. They can easily access loans and receive help in the case of any dispute. However, their responses were similar stating that contractors do not entertain unionism on construction sites. This was made clear by the following statements: *"I am a union member because when I need help they will help me. We make monthly contributions as members and we get information about work easily." "I was a union member when I was on permanent employment with a big company as a union member; we fight for our wage increase or when they don't treat us well." "When I get employed for work on any site, I do not tell them I am a union member because you may not get the job; they say as union members we fight always."*

4.2 Management Commitment to H&S / Employee Involvement in H&S

Although the interviewees did not attest to any onsite H&S policies, regulation or rules, interviewees perceived that some managers were committed to their wellbeing while others were not. According to R*3, "Most of the sites I have worked have different types of managers and with different behaviour. Some will make your work easy because they want good work done" and "others will make you work and work making you accomplish some impossible workload as a day's job because they want to save money."* Management commitment to H&S was perceived by the interviewees as not sufficient. They are of the opinion that H&S is not important on most sites according to *R2: "Where I worked, they don't say anything about H&S."* However, *R3* is of the opinion that *"We were taught how to keep our environment clean after work so that your work will be neat and also the site."* Getting involved with H&S on site depends on the Management. However, due to workers' level of education, most workers prefer not to get involved with Management *R1: "we are not as educated as they are so we just work."* The workers prefer to do their work and get paid their wage. Furthermore, management does not have respect for the workers as indicated by an interviewee. He (*R1*) is of the opinion that management is more concerned about work rather than their H&S; *R5: "But some managers do not see us workers as human beings. I am saying this because the man* (i.e. the contractor's representative) *was more concerned about the work being done right rather than about us." R3: "Managers, engineers and supervisors talk to us with disrespect. This often occurs especially when the work is delayed."*

All the interviewees gave accounts revealing that the management of contracting firms was not committed to implementing H&S during the construction stage. Responses from interviewees above included managers who expected workers to carry out tasks that cannot be accomplished within the time frame allotted to the task. Their concern as stated above implies management's poor H&S commitment on construction sites. However, workers do not see H&S as a priority.

4.3 H&S Training

Interviewees indicated that H&S training is generally not conducted on construction sites as suggested by R5: "There is nothing like H&S meetings or training since I started working with this contractor" and R4: "I do not know anything about H&S training." They have not attended any H&S training. Therefore, the workers regarded H&S training as unnecessary to their work. They are of the opinion that, H&S officers are not available on site, H&S meetings were not conducted, and communication was through the supervisors and foremen. R1: "The management does not involve us in any meeting so that we can talk better; they mostly talk with our foremen. The foremen will now pass the information down to us."

As regards to PPE, the interviewees indicated that they were familiar with some PPE such as goggles, ear plugs, hand gloves, helmet (hard hat), boots, reflective jackets, and overalls. However, the use of PPE was not regarded as important or necessary. Interviewees expressed their opinions - R3: "Some of the PPE were not durable; they were of low quality and these contractors buy them to reduce cost", and R2: "They give me hard helmet and boots, only a pair." This indicates that management does not commit adequate resources to H&S and do not care about the H&S of their workers. In addition, workers do not understand the need to wear H&S equipment due to various reasons as indicated by some of the interviewees; R4: "PPE in this hot weather! The weather is too hot to wear them; it makes me very uncomfortable, I will be sweating." R5: "It is only when the client and other professionals are coming to site for inspection that my manager will bring them out and insist we wear helmets, boots and overalls." R1: "The helmet and overall are not necessary. I like using the hand gloves. I do not think I really need it for my job." However, others indicated that some managers they have worked with insisted they use PPE as reported by R3: "I have worked on sites where the managers will insist we use our PPE."

4.4 Workers' Perceptions of Risks

The workers were further asked if they were aware of the degree of risk and hazards related to their work and how accidents are reported on site. Some of the workers affirmed that working on construction sites involves risk. However, they have worked long enough on the job to avoid accidents; they know the "*tricks on the job."* Interviewee *R1* views risk in this way: *"Every job has a risk, if no risk then no money. It is not easy to climb on a roof and work; the higher it is, the more the money. I have been doing this job and I am still alive; I think when you are afraid that is when you fall."* They believed they are safe. Others believed they are at risk only when their supervisors or managers insist on a method which they are not familiar with and they try not to get afraid. *R5*: "*My boss tells me to do some work and I do the work the best way I can. I feel safe. I am a man I cannot be afraid of my work. I like my work". R2* and *R4* have a similar view: *"For me, when something wants to happen it does happen and you cannot stop it. It is just God or our forefathers that is keeping us safe because we have to provide for our families." We just have to do the job"; "I just pray to God to help me do my work well and not to get injured."* Accidents, according to one of the respondents *"Happen every day, you just have to be careful. Some days you may be unlucky and other days you are not, and if you get injured often you may not be employed again"* and that *"Reporting accidents depends on the seriousness of the accident. Managers handle serious cases, and accidents are investigated with help from the foremen or supervisors. When an accident leads to death the families are compensated, but I do not know if the police get involved."*

The qualitative results provide evidence of the lack of management commitment to H&S and the lack of respect towards workers in the Nigerian construction industry. These have affected the effective management of H&S within the Nigerian construction industry. Hence, the poor H&S practices on construction sites. In addition, workers are not involved in H&S in the organisation, which may be a major contributing factor to inadequate policy formation and implementation especially with respect to H&S in the construction industry in developing countries.

