



Knowledge Sharing Practices and Operational Safety of Construction Firms in South-South, Nigeria

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ABSTRACT

This study investigated the relationship between knowledge sharing practices and operational safety of construction firms in south-south Nigeria. Cross-sectional survey design was adopted for the study based on the attribute and purpose of the study for the generation of data. The accessible population of the study was made up of 10 registered construction firms in south-south region of Nigeria. Structured questionnaire was utilized to obtain primary data after validation and ascertaining the reliability coefficient of 0.7. Descriptive statistics (mean, standard deviation and percentages) were utilized as statistical tools for analyzing the data, while spearman rank order correlation was used as statistical tool to test the hypotheses with the Statistical Package for Social Sciences (SPSS). It was discovered that knowledge sharing practices had significant relationship with operational safety of construction firms. However, it concluded that if adequately considered knowledge sharing practice will enhance operational safety, construction firms that invested in the employee training, management development and encourage community of practice as a way of knowledge transfer, records high level of productivity and fewer vices that will lead to loss of man hour and high level of organizational sustainability. Based on the findings of this study, it was recommended that for the organization to increase their turnover and reduce loss of man hour to accident and payment of compensation, they should invest more on strategies that will encourage employee training and retraining and promote management development and pay attention to community of practice system of learning to achieve competitive advantage.

Key Words: relationship, knowledge sharing, practices, operational safety, construction firms

Introduction

The value of knowledge sharing in an organization is well known, yet much of the knowledge within an organization remains unshared. This research focuses on the important role knowledge sharing in an organization plays in facilitating operational safety within organization. It takes into cognizance the role of knowledge sharing and how it impacts on the operation of safety within the organization and the organizational members in construction firms and make recommendations that can be used to increase knowledge sharing activities within organizational teams and enhance safety awareness. Ketvirtis, (2011), organizational leaders, managers, and professionals can utilize the recommendations to help organizations enhance team performance and strengthen their competitive advantage by leveraging on the minimization of accident, protection of equipment, and preservation of environment. Ipe, (2013) opined that in an ever increasing competitive business environment organizations must develop capabilities that will provide them with a sustainable competitive advantage. These capabilities must be very unique in such a way that other organizations cannot imitate them easily.

Incorporated in the operational safety and Management System (OPS-MS) are the means to meet the requirement of an organization's safety policy and commitment that are inherent in the mission statement of some selected construction firms. Recognizing the goal and objective of knowledge sharing in the industry which are to enhance, promoting growth, increasing and improving occupational methods and procedures leading to increased safety awareness which will lead to minimization of accident or total eradication, environmental preservation, protection of equipment, and generally, health security and welfare among employees in the industry. (Journal of Health and Safety 3:5-12). This can be achieved through an adequate knowledge sharing practices which are functions of knowledge management process (Jones & George, 2018).

Statement of the Problem

This research seeks to address the current state of accident such as fatality, near miss, breakdown of equipment and plants in the industry. As investigation has revealed that irrespective of the high level of awareness and the amount of resources been put in place to forestall or reduce the menace of accident which lead to high level of lost of life and man hour and the sudden breakdown of equipment and plants and disruption of environment as a result of bad operation from an organization. It is pertinent to state that organizations, individuals and the environment suffers for every bad or poor operation been carried out by any firm in course of executing any project. Statistics have shown that construction company workers suffer the worst fatality as a result of poor safety implementation by any firm.

Lastly, it is pertinent to state that having itemized the different types of standards and systems that were introduced to curb the accidents and fatality rate in the industry, the inventors of the aforementioned standards and systems do not pay adequate attention in other ways on how to actualize the desired goals (accidents and fatality reduction), in the industry. Consequently, the standards and systems did not provide a direct way it can achieve or drive home the desired result, by putting all the actors and players in the same pedestal rather than the actual supervision exercise that was put in place to oversee the daily activities of the workers. The implementation aspect of the standards can be said to be lacking in some areas such as the knowledge sharing exercise through community of practice system.

Within the scope of this study, Employee Training (ET) which appears as part of the dimensions of the independent variable recognizes “On the job training and Off-the-job training” as the indicators. However, community of practice (CoP) which is another dimension of the independent variable also has coaching and engagement as its indicators. Thus, management development (MD) as another dimension used in the study as part of the independent variable has new challenges and delegations as its indicators.

Concept of Knowledge Sharing

Knowledge sharing been a combination of words, can be viewed from different perspectives. Knowledge is not a concept that can be easily explained as there is no precise consensus on what it is. Sometimes the terms information and knowledge are used interchangeably. Indeed information is a means mediating formation of knowledge (Nonaka, 2014). On the other hand, knowledge is defined as combination of experience, values, information, professional's perception that enable assessing and integration of new information. However, sharing (Philip, 2013) opined that is the process of giving out of one's personal thoughts, feelings or experience.

