ASSESSMENTOF INDUSTRIAL SAFETY PRACTICES
CASE STUDY OF TECHNOLOGY INCUBATION CENTER
MINNA, NIGER STATE.

BY

BAKO Lawal

2014 /1/53921TI

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION,

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGER STATE.

AUGUST,2021

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION, SCHOOL OF TECHNOLOGY EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGER STATE, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF TECHNOLOGY (B. TECH) DEGREE IN INDUSTRIAL AND TECHNOLOGY EDUCATION.

AUGUST, 2021

DECLARATION

I,BAKOLAWAL**with matriculation number 2014/1/53921TI,an** undergraduate student of the department of Industrial and Technology Education, certify that the work embodied in this project is original and has not been submitted in part or full for any other diploma or degree of this or any other University.

BAKO LAWAL _____

2014/1/53921TI Signand Date

CERTIFICATION

This project has been read and approved as meeting the requirement for the award ofB-TECH.

Degree inIndustrial and Technology Education of the Department of Industrial and Technology Education, School of Science and Technology Education, Federal University of Technology Minna, Niger State.

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Project Supervisor Signature and date

Dr.I.Y. Umar

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Head of Department Signature and Date

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External Examiner Signatureand Date

DEDICATION

This research project is dedicated to Almighty Allah, my late father Alhaji Bako Zubairu, my mother Hajiya Zainab Abubakar, my friends' coursemates and my family members.

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Researcher sincere gratitude goes to Almighty Allah for his substantial guidance, wisdom, provision and protection through my course of study in FUT Minna. myspecial appreciation goes to my able and capable supervisor, MrKalat.I. Kammaimy project coordinator, Dr Hassan. A. Mohammed for their support and guidance toward realization and completing this project. And all thosethat supported on my study, most especially head of Department Dr. I. Y. Umar,Dean SSTE, Mallam Sani. A. Musa, Prof Abdullahi. S. Maaji, Dr Abdulkadir Mohammed,Myprofound and whole heart gratitude also goes to my fatherAlhaji Bako Zubairu, motherHajiya Zainab Abubakar for being good parent and mentor to my educational sponsorship. Am saying a big thank to all my siblings and relatives, my course mates especially Umar Kabir and others MazanBugus.

ABSTRACT

This study was designed to assess the industrial safety practices in Niger state. Three research question and two Hypotheses were formulated to guide the conduct of the study. A survey design was adopted for the study.A total of 90 respondents were used as the population of the study which consist of30 management staffs and 60 skilled workers. and 30itemsquestionnaire was developed and was used to collect data for the study. Data collected was analyzed usingmean. Standard deviation. And t-test statistics. The null hypotheses were tested at 0.05level ofSignificant. The findingsof the study indicated among others that industrial safety practices are not fullycompliedwithin the industries in Niger state It also revealed that fireextinguisherare not routinely services and displayedconspicuously which exposed workers to hazard that leads toseveral degreeof accidents. The findings also made itclear that seminars, workshops,training and re-trainingof Workers inpotential hazard recognition will assist in promoting effective safety practice in Niger state. Thereforeimplementations of findingwerediscussed. recommendations were therefore made.which include a mandatory inductioncourse On Industrialsafety practices should be organized for all newly employed skilled workers before they start working in the industries. So as to create safety consciousness and awareness in them. Special clothing should be worn which will perfectly resist spark and hot slag. These should bechecked routinely by foremen supervisors. workmen who deliberately disobey and neglectsafety rules and regulations should be given query letter and if such practices still persist, appropriate punishment should be given accordingly. And Suggestions were made to guide further study.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Industry is collectively vast scale manufacturing of goods in well organized meaningful plants with a high degree of quality automation and specialization in production. According to encyclopedia Britannica, Industry is group of productive enterprises or organization that produces and provides goods and services, sources of income within an economy. It can also include other commercial activities that provide goods and services such as Agriculture, transportation, hospitality and many more. But this work is focused on (Iron and steel) industry which deals with the production of Iron, steel and alloy. The Iron and steel industry have different sections which are metallurgical section that deals with the melting and fabrication of scrap metals, alloy and steel metal, these sections tend to settle quickly from the atmosphere and can lead to molten metal explosion in any specific industry. Alloy and steel became a key sector of desirable quality production and Labour in Nigeria which occurred through many successive rapid advancements in technology manufacturing such as production of Iron, steel, another section which is rolling mill that is involved in the production of steel rod.