The findings of this study reveal that the activities of workers' unions are limited on construction sites. The unions are not adequately represented on construction sites in Nigeria. Furthermore, if trade unions are fully established, they could be a platform to promote H&S on construction sites and engender management commitment and workers' involvement in H&S. This is buttressed by the findings of various studies regarding how unions and union workers have contributed to improving H&S on construction sites in various countries (see Debobeeleer, 1990: Ulubeyli *et al.*, 2014). In addition, workers are aware of the risks and

hazards associated with work. This is different from the findings of Ulubeyli *et al.* (2014) which suggest that workers are not aware of the risks or hazards on construction sites. However, this study suggests that the workers were more interested in monetary gains, than concern for the risks they were exposed to, and relate accidents to lack of precautionary methods when at work. This may be attributable to the low socio-economic characteristics of the workers, and the existence of 'cheap labour'. Furthermore, risks and hazards, associated with the workers' trades on construction sites, are also viewed within the context of workers' religious beliefs. This result is in agreement with Smallwood's (2002) findings, which demonstrate the link between H&S and religion.

Lastly, the results of the study also raised related questions regarding the available H&S training for workers on construction sites. Workers lack formal H&S training, and do not see the need for any training. This is therefore, an indication that H&S is not a priority to workers and to management. The need for adequate codes of conduct, policy formulation, and implementation in the construction industry in Nigeria is vital.

5 Conclusions and Further Research

The construction work environment is complex and the need to adopt best H&S practices to constantly keep the environment healthy and safe for workers should be adopted. This paper explored the perceptions of workers on H&S on construction sites. The findings of the study reveal that workers view construction activities as hazardous to them, and are more interested in the monetary gains. They have little or no knowledge of what H&S in construction is about due to a lack of H&S training. Consequently, H&S is not considered important. Workers view that the number of years spent in a trade determines the level of risk they are being exposed to, and how to manage it. Also, religion is a determining factor of how risk is perceived and managed. Therefore, the workers expose themselves to avoidable risks. In summary, their perceptions could be linked to management inadequacies in promoting best H&S practices, socio-economic realities, cultural beliefs, and inadequate training. The need to train workers in the Nigerian construction industry should be seen as important and the government needs to establish policies and collaborations with agencies that will foster commitment to H&S on construction sites. Given that the findings are not representative of the total number of workers, it should be seen as a limitation to the study, and therefore cannot be generalised. However, the findings provide insight to stakeholders in the industry as regards H&S. Further research is needed to understand the training needs of workers in the Nigerian construction industry. Construction Managers could plan H&S strategies with foremen to systematically analyse work risks and hazards. This will enable management to improve the H&S climate on projects, and to develop an H&S culture among workers through adequate policy formulation and implementation.

6 References

Agumba, J., Pretorius, J., & Haupt, T. (2013). Health and safety management practices of small and medium enterprises in South Africa construction industry. *Acta Structilia,* 20(1), 66-80.

Baradan, S., & Usmen, M. (2006). Comparative injury and fatality risk analysis of Building trades. *Journal of Construction, Engineering and Management,* 132(5), 533-539.

Cheng, E.W., Ryan, N., & Kelly, S. (2012). Exploring the perceived influence on safety management practices on project performance in the construction industry. *Safety Science,* 50, 363-369.

Cheng, E., Li, H., Fang, D., & Xie, F. (2004). Construction safety management: an exploratory study from China. *Construction Innovation,* 4, 229-241.

Chi, S., & Han, S. (2013). Analysis of systems theory for construction accident prevention with specific reference to OSHA accident reports. *International Journal of Project Management,* 31, 1027-1041.

Choudhry, R., & Fang, D. (2008). Why operatives engage in unsafe work behaviour: Ivestigating factors on construction sites. *Safety Science,* 46, 566-584.

CIDB. (2008). *Construction health and safety in South Africa status and recommendations.* Pretoria.

Cokeham, M., & Tutesigensi, A. (2013). An investigation of construction accidents in Rwanda: perspective from Kigali. *Management, Procurement and Law,* 166(4), 179-187.

Creswell, J.W. (2012). *Educational Research: planning, conducting and evaluating quantitative and qualitative research.* Boston, United States of America: Pearson Education.