Several researchers define knowledge sharing as the act of knowledge holder making knowledge available to others within the organization. Snowden, (2012) claim that knowledge sharing has been shown to improve individual and organization performance and innovativeness. They add that knowledge sharing is a practice that has become increasingly important to organizations as most organizations are now considered to operate in a knowledge economy. Knowledge sharing in an organization not only occurs at the individual level but also at the collective level (Obembe, 2010). Obembe further stated that an organization's capacity for knowledge sharing is crucial as a factor in the ability to generate new knowledge as well as its ability to utilize the resources and capabilities of its members. Think about this scenario: assuming you are the only staff at work that understands the company's filing system, since you are the filing officer and something happens to you, who will have knowledge of the filing system? The answer is no one, unless you've engaged in the process of knowledge sharing to pass along what you know or your experience to another staff, since it is the part of the organization culture.

Nonaka and Konno, (1998), opined that there are two different types of knowledge, they went on to state them as follows: (1) tacit knowledge and (2) explicit knowledge. Nonaka and Konno, (1998), stated the following about the concept of the different types of knowledge, (a) tacit knowledge which is difficult to share because of its subjective nature and (b) explicit knowledge which is shared easily in many forms such as user guides.

Types of Knowledge

This study focuses on two major types of knowledge. In a business context, knowledge refers to any information an individual or team within your organization can provide that will enable your company to run more efficiently. The first type of business knowledge is **explicit knowledge**, it is any knowledge that is easy to document and share. This explicit information allows all other teams involved to get a better understanding of the customer's path to purchase. According to global market intelligence firm, they see **explicit knowledge** as factual material such as data, how-to guides, and memos, and when they are shared, they create values for organization (Tsai, 2014).

1. Explicit Knowledge

[Explicit knowledge](#) sharing occurs when explicit knowledge is made available to be shared between entities. Explicit knowledge sharing can happen successfully when the following criteria are met (Bukowitz, 2019).

- a) Articulation: the knowledge provider can describe the information.
- b) Awareness: the recipient must be aware that knowledge is available.
- c) Access: the knowledge recipient can access the knowledge provider.
- d) Guidance: the body of knowledge must be defined and differentiated into different topics or domains so as to avoid [information overload](#), and to provide easy access to appropriate material. Knowledge managers are often considered key figures in the creation of an effective knowledge sharing system.
- e) Completeness: the [holistic](#) approach to knowledge sharing in the form of both centrally managed and self-published knowledge.

In contrast, the second type of business knowledge is **tacit knowledge**.

2. Tacit Knowledge

According to Prusak, (2010) tacit knowledge is referred to the skills and knowledge learned by experts over years of practice and experience that simply cannot be taught let alone put into words. An example of tacit knowledge within the scenario described above would be how the operator who takes over after a design has been approved and how the operator can work his magic in trying to complete the project in record time. [Tacit knowledge](#) sharing

occurs through different types of socialization. Although tacit knowledge is difficult to identify and codify, relevant factors that influence tacit knowledge sharing include:

- a) Informal networks such as daily interactions between people within a defined environment (work, school, home, etc.). These networks span [hierarchies](#) and functions (Prusak, 2010).
- b) The provision of space where people can engage in unstructured or unmonitored discussions, thereby fostering informal networks (Prusak, 2010).
- c) Unstructured, less-structured or experimental work practices that encourage [creative problem solving](#) and the development of [social networks](#) (Prusak, 2010).
- d) An organizational culture which is based on trust. This encourages employees to share their knowledge.
- e) Employees' strong organizational commitment and loyalty to their employers supports tacit knowledge sharing (Hislop, 2013).

While the instructor may have gone through the process as if it were second nature to him, it's nearly impossible to explain exactly what he did to close the training in such a seemingly effortless way. Jerry (2019), argued that **tacit knowledge** is harder to communicate. It includes cultural beliefs, values, and attitudes. But when it comes to achieving breakthroughs in the workplace, tacit knowledge is even more important than explicit knowledge (Jerry, 2019). There are some processes involved in knowledge sharing exercise.

Knowledge Sharing Process

The knowledge sharing process relies heavily on some key ingredients as alleged by Obembe, (2010). These are as follows:

- a. Articulation: Defining what knowledge needs is present.
- b. Awareness: Knowing what knowledge is available and what is necessary.
- c. Access: Being able to get to the knowledge.

Knowledge sharing first begins with defining who the actors or key players are. They are rather those key players or actors who possess the knowledge and those who need the knowledge. While the next step is about identifying what the learning needs are. Are there really processes and procedures that some actors have that others need to know? Where are the gaps in learning? What information is important to pass along or make available? Once you know the actors and the learning needs, it's time to identify where the key sources of information exist. Are they in manuals or written processes, or are they intuitive and/or known only to certain workers? Some knowledge is best retrieved.

Employee Training

Employee training has been defined by different scholars and researchers of management. Thus, some important definitions of employee training are as follows: Dale, (2018) in his assertion, states that employee training is simply the organized procedure by which people learn knowledge and improve skill for a definite purpose." Thus, it will be pertinent to state that as the operation continues, technology evolves in the sector, to enable the workers (employees) to meet up the required or expected result. Since most of the operations carried out in the construction sector are human based, they also requires training to meet up the demand and remain competitive in the industry. Employee training has a way of motivating the personnel to enable them give out their best.