The main aims and objectives of setting up an industry, regardless of the type are to make profit. To attain these goals, industrial safety should be the priority and paramount attention has to be given out. Because in any industry, no matter the type of goods it produces or services it renders, there must be the use of tools, equipment and heavy machines to produce the goods or render the services. These tools, equipment and machines need to be effectively and efficiently managed in order to ensure safety in the industry. Industrial safety practice is a double concept (“industrial safety “and “practice”)’. Industrial safety is an area concerned with protecting the safety health and well-being of people engaged in work or employment in an industry, Wikipedia

(2019). Department of commerce and industry in Nigeria defined code of practice as a document prepared for the purpose of providing the experimental guidelines on preventive strategies and a practical means of achieving and improving any code, standard, rule, provision or specification relating to industrial safety. Industry can be described as the quality of working hard in production of goods from raw materials, especially in factories either light or heavy industry whichresults in economic growthand development of the nations.

Safety is the state of being “careful”, the condition of being protected against physical, social, spiritual, financial, political, emotional, occupational psychological, educational and other related type or consequences of accidents, damage, error, harmful, failure or any other related events which could be considered non desirable. Safety can also be expressed as a way of knowing and controlling recognized hazards that tend to occur to achieve an acceptable reduction level of risk in the industry. This can take the form of being protected from the event or from exposure to something that causes health or economical losses which include protection of people, tools, equipment and machines.Safety is the condition of a steady state of an industry effectively and efficiently doing what it is supposed to do. “What it is supposed to do” means in terms of public codes and standard. Safety can be limited in relation to some guarantee or a standard of assurance to the quality and unharmfulfunctions of an object or organization will do only what it is meant to do. It is important to realize that safety is relatively, eliminating all risk, though it possibility will be extremely difficult and very costly.A safe situation is one where risks of injuries or properties damage levels are low and manageable.

Moreover, industrial safety can also be considered as act of keeping or maintaining effective safety of both human and equipment for sake of avoiding or reducing risks of accidents in kind. It is also concern with freedom from harm, in a working environment in the industry.

Everyday large number of accidents occurs in factories within the country which will sometimes result in death, permanent disability and in most cases slight injuries result in few days absence from work, even if an accident does not render the victim unfit to work, the illness which may be contacted as a result of injury or shock sustained in the work place may affect them psychologically. These injuries or shock imposes a lot of loss on the industry and thus, the industrial safety practice of the industry needs to be frequently assessed. According to Wikipedia (2019),practice is the act of rehearsing over and over, or engaging in an activity again and again, for the purpose of improving and mastering it, as in the phrase "practice make perfect".Therefore, industrial safety practices is the rehearsing over and over or engaging in an activity again and again for the purpose of improving or mastering the areas concerned with protecting safety, health and well-being of people engaged in work or employment of an industry. To ensure that these practices are putting in place the Industrialsafety practice of the industry need to be appropriately assessed. As the assessment will provide adequate and proper strategies towards minimizing accidents occurrences in the industry.

Assessment is defined as an opinion about something that has been thought about very carefully. Assessment in an industry can be seen as the amount of work value, attention and material worth given to an industry. According to management research group (2006) assessment is the diagnostic process that measures an individual'sbehaviors motivators, attitude or other selected qualities. It also means the act of judging or assessing a person or situation or even an event that usually occurs in the industry. Assessment in an industrial setting, enables access to operational environments and technology that may not be available in industrial contexts. This can enhance or improve the authenticity ofthe assessment, particularly if simulation of a workplace context is not practical or sufficientlyrealistic. Assessing workplace setting is also

more meaningful to candidates and assessors. This ensures that employee subsequently deemed as competent are more likely to be job ready to work in the industry.

Until the early 20thcentury, Industry focus was heavily on the machines that made mass production possible, rather than on the people who operated them. Therefore, the design of the machines did not accommodate the worker's safety, and workers seldom receive in depth training. The health, safety and welfare of the workers were not the employers concern. Long work days, which were intended to produce maximum profits for the company, increased the chances and risks of accidents and resulting injuries or even deaths sometimes. Assessment of industrial safety and practice will promote safety consciousness of workers in the industry. Also assessing the Industrial safety practice will enhance the safety of life and property over a period of several Decades, managers in the industryhave to come to understand that total loss control involves examining all loss exposures, including people in the environment, assets and production in which the incidents occur mostly because of the problems in management and organizational development systems. Workers have a responsibility for safety practices, but they should not be solemnlyblamed for the accidents. It is duty or responsibility of employer to monitor and instruct everyone and every work or activityin an industry (Iron and steel) to main proper safety rules and regulations when carrying out operations despite laws on occupational health and safety;injury and death at work still constitute a major problem or challenges. Obviously,the safety of workers and theindustry (Iron and steel) cannot simply legitimately emphasize, the employers and employees must be able to take a tremendous measures and carefulness of responsibility on their own safety, equipment, machines and environment.

