



Building Technology Education Lecturers and Project Managers' Perception on the Impact of Safety Culture in Construction Site in Gombe State

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ABSTRACT

This empirical study aimed to assess the perception of Building Technology Education lecturers and project managers in Gombe State regarding the impact of safety culture on construction sites. The study utilized a descriptive survey research design and involved a purposive sampling technique to select a population of 20 respondents. Four objectives, corresponding research questions, and two null hypotheses were formulated to guide the study. The researcher developed a questionnaire titled "Building Technology Education Lecturers and Project Managers' Perception on the Impact of Safety Culture in Construction Sites" to collect data. Mean statistics were employed to analyze the data for the research questions, while t-test statistics were used to test the null hypotheses. The findings revealed that building technology lecturers and project managers perceive the significant impact of safety culture on construction sites in Gombe State, particularly in terms of cost savings and prevention of work delays through the use of safety equipment. Additionally, all respondents acknowledged the presence of factors hindering the integration of safety culture in building construction sites. These factors include the high cost and unavailability of safety equipment, as well as the lack of adequate training among site operatives regarding the use of safety gear. Based on the study's findings, several recommendations are made. Firstly, the government should establish laws mandating the use of safety equipment by construction workers, with penalties for non-compliance. Additionally, government bodies and non-governmental organizations should organize training workshops to educate site operatives on the importance and proper usage of safety equipment in construction sites. By implementing these recommendations, the promotion of safety culture can be effectively enhanced in the construction industry.

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INTRODUCTION

The primary goal of any construction industry or company is to continue operating a profitable business, while ensuring the safety of their staff and other employees working in that industry that is; protecting employees from

injuries, illness or harm. According to Brueggman (2014), safety can be viewed as a point at which all associated risks with a particular job are well managed in a reasonable manner. Christie and Mark (2007), Brueggman (2014) and Ahmad, Iqbal, Rashid and Roomi (2016) defined safety

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as unique event that is paramount to continuous attainment of productivity, and that safety focus on curbing accidents at work setting and its negative effect on the workers in all manner. According to Ali (2008), occupational safety and health is defined as a study of the expectation, acknowledgement, assessment and control of hazards emerging in or from the work environment that could impede the safety of operatives. Famakin and Fawehinmi (2012) stated that safety practices are parameters to measure successful project delivery which is most paramount to the client because they greatly influence in achieving efficiency and effectiveness amongst professionals and even workers in the construction industry. Dozzi and AbouRizk (2013) and Funso, Sammi and Gerryshom (2016) opined that workers motivation, safety practices at work, environmental factors and physical limitation are regarded as factors that increase labor productivity. Dodo (2014) lamented that occupational safety is an integral part of construction, and that compliance with health and safety regulations remains one of the integral parameters to which successful project delivery can be obtained.

Accident on the other hand is an unwanted event, and it is mostly caused as a result of failure to observe safety on the construction site. Diugwu, Baba and Egila (2012), Okoye and Okolie (2012). Idubor and Oisamoje (2013) and Umeokafor, Isaac, Jones and Umeadi (2014) expressed that the numbers and magnitude of accidents occurring and recorded on construction sites in Nigeria underscored low level of safety practices. Smallwood and Haupt (2007) viewed accident as part of the building production process that is unavoidable because construction industry is inherently dangerous, therefore compliance or not to safety differentiate it from other industry. According to Muiruri and Mulinge (2014), Accident do not only result in pain and physical damage to the workers, but also reduce productivity, time, and quality performance thereby pose threat to project success and escalate production cost. According to Boustras, Hadjimanolis, Economides, Yiannaki

and Nicolaides (2015) suggested that work settings safety in small scale firms can be improved by embracing training, risk assessment, and safety policy formulation.

Statement of Problem

The importance of safety on any construction site cannot be over emphasized, Famakin and Fawehinmi (2012) stated that safety practices are parameters to measure successful project delivery which is most paramount to the client. Also, Umoh and Torbira (2013) expressed that there is connection between availability of safety and workers' productivity. But on the contrary, in some developing nations like Nigeria the issue of safety has been given less importance. Ikechukwu and Dorothy (2013) and Muhammad, Abdullateef and Ladi (2015) lamented that some of the developing nations like Nigeria among others lacks adaptive laws and regulations on health and safety practices. Therefore looking at how important safety is in any construction work, and how it is being neglected in a country like Nigeria, this prompted the researcher to find out the impact of safety culture on the construction projects in Nigeria, specifically in Gombe State.