Edwin, (2014) postulates that employee training is the act of increasing the knowledge and skill of an employee for doing a particular job. However, as events unfolds, new technologies are been introduced in the industry, all channelled towards how to execute organizational operations promptly and effectively. This makes it mandatory for the operators of these equipments to be trained to enable them execute the tasks. Dale, (2018) sees employee training as the process by which manpower is filled for the particular job it has to perform. Every operation requires a particular skill to suit operation, making the need for training a compulsory exercise in the organization. For every innovation technology wise, training is required to match the operation with the exact skills from the employee.

Community of Practice

Alberta Regional Professional Development Consortia (ARPD), explained in their article that communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour: a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel techniques, a gathering of first-time managers helping each other cope. Generally, we can deduce from the various articles read, that communities of practice are voluntary groups of people who, sharing a common concern or a passion, come together to explore these concerns and ideas and share and grow their practice within a given field. Wenger (2012), opined that community of practice is referred to as a group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

Wenger (2012), postulated that a community of practice is simply a voluntary group of people who share a common concern or a passion, come together to explore these concerns and ideas and share and grow their practice. Thus, it is also perceived that the concept of community of practice can be used to understand how a group of individuals may engage in a process of collective learning in a shared domain of human endeavour. According to Nickols (2012), he asserts that communities of practice (CoP) are groups of people in organizations that come together to share what they know, to learn from

one another regarding some aspects of their work and to provide a social context for that work. However, in the foregoing context, community of practice can be viewed as a system for people to acquire and polish existing skills rather than to create new ways to complete a task. Thus, it is considered that, the concept of a community of practice can be used to understand how a group of individuals may engage in a process of collective learning in a shared domain of human endeavour.

Criterion Variable (Operational Safety)

The criterion variable is made up of two major concept, namely the operational and safety, which were preliminarily looked into independently, before advancing to the whole (Operational Safety). Operational as the name implies according to Thesaurus Dictionary, (2021) is seen as been able to function or be used; and also regarded as been functional as in a system. Operational is also seen as been ready for or in condition to undertake a destined function. Merriam-Webster's unabridged dictionary (2020) opined that operational is basically [relating to a particular activity](#) or alternatively, [relating to the activities involved](#) in doing or [producing](#) something. Safety in its natural state can be said to be involving focus, effort, and action to create procedures for identifying workplace hazards and reducing accidents. It also concerns the intended exposure of harmful situations and substances. This requires training of people in incident prevention, incident response, emergency preparedness, and use and instructions of protection (clothing and equipment). Safety according to Oxford Advanced Learner Dictionary (2005) is the state of being safe and protected from danger or harm.

Operational Safety

Operational safety is seen as the absence of unreasonable risk under the occurrence of hazards resulting from functional insufficiencies of the intended functionality (e.g. false/missed detection), operational disturbances (e.g. environmental conditions like fog, rain, shadows, sunlight, infrastructure) or by reasonably foreseeable misuse/errors by the driver, passengers and other road users (safety hazards, without system faults) (Hinze, 2013). [Operational safety](#) is seen or regarded as the protection of the Pipeline against imminent or potential damages to humans or equipments.

[Operational safety](#), according to Podgórski, (2015) argues that it is the capability of a reactor to be operated in a manner that the operations complies with accepted national standards or requirements or widely accepted international standards and recommendations to prevent uncontrolled or inadvertent criticality, prevent or mitigate uncontrolled release of radioactivity to the environment, Regulations 2010. Operational safety, technical safety provisions, technical regulations and utilities under the section which covers the act. Thus, general regulations exhibitors are solely responsible for operational safety and maintaining compliance with occupational health and safety and accident prevention regulations on their purview. Operational safety considerations imposed by Air Force regulation will require that some additional percent power be made available as a safety margin and further, that the aircrews calculate power available under the assumption that the engines are putting out 95 percent of rated power because of wear and tear. Operational safety of the restored or new facility is critical during the monitoring and limits staff exposure to radiation and radioactivity, and protect off-site population from exposure to radiation or radioactivity, which will be very dangerous to the health.

[Operational safety](#) as opined by Pershing (2016), argues that they are activities carried out in the installation of mobile plant, construction site or dredging arena that requires other techniques to be used by the health and safety to safeguard the personnel and equipments. However, this permit is given in relation to the requirements of the Environmental Permitting turnover of the commissioned project to the user or operating organization. However, operational safety requires a commitment which will fully adopt a specific set of principles which will ensures that we operate in a safe, reliable, and environmentally safe manner (Johnson, 2015). Operational Safety is said to be the foundation upon which we provide the best in midstream services to our customers, while ensuring the safety of our employees, environment, any contractors working for us, and the public.