Therefore, any workforce in an industry is wisely advised to take a careful look at the environment and the working attitude of its workers most especially when carrying out an

operation, accidents occur more in an industry than it does on the road. Thus, this was old heading on a poster distribution by Australia awake (2016). According to Niger state bureau of statistic it was recorded that not less than twenty (20) people dies, while not less than hundred and five (105) were injured with different degrees of injuries and pains every year between 2002 to 2016 in the industries due to the lack of proper safety practices.

Furthermore, the assessment is to address different operations commonly used in the production of Iron and steel from coke ovens to steel furnaces and foundries to rolling mills, coating lines and recycling. It also covers transport, competence, and training, personal protective equipment, emergency preparation and special protection and hygiene issues. Each section describes hazard, assess risks and provides guidance on eliminating or controlling accidents risks.

1.2 Statement of the Problem

In our nation (Nigeria) today, accident is disturbing sources of loss to the priceless value of human life as well as the business processes. Apart from pain and damages that accident induces it also reduces group productivity as well as inefficiency and generally retards progress. Mostly, Industrial accidents occurs as a result of hazards left uncontrolled, this may be as a result of inadequate safety training of the workers, poor management of job-related hazards, inadequate supervision and inspection of the working environment by industrial based and othersafety organization inspectors. It may also be as a result of some alloy and steel industry supervisors/inspectors and workers, trainees, students who are incompetent due to lack or inadequateknowledge on effective management of related hazards in alloy and steel industries. The problem of the study therefore is to assess the strategies for enhancing and promoting industrial safety practices in Niger state.

1.3 Purposes of the Study

The purpose of this study is to assess the industrial safety practices of the industries and thus, strategize the effective ways or methodsfor promoting the provided practical guidance on the role and obligation of competent authorities and the responsibilities, duties and right of employers, workers, and other parties involved with regard to industrial safety practices. Specifically, the study therefore seeks to find out the followings

1. Determine the extent of compliance with the existing safety precautions in the Industrial workshop
2. Determine the degree of proper safety practice awareness in the industry
3. Determine the possible strategies of improving and maintain proper and efficient safety practice in an industry.

1.4 Significance of the Study

The study will be of a great significant to metal working technologies, engineers, managers, supervisors and inspectors, students on their SIWES, apprenticeship and other parties involved who works in the industry,and these are benefits of the above listed groups:

i. Metal working technologies should be more updated in dealing or operating both hand and machines toolsin the processof welding and fabrication.
ii. Engineers should be able to be more careful about the unsafe or careless acts of the skills workerswhile operating any heavy machines.
iii. Managers should make sure that all the operations areas are safe from hazards risk to maintain skills workers health care.

iv. Supervisors should also make sure that all equipment and machines, operators are in good condition.

v. Students should be able to be trained and be more familiar with all safety practices in the industry workshop.

Because it will reveal all the unsafe or careless acts and unsafe conditions in their working environment which are possible sources of hazard that leads to accidents in their workplace, thereby, providing opportunities for solving problems and methods for safe Guiding the lives of all the workers in industries.The study will also be of great positive implication to practicing, managers, employees, educationist, health and safety practitioners and the general public that are interested in acquiring knowledge in this field of life. It will expose the hazard and risks in the workplace, the employee's responsibilities in the extent of compliance with the existing safety precautions in the Industrial workshop and the level of safety practice awareness in the industry.

The study will also equip the management with relevant knowledge on the possible ways of improving effective safety practice in the industry. For academics its exposes them to the practices in an industrial manner. This applies to the other health and safety practitioners and the readers interest.

1.5 Scope of the Study

The study is delimited to the extent of compliance and improving the existing safety precautions in industry.

1.6Research Questions

The following research questions were formulated to properly guide the study.

1. What is the extent of compliance with the existing safety precautions in an industrial workshop?
2. What is the level of safety practice awareness in the industry?
3. What are the possible ways of improving effective safety practice in the industry?

1.7Hypotheses

The following hypotheses are formulated to properly guide the study and will be tested on 0.05 level of significant.

i. There is no significant difference between the mean responses of the management staff and skilled workers of industry with regards to existing safety precautions in industrial workshop.
ii. There is no significant difference between the mean responses of the management staff and skilled workers with regards to possible ways of improving effective industrial safety practices in the industry.