Purpose of the Study

The main purpose of this study is to find out the perception of building technology education lecturers of colleges of education and project managers in Gombe state on Impact of Safety culture on construction projects in Gombe state, specifically the study sought to:

1. Find out the perception of lecturers of colleges of education in Gombe state on the impact of safety culture on building construction projects in Gombe state.
2. Find out the perception of project managers in Gombe state on the impact of safety culture on building construction projects in Gombe state.
3. Find out the perception of lecturers of colleges of education in Gombe state on the factors hindering the inculcation of safety culture on building construction projects in Gombe state.

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4. Find out the perception of project managers in Gombe state on the factors hindering the inculcation of safety culture on building construction projects in Gombe state.

technology education lecturers of colleges of education and project managers in Gombe state on the factors hindering the inculcation of Safety culture on construction projects in Gombe state.

Research Questions

The following four research questions were posed to guide the study as follows:

1. What are the perception of lecturers of colleges of education in Gombe state on the impact of safety culture on building construction projects in Gombe state?
2. What are the perception of project managers in Gombe state on the impact of safety culture on building construction projects in Gombe state?
3. What are the perception of lecturers of colleges of education in Gombe state on the factors hindering the inculcation of safety culture on building construction projects in Gombe state?
4. What are the perception of project managers in Gombe state on the factors hindering the inculcation of safety culture on building construction projects in Gombe state?

Research Hypotheses

In order to guide the study, the following null hypotheses were tested at 0.05 alpha value:

- H₀₁:** There is no significant difference between the mean perception of building technology education lecturers of colleges of education and project managers in Gombe state on Impact of Safety culture on construction projects in Gombe State.
- H₀₁:** There is no significant difference between the mean perception of building

METHODOLOGY

The study adopted descriptive survey research design, the instrument used for data collection was questionnaire which was based on 5-point Likert scale, and contained 26 items. The population for the study comprised 7 project managers of 7 construction companies and 13 lecturers from building technology education department, federal college of education (technical) Gombe, Gombe state. Therefore the total population comprised of 20. Purposive sampling was used, that is; the entire population was used. For the four research questions, the data collected were analyzed using mean and standard deviation, and t-test was used to test the null hypotheses. The decisions taken on the analyzed data for the research questions were that any mean value that is 3.00 or greater is considered agreed, and any mean value otherwise is disagreed. For the null hypotheses, if the value of t-cal is equal to or greater than the value of t-tab at 0.05 level of significance the null hypothesis is rejected. On the other hand if the value of t-cal is less than the value of t-tab at 0.05 level of significance the null hypothesis is accepted.

RESULTS

The results found from the data collected and the tested hypotheses were presented in tables, where the mean values and the decision taken on every item and the null hypotheses were clearly indicated.

Table 1: Mean Responses on the perception of Building Technology Lecturers on the Impact of Safety Culture in Construction Sites in Gombe State

S/N	Items	Mean (\bar{x})	SD (σ)	Remarks
1.	Use of safety wears saves cost of construction.	4.20	1.11	Agreed
2.	Use of safety wears will prevent work delay on construction site.	4.27	1.14	Agreed
3.	Imbibing safety culture will prevent work delay on	4.53	1.25	Agreed

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S/N	Items	Mean (\bar{x})	SD (σ)	Remarks
	construction site.			
4.	Laborers without safety wears are more prone to accident on the construction site.	4.33	1.14	Agreed
5.	Most accident that occurs on the construction site is due to neglect of safety.	4.53	1.14	Agreed
6.	Compliance with safety regulations results in successful construction project.	4.40	1.14	Agreed
7.	Training on safety matters may improve the quality of construction project.	4.07	1.06	Agreed

Table 1 showed the Mean response of perception of lecturers of colleges of education (technical) in Gombe state on the impact of safety culture on building construction projects in Gombe state. It was

found as indicated on the table that all the 7 items were agreed upon by the respondent with each and every item having Mean of above 4.00.

Table 2: Mean Responses on the Perception of Project Managers on the Impact of Safety Culture in Construction Sites in Gombe State

S/N	Items	Mean (\bar{x})	SD (σ)	Remarks
1.	Use of safety wears saves cost of construction.	4.07	1.06	Agreed
2.	Use of safety wears will prevent work delay on construction site.	4.33	1.14	Agreed
3.	Imbibing safety culture will prevent work delay on construction site.	4.40	1.14	Agreed
4.	Laborers without safety wears are more prone to accident on the construction site.	4.33	1.14	Agreed
5.	Most accident that occurs on the construction site is due to neglect of safety.	4.33	1.14	Agreed
6.	Compliance with safety regulations results in successful construction project.	4.07	1.06	Agreed
7.	Training on safety matters may improve the quality of construction project.	4.20	1.06	Agreed

Table 2 showed the Mean response of perception of lecturers of colleges of education (technical) in Gombe state on the impact of safety culture on building construction projects in

Gombe state. It was found as indicated on the table that all the 6 items were agreed upon by the respondent with each and every item having Mean of above 4.00.