Concepts of Operational Safety in Construction Industry

The protection of workers against work related injuries, sicknesses and accidents form the core part of the health and safety procedures of any organization (construction). Unfortunately research has proven that irrespective of the high level of awareness and investment channeled into safety in construction operations, findings has it that the accident record is still on the high side considering the amount of investment. According to International Labour Organization (ILO, 2001), it is summarized as "decent work", decent work is safe work. Thus, safe work is also a positive factor for productivity and economic growth. Presently, technological advancement and intense competitive pressures bring about rapid change in working conditions, work processes and organization of the work. Therefore, organizations must also be able to tackle health and safety challenges continuously and build effective responses into dynamic management strategies targeted towards the enhancement of productivity, and reducing the effect of occupational illnesses and accident. Occupational illness as defined by British American Tobacco Nigeria as "those diseases or sicknesses other than one resulting from occupational injury, caused by or aggravated by environmental factors present in the workplace" (environment).

Thus, under the general safety, an organization can decide to create a section which will be responsible for the activities of the safety, mainly for the operation of the organizational machineries when in motions and the state of the operational mechanisms. These, will lead to the creation of operational safety (OPS) section.

Knowledge Sharing Practice and Operational Safety Relationship

Knowledge sharing according to Obembe (2010), is defined as "processes that involve exchanging knowledge between individuals and groups". Thus, it is also, the provision of information and expertise (know-how) in helping others, and to collaborate with others in solving problems, bringing about new ideas, on how to implement policies or procedures.

Jerry (2019), in their postulations opined that knowledge sharing is an important goal for organizations. All the experiences and knowledge owned by every individual in the organization can be converted as an organizational asset with the aid of technologies so that it is maintained and deposited as a

resource for future learning. Ipe (2013) argued that improving the knowledge sharing practices as related to work would benefit the organizations and the individuals alike. Knowledge sharing in an organization is considered a major aider or enabler for knowledge management, and there are two basic aspects of knowledge sharing, which consist of the supply side and the demand side. The supply side deals with the motivation of the employees to enable them willingly share their knowledge and receive benefits from both employers as well as the employee. The demand aspect deals with the behaviour of knowledge sharing among employees and knowledge acquisition by the employer to improve organizational knowledge.

Recently, developments in information technology (IT) have made it very easy for organizations to interact with employees, suppliers, and other stakeholders, thereby improving operations. Johnson (2015) in their works considered it as a necessity for employees within the organizations to embrace knowledge sharing.

Since knowledge sharing is one of the most important and complex activities among all knowledge management processes and it requires the organizational managers to emphasize on the three basic areas which include the individual, the organization, and the technology (Hislop, 2013). The complex nature of knowledge sharing surfaces, simply because these three major dimensions can be said to be hard to manage and can also interfere or influence the process of knowledge sharing practices. The Individual employee's which stands to represent an important source of knowledge in the organization since they possess the explicit and tacit knowledge that stands for ideas, experiences and beliefs, which need to be shared to other employees. For knowledge sharing to be supported by organizational processes, such as safety culture which has the standards and values as it key major indicators while policies and procedures serves as guide to support the act of knowledge sharing. However, the increasing role of information technology in the organization plays a vital role in the knowledge sharing process since it creates an enabling environment for the highly trained employees (workforce) to impact the needed knowledge and information to other employees, which will then lead to an increase in the level of knowledgeable personnel available to the organization.

Employee Training and Operational Safety

While reviewing the available literature, it becomes very obvious the importance of employee training and its impact on the actualization of organization's zero tolerance on accident and near misses. According to Amah (2016), she asserts that training is the teaching of lower level employees on how to perform their current tasks or jobs. Not stopping at that, she went further to ascertain that it is aimed at acquiring specific knowledge and skills for the purposes of an occupation or task, stating directly that achieving ones target safely, can be termed to be an achievement to the individual and organization. It is believed that at the end of the training embarked upon by any employee, it is expected that the employee's performance to job will improve, thereby, eliminating the possibility of low performance by the employee. Michael (2016), on his position stated that employee training is an investment which is targeted towards getting more and better quality work from the talent of an employee, and aiming towards eliminating operational hazards and maintain safety operation (zero accident).

Thus, one can be able to decipher the comparatively importance between the outcomes of making employee training an integral part of the organization strategy for achieving a long term policy for internal growth while paying less attention for training might likely lead to escalation of poor operation and exposing of hazardous features that are tantamount to accident and loss of man hour. Prusak (2010), in his finding opined that adequate training produces notable improvements, in the communication and proficiency of employee performances as well as extending retention time in the organization.

Community of Practice and Operational Safety

Hislop (2013), supported the view that it is also perceived that the concept of community of practice can be used to understand how a group of individuals can engage in a process of collective learning in a shared domain of human endeavour and be able to achieve the desired result which will help the organization to actualize the target of empowering the employees to understand how to use the available skills and knowledge acquired to preserve and protect the environment and equipment, while also been able to use the said knowledge obtained to reduce or minimize the rate of accident in the construction industry. However, it also stated that Community of Practice (CoP) also help to facilitates the learning position in communities, though they asserts that the open learning space helps students to receive the most appropriate support from the specialist those with the necessary knowledge and experience.