CHAPTER TWO

LITERATUREREVIEW

2.1 Theoretical framework

2.2 Safety Theory

According to 2017 estimates of accidents and work-related diseases and deaths report released by the International Labor Organization (ILO), each year 2.78 million workers die from occupational accidents of which 2.4 million are disease related, approximately 86.3% of the total estimated deaths. The work-related mortality accounted for 5% of the global total deaths (based on the Global Burden of Disease Study 2015) and fatal accidents accounted for the remaining 13.7% [1]. Likewise, for 2017, BLS reported 282,750 MSD cases resulting in days away from work in the private sector, a continued decrease from the previous year (285,950) [2]. Work-related musculoskeletal disorders (WMSDs) accounted for 31.2% of all injuries and illnesses involving days away from work and remain the largest source of injury and illness cases [2]. Therefore, work-related issues have led to the explosion of research on safety and health for workers in the ergonomics and human factors, medical, psychological, engineering, science, nursing, and environmental literature for over two decades. The health and safety hazards address both acute and chronic hazards workers are exposed to at workplaces daily. These days health hazards at workplaces attract more attention because of the potential harm associated with the employee's exposure and the monetary cost attributed to a single cause. Thus, everyone wants a safe and healthy workplace for proper operation and productivity of the employees. Therefore, health and safety at work is aimed at creating conditions, capabilities, and habits that enable the worker and the organization to operate efficiently and in a way that avoids events that could cause them harm [3].

To reduce the rate of accidents reported every year at work, the United State (US) enacted a law to oversee the safety and health of workers at various workplaces in 1970, known as Occupational Safety and Health Act (OSHA). The act was enacted purposely to ensure that employers provide safe working environment for all employees. The importance of human safety and good health cannot be overemphasized or overestimated. Before the existence of OSHA, the National Environmental Protection Policy Act of 1969 became the basis of the environmental protection in the US. This chapter provides the overview of the book on safety and health for workers from research and practical application perspectives.

Everyone is exposed to at least one hazard daily and constantly interacts with different hazards on daily basis. The hazards concern with safety and health hazards, include biological, botanical, mechanical, chemical, physical, etc. Human beings cannot escape inhalation, egestion, injection, and absorption processes, even if they refuse to engage in daily work activities. Thus, it is imperative to study in depth the processes and the methods to control and manage the everyday hazards humans are constantly exposed to. Furthermore, to complicate issues, human typically operates under different constraints including inability to survive without interaction with one another, environments, materials, and equipment on daily basis to function as human. Given these constraints, human beings are forced to maintain good health while performing their daily tasks by using good judgment during decision-making. Exposure to hazardous materials is inevitable but human errors, time of exposure, concentration, and the dose of the hazardous materials determine the effect on safety and health of the workers. To reduce the likelihood of making errors, human beings must first understand the theory behind each operating process of any activity before engaging in it. Therefore, identification and recognition of hazards relating to

the theory and the applications of the principles of handling the hazards are the significant ways for protecting human safety and health at work.

2.2 Conceptual framework

2.2.1Concept of safety

Safety is defined as the state of being safe and protected from danger or

ham. It is also the state of being safe from danger of accident, injury, serious physical harmor some other form of injury, Wikipedia (2013). Safety is an act of inculcating the necessityof taking precaution in order to protect people and property. Safety in the workplace isconcern with all the safety mechanism put in place by employer or individuals to ensure, asmuch as possible, the avoidance or elimination of accident in industries. Okorie (2002),maintained that safety could be observed to be the condition of being free from ham andAccident in any daily activities involving human being at work always place priorities onSafety before performing any function or duties which could be term as "'safety first" mostCompanies where heavy machines are being operated have such signs in their workshop butStill need to be practiced by each worker and management staff in industry.Therefore, it is very important that, in every industrial set up there should be someindustrial safety tor equipment, machine, tools and the workers, which can conveniently reduceunfortunateincidents that happen to the barest minimum. There are various types ofindustrial safetyequipment which should be utilized by workers while working in anydangerous spot.industrialsafetytools are generally that equipment that are prepared in aparticular manner to protect people towards any incident and injuries. that might happenduring operation. Industrial personnel are always vulnerable to all sorts of dangers, many of them could be life threatening Workers life should not he risked or placed in the face of realdanger when you

are able to avoid most of the risk by giving safety equipment to themAnother causal of accident in the industry isfire. Fire is a component thatuseful for various functions but, simultaneously can be hazardous, particularly in area likestore of consumable goods in the industry which could cause fire incident; firefightingequipment is essential part of everyday lite in industry. The important of safety in industrycannot be over emphasized. It is mostly felt in factorieswherethe labourers are exposed tosustained risk in their daily operation. Safetyis more important in an industry because it isThe protection of people and property from episodic and catastrophic incident the expertiseand therightstools along with a Systematic approach to identity process risk andimplementationof proactive measures to reduce or minimize and manage risk in industry, Shouldbegiven paramount attention in order to achieve the aims and objectives of the Industry.

2.2.2Occupational hazard, risk and accident

Occupational hazard refers to a risk or danger as a consequence of the nature or workingconditions of a particular job. Generally, hazard 1S something that can cause harm if nocontrolled. Risk is a combination of the probability that a particular outcome will occur and theseverity of the harm involved. Kadiri (2006) see hazard as a condition that has the potential cause injury, damage equipment or facilities, loss of material or property, or a decrease in thecapability to perform a function.