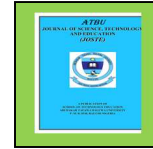
Table 3: Mean Responses on Perception of Building Technology Lecturers on Factors affecting the Inculcation of Safety Culture in Construction Sites in Gombe State

S/N	Items	Mean (\bar{x})	SD (σ)	Remarks
1.	High cost of safety wears hinders using them on the construction site.	3.70	0.99	Agreed
2.	Unavailability of the safety wears hinders using them on the construction site.	3.33	0.94	Agreed
3.	The site operatives lacked adequate training on the use of safety	4.20	1.19	Agreed

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S/N	Items	Mean (\bar{x})	SD (σ)	Remarks
4.	wears. Lack of rules and regulations by the government made the site operatives not to be using safety wears on the construction sites.	3.70	0.99	Agreed
5.	Most of the site operatives do not attach importance to the safety wears.	3.70	0.99	Agreed
6.	Lack of implementation of safety policies by government hinders the site operatives from using safety wears.	4.00	1.12	Agreed

Table 4: Mean Response on Perception of Project Managers on the Factors Hindering the Inculcation of Safety Culture in Building Construction Sites in Gombe State

S/N	Items	Mean (\bar{x})	SD (σ)	Remarks
1.	High cost of safety wears hinders using them on the construction site.	3.60	0.99	Agreed
2.	Unavailability of the safety wears hinders using them on the construction site.	3.47	0.96	Agreed
3.	The site operatives lacked adequate training on the use of safety wears.	3.70	0.99	Agreed
4.	Lack of rules and regulations by the government made the site operatives not to be using safety wears on the construction sites.	3.33	0.94	Agreed
5.	Most of the site operatives do not attach importance to the safety wears.	3.60	0.99	Agreed
6.	Lack of implementation of safety policies by government hinders the site operatives from using safety wears.	3.70	0.99	Agreed

Table 5: T-test Analysis on the Perception of Building Technology Lecturers and Project Managers on the Impact of Safety Culture in Construction Sites in Gombe State

Respondents	N	X	SD	Df	t-cal	t-critical	Decision
Lecturers	15	4.33	1.14	26	0.20	2.05	Accepted
Project managers	13	4.25	1.11				

The result for t-test on the mean response of perception of lecturers of colleges of education (technical) and project managers in Gombe state on the impact of safety culture on building construction projects in Gombe state. The result of the test showed that within the

degree of freedom (df) of 26, t-calculated was found to be 0.20, which is less than the t-critical table value of 2.05 at 0.05 level of significance. This implied that the null hypothesis was accepted, while the alternate hypothesis was rejected.

Table 6: T-test Analysis on the Perception of Building Technology Lecturers and Project Managers on Factors Hindering the Inculcation of Safety Culture in Construction Sites in Gombe State

Respondents	N	X	SD	Df	t-cal	t-critical	Decision
Lecturers	15	3.62	1.03	26	0.44	2.05	Accepted
Project managers	13	3.46	0.98				

The result for t-test on the mean response of perception of lecturers of colleges of

education (technical) and project managers in Gombe state on the factors hindering the

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inculcation of safety culture on building construction projects in Gombe state. The result of the test showed that within the degree of freedom (df) of 26, t-calculated was found to be 0.44, which is less than the t-critical table value of 2.05 at 0.05 level of significance. This implied that the null hypothesis was accepted, while the alternate hypothesis was rejected.

FINDINGS OF THE STUDY

The study reveals the following findings.