According to Harvard Business Review (HBR) in their postulation where they discovered that communities of practice are fundamentally informal and self-organizing, which benefits from cultivation or harmonization of experiences and knowledge. Above all, community of practice in its explicit way enhances the knowledge, experience and professionalism of the employee who are part of the groups; it also improves the skill of the members. However, knowledge and experience gives the employee confidence in carrying out his or her task appropriately. Finally, community of practice plays an essential role for construction firm survival and it turns the employee into a more experience, knowledgeable and tangible assets for the organization and it bring about elimination of hazardous and risky operation which ultimately leads to zero accident, preservation and protection of equipment and environment. Summarily, the organization will not be involved in compensation payment, replacement or repairing of equipment and parts which will affect the organization financial base. In turn, community of practice is basically viewed as a strategy that is also required to equip the employees with new techniques and technologies on how to execute organizational tasks safely and position the firm for survival in the competitive market.

Management Development and Operational Safety

Survival in construction industry requires productive, innovation, and constant improvement in performance of employee. Thus, this is a challenge lying before construction firms managers, and for anyone to survive and be productive, the organization needs to firstly, survive especially in a competitive environment. Snowden (2012) state that if any organization develops their staff (management), it will manifest in consistence increase staff morale, staff

self-confidence, power and knowledge which will bring out new product and services through the knowledge and experience acquired as the benefit from the management development programs.

Amah (2018), stating that management development is about improving the performance of existing managers, giving them opportunities for growth and development, and ensuring, as far as possible, that management succession is provided for. Thus, no manager succeeds without result, and the result of the manager is seen in the contribution of their subordinates to the performance of the organization. However, if the workforce (employee) executes any operation without running into any hitch in course of executing the task, that operator is said to be successful in the operation. The absence of any accident in a given operation is also regarded as successful operation, which will at the end lead to appraisal towards the operators and the managers alike. Nickols (2012) in his argument, stated that management development been an attempt to improve managerial effectiveness through a planned and deliberate learning process with periodic values, made us to understand the important of management development in an organization, since the effect is organizationally beneficial.

Management development is simply the structured process by which managers enhance their skills, competencies and knowledge, through formal or informal learning methods, to the benefit of the individual, the employees they manage and the organization. Thus, quality of management development does not only enhance managers but also make them committed, and it produces new knowledge amongst managers and when effectively applied it improves the performance of employees for organizational survival.

Finally, it will be pertinent to state that management development is targeted towards the actualization of the organization goals, which considers the safety operation of all activities embarked upon by the organization through the knowledge sharing practice and make it an inherent practice to all. In turn, management development is also viewed as a strategy that is required to equip the organization's managers with new skills, techniques and technologies on how to manage the employees to execute organizational tasks safely and position the firm for survival in the competitive market. When the managers are properly developed, it will lead to effective and efficient actualization of accident minimization in the operations, preservation and protection of equipment and environment in the organization.

Aim and Objectives of the Study

The aim of this study is to ascertain how knowledge sharing practices relates to operational safety in construction firms in south- south Nigeria. Therefore, the study is designed to achieve the following objectives:

1. Determine the level at which employee training relates to operational safety of construction firms in South-South, Nigeria.
2. Ascertain the level at which community of practice relates to operational safety of construction firms in South-South, Nigeria.
3. Evaluate the level at which management development relates to operational safety of construction firms in South-South, Nigeria.

Research Questions

Considering the above statement of research problem, and the issues raised from the research objectives, below are the following research questions which guided the study:

1. To what level at which employee training relates to operational safety of construction firms in South-South, Nigeria?
2. To what level at which community of practice relates to operational safety of construction firms in South-South, Nigeria?
3. To what level at which management development relates to operational safety of construction firms in South-South, Nigeria?

Research Hypotheses

The following null hypotheses were tested, and they are as follows:

- H₀₁:** Employee training has no significant relationship with protection of environment in Construction firms in South-South Nigeria.
- H₀₂:** Community of practice has no significant relationship with protection of environment in Construction firms in South-South Nigeria.
- H₀₃:** Management development has no significant relationship with protection of environment in construction firms in South-South Nigeria

METHODOLOGY

The research design adopted in this study is the cross-sectional survey design. The study considered a quasi-experimental study given its concern and interest in investigating the relationship between social-based constructs within non-contrived settings. The study is mostly centered on the construction sector which the population was workers selected from each of the functional departments from the available composition; we expected to have at least 103 employees to study in all, from our accessible population representing ten (10) different construction firms and five (05) different segments of construction industry. In trying to ascertain the corresponding sample size for a given population of the individual construction firm as stipulated in the study, the researcher employed the census system; this is based on the fact that it is the behaviour of the organization in respect to the study variables that is of interest and not the personnel (employee) behaviour. However, the researcher focused on the management staff cadre comprising of supervisors,

safety officers/managers and operation managers. This research adopted a cluster sampling; a cluster sampling is a probability sampling method whereby the population will be divided into clusters, such as companies or schools and then randomly select some of the clusters as your sample.