Hazard, risk and accident are used in other fields to describe environmental damage, ordamage to equipment. However, in the context of occupational safety and health (OSH), "harm"generally, describe the direct or indirect degradation, temporary, of the physical, mental, or socialwell-being of workers. For example, carrying out manual handling of heavy objects is hazard.

The outcome could be musculoskeletal disorder or an acute back or joint injury Wikipedia(2012) The common harmful psychological and physical conditions resulting from occupationaldiseases and accidents include, actual loss of part of one's body, death, various forms of cancer,occupational stress, mistrust of others, Ojo (2005), Industrial hazard or accident is usuallyaccompanied by negative consequences for human lite, property and environment. Theseaccidents and their analysis are usually complicated, but they are important sources ofinformation that highlight the dangers of neglecting safety in the industry and the results usedalso, in minimize risk. The Occupational Safety and Health Administration (OSHA 2005) hasSeen decline in injury rate among most professions during the past two decades exceptforconstructionworkers Despite OSHA regulations designed for workplacesafety, many timesthese requirements are deliberately ignored. The careless attitude and unsafe practice of most workers in the workplace of an industry

present the major deadly hazards or accident in the workplace. Most workplace accident can be

traced to the following:

i. Careless attitude of workers
ii. Using wrong tools for u particular work
iii. Lack of knowledge of the work being carried out
iv. Inadequate knowledge of safety rules
v. Working with obsolete tools and equipment
vi. Ignorance of safety rules and regulation
vii. Improper clothing (not w earing safety cloth)
viii. Improper maintenance of equipment and machines

The contact or modes of injury, together with the material agent are the variableCharacterized the type ofindustrial accidents, Donovan (2001). Contact or mode of injurydescribes how the victim was hurt by the material agent that caused the injury, while the materialsrefers to the object, tool or instrument with which the victim came into contact, or thePsychological mode of injury on the other hand, the variable deviation identifies the immediateare that is the event or failure which triggered the accident

2.2.3 The Concept of Industry

An industry is an area of economicproduction which involves large amounts of upfrontCapitalinvestment beforeany profit can be realized themostsuccessfulindustrialin a given Sector tend to be eithercompanystarted with a great deal seedof money, or earlyinnovators ofsome new technologybrought first to market, so that a great deal of capital can he quicklyraised from salesfor furtherresearch into technological improvement. A clear indication of the way inwhich human efforts has been harnessed as a force for the commercial production ofgoodsandservices are the change in meaning of the word industry (Wikipedia 2012) Industrial mean“diligent activity directed to some purpose” in Latin Over the course of the industrialrevolution, As more and more human effortsbecame involved in producing goods and services for sale, theLast sense "Systematic work or habitual employment” grew in importance to a large ExtentIndustry became a key sector of production in developed countries It produces goodsand renders services to different kind depending on the type of industry. Industries are usually Established with the primaryaim of maximizing profit, it combines the application of capital,Land, Labor, and management in the production of goods and service Labour as a factorof production, Anyanwuocha (2003). Without Labour the production process can never be achieved.

An example of industry includes manufacturing industry, steel and alloy industry,textilesIndustry, construction industry and service industry.Industries whether serviceindustryorproduction industry they can be grouped into five (5) levels which are given below

Levels of Industry

Primary (first): Primary industries are those that extract or producerawmaterialsfrom which useful items can be made Extractionof raw materialsincludesmining activities, forestry, and fishing.

Secondary (second): Secondary industries are those that changerawmaterials in tousable products through processing and manufacturing. Bakeries that makeflour into breadand factoriesthat change metals and plastics intovehicles are exampleof secondaryindustries:electrical/electronics industry, alloy and steel producing industryare also example of this level of industry. The term "value added"is sometimes applied to processed and manufactured itemssince the change from a raw material into a usable product has added value to the item.

Tertiary (third): Tertiaryindustries are those that provide essential services and support toallow other levels of industry to function.Often simply called service industries, this levelincludestransportation, finance, utilities, education, retail, housing. medical, and other services.

Since primary and secondary levels of industry cannot function without these services, they are

sometimes referred to as spin-off industries.

Quaternary (fourth): Quaternary industries are those industries for the Creation and transfer of Information, including research and training Often called information industries, this level hasSeen dramatic growth as a result of advancements in technology and electronic display andtransmission of information.

Quinary (fifth: Quinary industries are those that control the industrial and governmentdecision-making processes. This level includes industry executives and management and Bureaucrats and electedofficers in government Policies and laws are made and implemented at this level.