1. Building Technology Education lecturers perceived the impact of safety culture on building construction projects in Gombe state that it saves cost of construction, prevent work delay on construction site, prevent accident on the construction site, most accident that occur on the construction site are due to neglect of safety. Compliance with safety regulations results in successful construction project, and training on safety matters may improve the quality of construction project.
2. The perception of Project managers in Gombe state on the impact of safety culture on building construction projects in Gombe state revealed that; use of safety wears saves cost of construction, use of safety wears will prevent work delay on construction site, imbibing safety culture will prevent work delay on construction site, laborers without safety wears are more prone to accident on the construction site, most accident that occur on the construction site are due to neglect of safety. Compliance with safety regulations results in successful construction project, and training on safety matters may improve the quality of construction project.
3. The perception of lecturers of colleges of education in Gombe state on the factors hindering the inculcation of safety culture on building construction projects in Gombe state revealed that; high cost of safety wears hinders using them on the construction site, unavailability of the safety wears hinders using them on the construction site, the site operatives lacked adequate training on the use of safety wears, lack of rules and regulations by the government made the site operatives not to be using safety wears on the construction sites, most of the site operatives do not attach importance to the safety wears, and lack of implementation of safety policies by government hinders the site operatives from using safety wears.
4. The perception of Project managers in Gombe state on the factors hindering the inculcation of safety culture on building construction projects in Gombe state revealed that; high cost of safety wears hinders using them on the construction site, unavailability of the safety wears hinders using them on the construction site, the site operatives lacked adequate training on the use of safety wears, lack of rules and regulations by the government made the site operatives not to be using safety wears on the construction sites, most of the site operatives do not attach importance to the safety wears, and lack of implementation of safety policies by government hinders the site operatives from using safety wears.
5. The result of the test showed that within the degree of freedom (df) of 26, t-calculated was found to be 0.20, which is less than the t-critical table value of 2.05 at 0.05 level of significance. This showed that there is no significant difference between the mean perception of building technology education lecturers of colleges of education and project managers in Gombe state on Impact of Safety culture on construction projects in Gombe state.
6. The result of the test showed that within the degree of freedom (df) of 26, t-calculated was found to be 0.44, which is less than the t-critical table value of 2.05 at 0.05 level of significance. There is no significant difference between the mean perception of building technology education lecturers of colleges of education and project managers in Gombe state on the factors hindering the

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inculcation of Safety culture on construction projects in Gombe state.

DISCUSSION OF THE FINDINGS

The findings of this study highlight the positive impact of safety training on the quality of construction projects and emphasize the importance of complying with safety regulations for successful project outcomes. These findings align with the research conducted by Boustras, Hadjimanolis, Economides, Yiannaki, and Nicolaides (2015) in their study on "Management of health and safety of micro-firms in Cyprus." They suggested that small-scale firms can enhance workplace safety by implementing training programs, conducting risk assessments, and formulating safety policies. Similarly, Kolawale (2014) found in his study on "The relationship between employees' perception of safety and organizational culture" that the absence of well-defined safety regulations for construction activities by the government can be mitigated through safety training, which improves worker performance and reduces accidents on construction sites. Furthermore, Agwu (2012) investigated "Total safety management as an approach for improving organizational performance in selected construction firms in Nigeria" and recommended integrating total safety management into organizational policies to enhance safety practices in construction projects.

Additionally, the findings of this study indicate that the use of safety equipment reduces construction costs, prevents work delays on construction sites, and decreases the likelihood of accidents for workers not wearing safety gear. These findings are consistent with the research conducted by Okoye, Ezeokonkwo, and Ezeokoli (2016) on "Building construction workers' health and safety knowledge and compliance on sites in Anambra State, Nigeria." Their study revealed low levels of safety awareness and compliance among site operatives, leading to subpar project performance. Furthermore, Attar, Gupta, and Desai (2012) found that the use of safety equipment provides essential protection and reduces the severity of injuries for workers.

These findings align with the beliefs of Elufidipe (2018), who attributed accident occurrences to the failure to use safety equipment and personal protective gear.

Overall, these studies collectively support the importance of safety training, compliance with regulations, and the use of safety equipment in construction projects to enhance worker safety, project quality, and overall performance.

CONCLUSION

The study revealed that embracing a safety culture is not only important but also necessary for the successful construction of buildings. Some factors contributing to the lack of safety culture include a lack of understanding regarding its importance, insufficient training on its implementation, and a lack of government regulations governing the use of safety equipment by construction workers, among other similar reasons. Consequently, the study provided recommendations to promote the adoption of safety practices and the use of safety equipment by construction workers, aiming to prevent accidents and ensure the delivery of high-quality projects upon completion of construction.

RECOMMENDATIONS

Based on the findings of the study, recommendations were made as follows:

1. Government should enact laws will mandate the use of safety wears by the operatives, and penalty should be provided for failure to use the safety wears.
2. Government and other non-governmental organizations should be organizing training and workshops for the operatives on the use and importance of safety wears on the construction sites.
3. Safety wears should be provided in abundance and be sold at subsidized rates.
4. All operatives without safety wears should not be allowed to work on the construction site.



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