This study utilizes both primary and secondary data. Thus, the primary data for this study were sourced through the direct administration of the structured questionnaire. While the secondary data for this study were article obtained from published reports on the issues that has relationship with the variables stated in the study. The questionnaire was regarded as a well recognized and convenient tool in data generation (Hinze, 2013). Knowledge sharing practice (predictor) was operationalized with 3 major dimensions: employee training, community of practice and management development. Primary stage of analysis: This primary stage involves the assessment of distributions of responses and the overall assessment of levels of manifestations of the variables within the contexts that is specified in the study; hence measures of central tendencies such as mode, as well as dispersion was utilized to assess average responses and experiences of the variables as evident within the specified contexts. Secondary stage of analysis: This secondary stage of analysis was the test for the hypotheses of the study. The tests were carried out using the Spearman's Rank Order correlation coefficient at 0.05 level of significance based on the adoption of a 95% confidence interval.

RESULTS

Table 1: Descriptive statistics on the employee training in construction firms in South-South Nigeria

SN	Employee Training	Mean	SD	95% CI		Decision
				LB	UB	
1	Employee training program is considered an integral part of the organization system for development.	4.16	0.70	4.02	4.30	*
2	Organization witnesses a tremendous change to employee performance after every training program.	3.96	0.47	3.87	4.05	*
3	Employee training program brings about expertise to the organization's members.	4.63	0.48	4.54	4.73	*
4	Loyalty from the trained worker to the organization increases at the end of every training program.	4.15	0.48	4.05	4.24	*
5	Training programmes have improved decision-making and problem-solving skills in the organization	4.39	0.72	4.24	4.53	*
6	Employee trainings are to effectively tackle events with necessary skills and confidence in the organization.	3.92	0.69	3.78	4.06	*
	Grand Mean	4.20	0.39	4.12	4.28	*

*High extent

The result from Table 1 shows the descriptive statistics on the employee training in construction firms in South-South Nigeria. It shows that the grand mean rating of the respondents over employee training in construction firms in South-South Nigeria was 4.20, SD=0.39. The respondents strongly indicated that employee training program brings about expertise to the organization's members (M=4.63, SD=0.48), this was followed by the fact that training programmes have improved decision-making and problem solving skills in the organization (M=4.39, SD=0.72), employee training program is considered an integral part of the organization system for development (M=4.16, SD=0.70) and the least among others was that employees training are to effectively tackle events with necessary skills and confidence in the organization (M=3.92, SD=0.69).

Table 2: Descriptive statistics on the community of practice in construction firms in South-South Nigeria

SN	Community of Practice	Mean	SD	95% CI		Decision
				LB	UB	
1	Community of Practice helps in understanding how a group of individuals may engage in the process of collective learning in a shared domain of human operation.	4.05	0.22	4.01	4.09	*
2	Community of Practice is viewed as a system that people use to acquire and upgrade existing skills meant for task completion.	3.90	0.62	3.78	4.02	*
3	An activity that has been mostly used in organizations because of the awareness that knowledge is power and requires strategic management.	3.49	0.87	3.31	3.66	*

4	The applications of communities of practice have been observed in teacher training and also in peer-to-peer professional development activities.	3.01	0.62	2.89	3.13	*
5	It is understood that employee tend to perceive better the process of collaborative learning in the creation of new knowledge within the organization.	3.67	0.57	3.56	3.79	*
6	The coming together of group of people to share ideas, concern or a passion for something they do and learn how to do it better as they interact regularly.	4.14	0.57	4.03	4.25	*
Grand mean		3.71	0.33	3.64	3.77	*

*High extent

The result from Table 2 shows the descriptive statistics on the community of practice in construction firms in South-South Nigeria. It shows that the grand mean rating of the respondents over community of practice in construction firms in South-South Nigeria was 3.71, $SD=0.33$. The respondents strongly indicated that the coming together of group of people to share ideas, concern or a passion for something they do and learn how to do it better as they interact regularly ($M=4.14$, $SD=0.57$), this was followed by the fact that community of Practice helps in understanding how a group of individuals may engage in the process of collective learning in a shared domain of human operation ($M=4.05$, $SD=0.22$), community of Practice is viewed as a system that people use to acquire and upgrade existing skills meant for task completion ($M=3.90$, $SD=0.62$), and the least among others was that the applications of communities of practice have been observed in teacher training and also in peer-to-peer professional development activities. ($M=3.01$, $SD=0.62$).

Table 3: Descriptive statistics on the management development in construction firms in South-South Nigeria

SN	Management Development	Mean	SD	95% CI		Decision
				LB	UB	
1	Staffs are aware of developmental compliance in the system.	3.81	0.66	3.68	3.94	*
2	Process of increasing efficiency and behavioural patterns for the achievement of organizational objectives relies on management development program.	4.34	0.57	4.22	4.45	*
3	Management development is a systematic process of training top management personnel for growth by gaining and applying knowledge, skills and attitudes to manage organization effectively.	4.78	0.41	4.70	4.86	*
4	Development of employee positively impacts on the output of the organization.	4.81	0.39	4.73	4.89	*
5	Efficiency and effectiveness are core functions of organization management development.	3.97	0.56	3.86	4.08	*
6	Facing new challenges and expanding network in organization are basic landmark for development	3.19	0.48	3.09	3.28	*
Grand mean		4.15	0.27	4.10	4.20	*

*High extent

The result from Table 3 shows the descriptive statistics on the management development in construction firms in South-South Nigeria. It shows that the grand mean rating of the respondents over management development in construction firms in South-South Nigeria was 4.15, $SD=0.27$. The respondents strongly indicated that development of employee positively impacts on the output of the organization ($M=4.81$, $SD=0.39$), this was followed by the fact that management development is a systematic process of training top management personnel for growth by gaining and applying knowledge, skills and attitudes to manage organization effectively ($M=4.78$, $SD=0.41$), process of increasing efficiency and behavioural patterns for the achievement of organizational objectives relies on management development programme ($M=4.34$, $SD=0.57$) and the least among others was that facing new challenges and expanding network in organization are basic landmark for development ($M=3.19$, $SD=0.48$).