2.2.4 Concept of Management Leadership

Management leadershipis a double concept i.e. “management and leadership” these two Termsarealways misused by peopleto mean the same thing but they are notthe same thing, theyare onlyinterredrelated and can be used interchangeably. It is wellknown that cannotbe management without leadershipthat is a leader so the twowords arealways usedinterrelated.

Management is all aboutcoordination of humanandmaterialresources, through organizing, leading, directing andCoordinating while leadershipis all about leading others to a specific goal. The term Management originatesfrom the verb manage which comes from the Italian Maneggiare which means to handle, especially tools which is derived from the latin word manus (hand).The French word mesnagement later manegement influenced the development inMeaning of the English word management in the 17" and 18 centuries. ManagementAccording to business dictionary (2013) management is the organization and the coordination ofa business in order to achieved defined objectives and is often included as a factor of productionalong with machines,

materials and money. Managers play a key role in planning, organizing,Leading and maintaining a safety and loss management program, and in providing the necessaryresources. The goals of managers should be to make the safety and loss management program apart of the business plan and culture of the company, and to integrate it with all other companyactivities. Managers should strive to make everyone in the organization accountable for theiractions for achieving results and promoting continuous improvement. Manager need to be awarethat people are their most important asset and should know that safety and loss managementprovide a significant opportunity for managing cost and promoting continuous improvement.

A good Manager should have these qualities:

1. Leadership by example: All managers consistently adhere to safety and loss managementdirectives, procedures and rules.
2. Visibility: Managers visit work site regularly, during normal operations not just whenthings go wrong. They interact with workers; toolbox talks, or monthly safety meetings.Managers actively listen to workers input and feedback, and if possible take steps toresolve issue that are raised.
1. Line responsibility: Managers constantly emphasize that safety management is a lineresponsible. Safety professionals are a resource, but they are not in charge of and fullyresponsible for safety. Every employeeisencouraged to be a safety officer.
2. Management participation: All managers take part in safety management activities, at

least on some reasonable Frequency (They are involved as participants, as well asleaders.)

Leadership is a key to the success of any industry because it is needed to inspire those underyou to have a sense of teamwork. According to Northouse (2007) leadership is a processwhereby an

individual influence a group of individuals to achieve a common goal. Good leadersdevelop through a never-endingprocess of self-study, education, training and experience, Jago(2000). Therefore, there are certain things the leader must know and do. Though, these do notcome naturally, but are acquired through continual work and study. Good leaders are continually

working and studying to improve their leadership skills; they are not resting on their laurels.

Leadership is learned but the skills and knowledge possessed by the leader can be influenced by

his/her attributes or traits, such as beliefs, values, ethics and characters. Knowledge and skillscontributes directly to the process of leadership, while the other attributes give the leader certaincharacteristics that makes him/her unique. According to holding leadership center (2009) a goodleadership must possess the following characteristics which are the following;

- Proactive and reactive; the exceptional leader is always thinking three steps ahead.Working to master his/her own environment with the goal of avoiding problemsbefore they arise.
- Flexible/adaptable; how do you handle yourself in unexpected or uncomfortable situation" An effective leader will adapt to new surroundings and situations, doing his/her best to adjust.
- A good communicator, as a leader, one must listen a lot, a leader must be willing to work to understand the needs and desires of others. A good leader asks many questions, considers all option and leads in the direct direction.
- Respectful; treating others with respect will ultimately earn respect for the leader.
- Quiet confidence, a leader must be sure of him/her self with humble intentions.

- Enthusiastic; excitement is contagious. This is because when a leader is motivated and excited about the cause people will be more inclined to follow.
- Open minded; a leader must work to consider all option when making decisions. A strong leader will evaluate the input from all interested parties and work for the betterment as a whole.
- Resourceful; a leader must utilize the resources available to them. If a leader does not know the answer to something he should find out by asking questions. A leader must create access to information.
- Rewarding; an exceptional leader will recognize the effort of others and reinforce those actions. This is because we all enjoy being recognized for our actions and this will help to encourageworkers to do more.
- Well educated; knowledge is power A leader must work to be well educated on Community policies, procedures, organizational norms etc. the knowledge of issues and information will increase his/her success in leading others.
- Open to changes a leader will consider all points of view and will be willingto change a policy, programmed, culture and traditions that are outdated, or not anyLonger beneficial to the group as a whole.
- Interested in feedback; how do people feel about your leadership skills set? How canYou improve? These are important that a good leader need to constantly as those

  Who he leads. A leader must view feedback as a gift to improve.
- Evaluative; evaluation of event and programs is essential for an organization/group

  To improve and progress. An exceptional leader will constantly evaluate andPrograms and policies that are not working.