Debobbeleer, N. (1990). Safety performance among union and nonunion workers in the construction industry. *Journal of Occupational Medicine,* 32(11), 1099-1103.

Ejohwomu, O., & Oshodi, O. (2014). A review of construction management and economics research outputs in Nigeria: Towards a sustainable future. *Journal of Construction Project Management and Innovation,* 4, 900-905.

Haslam, R., Hide, S., Gibb, A., Giyi, D., Pavitt, T., Atkinson, S., & Duff, A. (2005). Contributing factors in constructon accidents. *Applied Ergonomics,* 36, 401-415.

Hinze, J.W. (1997). *Construction Safety.* New Jersey: Prentice- Hall.

Idoro, G.I. (2004). The effect of globalization on safety in the construction industry. *International symposium on globalization. Construction School of Civil Engineering Asian Institute of Tecnology.* Bangkok,Thailand.

Idoro, G.I. (2008). Health and safety management efforts as it correlates with performance in the Nigerian constructin industry. *Journal of Civil Engineering and Management,* 14(4), 277-285.

Idubor, E., & Oisamoje, M.D. (2013). An exploration of health and safety management issues in Nigeria's effort to industrilize. *European Scientific Journal,* 9(12), 154-170.

International Labour Office. (2013). *The health of workers in selected sectors of the urban economy: Challenges and perspective.* Geneva: Sectorial Activity Department.

Ismail, Z., Doosder, S., & Harun, Z. (2012). Factors influencing the implementation of a safety management system for construction sites. *Safety Science,* 50, 418-423.

Khosravi, Y., Asilian-Mahabadi, H., Hajizadeh, E., Hassanzadeh-Rangi, N., Bastani, H., & Behzadan, A. (2014). Factors influencing unsafe behaviors and accidents on construction sites: A review. *International Journal of Occupational Safety and Ergonomics,* 20(1), 111-125.

Larsyea, S., & Leiringer, R.T. (2012). Built environment research in West Africa: current trends and future directions. In: *Proceedings 4th West African Built Environment Research (WABER) Conference,* Abuja, Nigeria, 24-26 July 2012, 797-804).

Levy, D., & Henry, M. (2001). An analysis of published property research methodologies and methods. *The cutting edge,* 3-11.

Mohamed, S., Ali, T., & Tam, W. (2009). National culture and safe work behaviour of construction workers in Pakistan. *Safety Science,* 47, 29-35.

Odeyinka, H.A., Oladapo, A., & Akindele, O. (2006). Assessing risk impacts on construction cost. In: *Proceedings of the Annual Construction and Building Research Conference of the Royal Institution of Chartered Surveyors*, London, United Kingdom, 7-8 September 2006, 1-13.

Olusola, K.O. (2013). Builders document: preparation of health and safety management plan in relation to building projects. *Annual seminar publication,* 1-14. Ado-Ekiti, Ekiti, Nigeria.

Priyadarshani, K., Karunasena, G., & Jayasuriya, S. (2013). Construction safety assessment framework for developing countries: case study of Sri Lanka. *Journal of Construction in Developing Countries*, 18(1), 33-51.

Smallwood, J.J (2002). Health and Safety (H&S) and religion: Is there a link? In: *Proceedings Triennial Conference CIB W099 Implementation of Safety and Health on Construction Sites.* Hong Kong: Department of Real Estate University of Hong Kong, 7-10 May 2002, 201-206.

Smallwood, J.J. (1995). *The influence of management on the occurrance of loss causative incidents in the South African construction industry.* MSc Dissertation. Construction Management, University of Port Elizabeth South Africa.

Toole, T. (2002). Construction site safety roles. *Journal of Construction Engineering and Management,* 128(3), 203-210.

Torner, M., & Pousette, A. (2009). Safety in construction- a comprehensive description of the characteristics of high safety standards in construction work, from the high combined perspective of supervisors and experienced workers. *Safety Research,* 40, 399-409.

Ulubeyli, S., Kazaz, A., & Er, B. (2014). Health and safety perception of workers in Turkey: A survey of construction sites. *International Journal of Occupational Safety and Ergonomics,* 20(3), 323-338.

Umeokafor, N., Umeadi, B., & Jones, K. (2014). Compliance with occupational safety and health regulation:A review of Nigeria's construction industry. In: *3RD Internationl Conference on Infrastructural Development in Africa.* Abeokuta, 17-19 March 2014.

Wilkins, J.R. (2011). Construction workers perception of health and safety training program. *Construction Management and Economics,* 29, 1017-1026.

Windapo, A.O., & Jegede, O.P. (2013). A study of Health, Safety and Environment (HSE) practices of Nigerian construction companies. *The professional Builder*, 4(1), 92-103.

Zhou, Z., Irizarry, J., & Li, Q. (2013). Applying advanced technology to improve safety management in the construction industry: a literature review. *Construction Management and Economics,* 32(6), 606-622.