Test of Hypotheses.

H₀₁: Employee training has no significant relationship with protection of environment in construction firms in South-South Nigeria

Table 4: Summary of linear regression on the relationship between employee training and protection of environment in construction firms in South-South Nigeria

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
<i>r=0.870, r²=0.757</i>						
<i>F=309.113, p=0.000</i>						
<i>Durbin-Watson=1.86</i>						
1	(Constant)	-1.044	.282		-3.701	.000
	Employee Training	1.175	.067	.870	17.582	.000

a. Dependent Variable: Environmental protection, $y=1.175x-1.044$

The result from Table 4 shows the summary of linear regression on the relationship between employee training and protection of environment in construction firms in South-South Nigeria. It shows that employee training has positive and strong relationship with protection of environment in construction firms in South-South Nigeria ($r=0.870$). The r-squared (0.757) shows that the employee training contributed roughly 75.7% to the observed changes in the value of protection of environment in construction firms in South-South Nigeria. Durbin-Watson was 1.86. The regression equation indicated that any increase in the value of employee training will lead to a concomitant increase in the value of protection of environment in construction firms in South-South Nigeria. The result shows that employee training has no significant relationship with protection of environment in construction firms in South-South Nigeria ($F=309.113, p=0.00$). The null hypothesis one was rejected at .05 level of significance.

H₀₂: Employee training has no significant relationship with preservation of equipment in construction firms in South-South Nigeria

Table 5: Summary of linear regression on the relationship between employee training and preservation of equipment in construction firms in South-South Nigeria

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
<i>r=0.506, r²=0.257</i>						
<i>F=34.156, p=0.000</i>						
<i>Durbin-Watson=1.985</i>						
1	(Constant)	2.439	.234		10.406	.000
	Employee Training	.325	.056	.506	5.844	.000

a. Dependent Variable: Equipment Preservation, $y=0.325x+2.439$

The result from Table 5 shows the summary of linear regression on the relationship between employee training and preservation of equipment in construction firms in South-South Nigeria. It shows that employee training has positive and strong relationship with preservation of equipment in construction firms in South-South Nigeria ($r=0.506$). The r-squared (0.257) shows that the employee training contributed roughly 25.7% to the observed changes in the value of preservation of equipment in construction firms in South-South Nigeria. Durbin-Watson was 1.985. The regression equation indicated that any increase in the value of employee training will lead to a concomitant increase in the value of preservation of equipment in construction firms in South-South Nigeria. The result shows that employee training has significant relationship with preservation of equipment in construction firms in South-South Nigeria ($F=34.156, p=0.00$). The null hypothesis two was rejected at .05 level of significance.

H₀₃: Employee training has no significant relationship with minimization of accident in construction firms in South-South Nigeria

Table 6: Summary of linear regression on the relationship between employee training and minimization of accident in construction firms in South-South Nigeria

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
<i>r=0.663, r²=0.439</i>						
<i>F=77.597, p=0.000</i>						
<i>Durbin-Watson=1.521</i>						
1	(Constant)	.472	.410		1.154	.251
	Employee Training	.855	.097	.663	8.809	.000

a. Dependent Variable: Accident Minimization, $y=0.855x+.410$

The result from Table 6 shows the summary of linear regression on the relationship between employee training and minimization of accident in construction firms in South-South Nigeria. It shows that employee training has positive and strong relationship with minimization of accident in construction firms in South-South Nigeria ($r=0.663$). The r-squared (0.439) shows that the employee training contributed roughly 43.9% to the observed changes in the value of minimization of accident in construction firms in South-South Nigeria. Durbin-Watson was 1.521. The regression equation indicated that any increase in the value of employee training will lead to a concomitant increase in the value of minimization of accident in construction

firms in South-South Nigeria. The result shows that employee training has significant relationship with minimization of accident in construction firms in South-South Nigeria ($F=77.597$, $p=0.00$). The null hypothesis three was rejected at .05 level of significance.