- Organized; a good leader must be well prepared for meetings, presentations, events. And confident that people around him/her are prepared and organized as well.
- Consistent; confidence and respect cannot be attained without a leader beingConsistent. People must have confident that their opinions and thought will be heard and. Taken into consideration.
- Delegator, an exceptional leader realizes that he/she cannot accomplish everything
- On his/her own. A leader should know the talent and interest of people aroundHim/her, thus, he/her will be able to delegate task accordingly
- Initiative, a leader should work to be the motivator and an initiator. He/she must be aKey element in the planning and implementing of new ideas, programs, policies andEvents.

2.2.5Safety Practice in Industrial workshop

Industrial workshop is a room or building which provides the area and tools (machinery) That may be require for the manufacture or repair of manufactured goods or service in the industry. According to Ojo (2004) observed that safety practice or taking precautionary safety measures, in the process many lost their lives some are partially or permanently impaired bymachine, tools and equipment are at time not spared. He stressed further that the problem ofaccident is compounded by flagrant lack safety rules and regulations by industrial workers andmanagement, like obedience is better than sacrifice. Many accidents in the workshop, Industry conduct or probably have been preventing stated safety precautions. Workers using machinesand power tools are faced with a potential risk of injury due to the fast-moving parts of themachines. These risks can be reduced by insuring that the employees know the safe operatingprocedures tor the machines and power tools.

Workers in industry who are exposed to machinery or equipment hazard must be aware ofthe potential of accidents. The following guidelines must be followed when working in industry.

1. Workers should report to work alert, rested and in good physical condition.

2. Personal protective equipment (such as safety glasses, hearing protection, protectiveclothing, and footwear) must be worm when required for specific job task or work areas.

3. All accidents, incidents and injuries, regardless of how minor, should be reported to thesupervisor in charge.

4. All work is should be performed in a safe manner according to the written policies andprocedures. If there is a concern about the safety of a task, the attention should bring to. immediate supervisor.

5. Workers must understand their work assignments and perform only the job functions inwhich they are fully trained.

6. Possession of firearms or other weapons is prohibited on Company property.

7. Horseplay or practical jokes are prohibited.

8. Use or being under the influence of intoxicants or drugs while on the job is prohibited

9. No worker shall operate equipment unless trained and authorized for its use

10. A worker shall not operate a machine unless the guarding mechanisms are in place and functioning properly.

11. Always use the proper tool, equipment, or process for the job.

12. All employees shall correct an unsafe condition or practice to the extent of their authority and report the hazard to their supervisor

13. All employees are forbidden to ide on forklifts, carriers, or other mobile equipment aspassengers. Drivers of such equipment are required to wear seatbelts when provided.When using sheet metal fabrication tools, some safety precautions should be followed. Tools like English wheels can be hard to manage if you are not proficient at using them. Hence, some basic rules should be followed by all amateurs. If you are a professional sheet metal fabricator, read on, you might find something useful. Also, we will be discussing common metal fabrication injuries.

Areas of Concern for Metal Sheet Fabrication Projects:

Before proceeding with safety tips for metal sheet fabrication projects, here is a list of injuries, which can occur if proper safety measures are not taken:

1. **Injuries from Material Handling**: Improper material handling is one of the main causes of injury in a workshop. Most of these injuries lead to musculoskeletal problems, which can range from minor sprains to in vertebral disc injuries. These injuries result due to ignorance of proper lifting practices, avoiding established lifting protocols, long working hours, etc.

2. **Injuries from Hand Tools Usage**: Various types of hand tools are used in metal fabrication projects to give finishing touches. There are various reasons for injuries from hand tools such as improper tools for the project, poor maintenance of tools, excessive use of tools, and inappropriate design of work area. For instance, long-term use of a welding machine can

cause musculoskeletal Also, a welder may be exposed to toxic substances or carbon monoxide, if there is poor ventilation in the work area.

3. **Injuries from Poor Barriers**: Usually, the areas where metal fabrication projects take place are specially designed to avoid injuries. The area is closely protected with various types of barriers. Poor barrier protection is a major reason for injuries. For instance, various guarding mechanisms are adopted to protect a worker's finger from getting entrapped in the machine. If these guarding barriers are not properly installed, there are all chances that a worker may lose a finger, or the hand.

2.2.6 Occupational Health and Safety

Health is the level of functional or metabolic efficiency of a living being. Occupationalhealth and safety are concerned with keeping oneself from ill-health associated with workingconditions at work. Health and safety of workers has gained management attention in recenttimes, this is because of the combined effort of government, trade unions and other stakeholders.Effort in this direction is manifested through the installation of safety devices of all kinds and thedissemination of safety information to workers. Safety clubs, literature, posters and contests areenlisted for the purpose of making employers safety conscious. In order for an industry to be cost effective and to play more significant role in the management of human resources, the personneland human resources can benefit generally from being concerned with occupational health in anorganization.