Discussion of Findings

The Relationship between Employee Training and Protection of Environment in Construction Firms in South-South Nigeria

The result from Table 1 showed that employee training has positive and strong relationship with protection of environment in construction firms in South-South Nigeria ($r=0.870$). The r-squared (0.757) showed that the employee training contributed roughly 75.7% to the observed changes in the value of protection of environment in construction firms in South-South Nigeria. Durbin-Watson was 1.86. The regression equation indicated that any increase in the value of employee training will lead to a concomitant increase in the value of protection of environment in construction firms in South-South Nigeria. The result showed that employee training has no significant relationship with protection of environment in construction firms in South-South Nigeria ($F=309.113$, $p=0.00$). The null hypothesis one was rejected at .05 level of significance. The finding is consistent with earlier finding by Amah (2016), which established that training as the process of teaching of lower level employee's on how to perform their current task, furthermore, to ascertain that it is aimed at acquiring specific knowledge and skills for the purpose of an occupation or task in achieving ones target safely and protecting the environment.

The Relationship between Community of Practice and Protection of Environment in Construction Firms in South-South Nigeria

The result from Table 2 showed that community of practice has positive and strong relationship with protection of environment in construction firms in South-South Nigeria ($r=0.534$). The r-squared (0.285) showed that the community of practice contributed roughly 28.5% to the observed changes in the value of protection of environment in construction firms in South-South Nigeria. Durbin-Watson was 1.351. The regression equation indicated that any increase in the value of community of practice will lead to a concomitant increase in the value of protection of environment in construction firms in South-South Nigeria. The result showed that community of practice has significant relationship with protection of environment in construction firms in South-South Nigeria ($F=39.447$, $p=0.00$). The null hypothesis four was rejected at .05 level of significance. The finding is consistent with earlier finding by Hara (2009), which established that community of practice is used by group of individual that engaged in a process of collective learning in a shared domain of human endeavour and attempt to achieve the desired result which will help the organization actualized its target of empowering the employee to know how to use the skill to protect and preserve the environment and equipment.

The Relationship between Management Development and Protection of Environment in Construction Firms in South-South Nigeria

The result from Table 3 showed that management development has positive and strong relationship with protection of environment in construction firms in South-South Nigeria ($r=0.653$). The r-squared (0.426) showed that the management development contributed roughly 42.6% to the observed changes in the value of protection of environment in construction firms in South-South Nigeria. Durbin-Watson was 1.549. The regression equation indicated that any increase in the value of management development will lead to a concomitant increase in the value of protection of environment in construction firms in South-South Nigeria. The result showed that management development has significant relationship with protection of environment in construction firms in South-South Nigeria ($F=73.535$, $p=0.00$). The null hypothesis seven was rejected at .05 level of significance. The finding is consistent with earlier finding by Armstrong (2008), which established that it's about the improvement of the performance of existing managers, availing them with opportunities for growth and development targeted towards carrying out organizational task and also ensuring it is as safe as possible within the environment.

Conclusions

This research provided a general overview and a concise discussion of knowledge sharing practices and operational safety of construction firms in south-south Nigeria. It focused basically on the perception of supervisors, safety officers/managers and operation managers of the firms under investigation and, on the issues of knowledge sharing practices in the affairs of operational safety in the under listed organizations with intense consideration on operational policies and programs and the impact of the knowledge sharing practices on the operational safety. The purpose was to critically evaluate the extent to which the adopted knowledge sharing systems in the organization relates with the operational safety of the construction firms in the south-south region of Nigeria where the research is domiciled.

Conclusively, it is stated that a well structured knowledge sharing practice in any organization should be able to impact positively on the overall safety system. However, the principal officers of the organization such as the supervisors, safety officers/managers and the operation's managers should incorporate knowledge sharing practice as an integral part of the organization systems while encouraging the employee training, community of practice and management development model of learning as an acceptable way of enhancing knowledge sharing practice. However, the application of the various dimensions will lead to strategically proactive system, which will enable the organizations to have a very sound record on the operational safety practices. Thus, this will lead to a very high standard of environmental protection, promising culture of equipment preservation and a drastic approach of accident minimization to zero level. It is also imperative for the construction firms to ensure that their knowledge sharing practices are effectively institutionalized and supported by adequate policies, programs and cultural frameworks.

Knowledge sharing in an organization not only occurs at the individual level but also at the collective level (organizational) (Obembe, 2010). Going further, Obembe stated that an organization's capacity for knowledge sharing is very crucial factor, since it possesses the ability to generate new knowledge as well as its ability to utilize the resources and capabilities of the organizational members. In the assertions of Nonaka and Konno, (1998) they opined

the two different types of knowledge, stating them as follows: (1) tacit knowledge and (2) explicit knowledge. Nonaka and Konno stated the following concept about the different types of knowledge, stating that tacit knowledge is difficult to share based on its subjective nature and that explicit knowledge is easy to share and in many forms such as the availability of user guides.

Recommendations

The following recommendations were made by the researcher:

- i. Organizations should make regular training of personnel (employee training) as part of the organizational strategy for actualization of competitive advantage and elimination of hazardous operation.
- ii. Organizations should recognize community of practice as a veritable concept in the promotion of knowledge sharing practice and formalize it within the system, since individual ideas and contributions forms the basic foundation of the exercise within the organization leading to reduction of accident.
- iii. Management of organizations (Construction) should make the benefits (incentives & rewards) of knowledge sharing practice within the organization a strategy to encourage personnel, and dissuade other personnel from hoarding their experiences or expertise within the organization's personnel.

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