Occupational health and safety is a cross-disciplinary area concerned with protecting the health, safety and welfare of people engaged in work or employment, Wikipedia (2012) itfurthereffect,it may alsoprotectco-workers,familymembers ,employees, Customers, suppliers , nearby

communities and , other members of the public who are directly orIndirectlyimpacted by the workplaceenvironment. It may involve interaction among manySubject areas includingoccupationalmedicine, epidemiology, occupational or industrial hygiene,Public health, chemistry, health physics, publicpolicy, ergonomic, toxicology, environmentalhealth, industrial relations, sociology, safetyengineering engineering, and occupational healthpsychology

Since 1950 the internationalLabourorganization (ILO) and world health organization (WHO) have shared a common definition of occupational health, it was adopted by the joint ILO/WHO committee on occupational health at its first session in 1995. The definition reads: occupationalhealthshouldbeaim at: the promotion and maintenance of the high degree ofphysical, mental, and social wellbeing of workers in all occupations, the prevention amongstworkers of departure from health caused their working conditions, the protection of workers intheir employment rom risks resulting from factors adverse to health, the placing andmaintenance of worker in an occupational environment adapted to his psychological and physiological capabilities, and to summarize the adaptation of work to man and of each man tohis job.

In the health and safety practice handbook by Stranks (2000) occupational health andsafety is defined as "physiological and socio-physiological conditions of an organization'swork force resulting from the environment. According to the free encyclopedia (2013)occupational safety is the discipline which is concerned with processing and protecting human Facility resources in the workplace. Oladeji (2000) defined occupational health as beingConcerned with the health problems of the occupied or employed person they further emphasized0n some areas where health programmers should focus on they include:

1. The promotion and maintenanceof the highest degree of physical, mental, and socialwellbeing of all workers in all occupations.

2. The prevention among workersof departure from health caused by their working conditions
3. The protection of workers in their employment from risk resulting from factorsadverse to health.
4. The placing and maintenance of workers in an occupational environment adapted tohis physiological and psychological environment.

It is clear that most developing countries are far from achieving these aims. According toRobert and John (2000), healthis a state of physical, mental and emotional wellbeing and safetyis the protection of the physical wellbeing of people. In their opinion, employers are obligated to provide employees with safe and healthy environment. They further stressed that, the act ofworking with unsafeequipment or in areas where hazard is not controlled is highlyquestionable under workplace health and safety Act 2004, and the Act of health and safety includes the following:

- The company has a legal obligation to ensure the health and safety of everyone in the workplace, including employees, customers and visitors.
- It is the responsibility of the company to identify hazards in the workplace and assesstheir potential to cause harm. Some hazards pose a significant threat to health and safety,others are relatively low risk.
- Where hazards are identified, employee should take steps to control the risk, either by eliminating it or reducing it to acceptable level.
- As an employee, you are legally obliged to follow instructions given by the company andto report any workplace hazard or risk that is identify.
- You must not put your health safety at risk or deliberately injure yourself, or deliberatelymisuse anything that has been provided for health and safety.
- You must use personal protective equipment if it is provided and if you been trained howto use it.

- ❖ Employers who repeat health and safety violations or who violate the Act on purpose may face fines, civil charges, or even criminal charges.

Occupational health and safety are an important factor which must be put into workablepractice in every industrial organization. We must consider health in every decision we make and, in every activity,we perform. We should care about the health and safety of our fellowemployees, their families, their communities, our customers, contractors and visitors. "Accordingto OSHA, US, Department of Labour (2003) health and safety programs contains health andsafety elements of an organization's objectives which make it possible for the company toachieve its goals in the protection of its workers at workplace. The occupational health and safetyRegulation specify the minimum requirement to be contained in a health and safety program.

Some of the requirement specified in the regulation may not be applicable to every workplace.However, each worker should carry out their own health and safety risk analysis in consultationwith the occupational health and safety, committee to determine what hazards are present atWorkplace. However, each employer should carry out their own health and safety risk assessment.

In consultation with the occupational health and safety, committee, to determine what hazardsare present at the workplace. Once the hazards have been identified, control for exposure to these hazards should be detailed in the safety program.

The reasons for establishing good occupational health and safety standard are frequently identified as:

- ✓ Moral: An employee should not have to risk injury or death at work, nor should othershave associated with the work environment.

- ✓ Economic: Many governments realize that poor occupational safety and health performance results in cost to the state e.g. through social security payment to theincapacitated, costs tor medical treatment, and the loss "Employability" of the worker.Employing organization also sustain cost in the event of an incident at work (such as legalfees, fines, compensatory damages, investigation time, lost production, lostgoodwill from the workforce, from customers and from the wider community).
- ✓ Legal: Occupational safety and health requirement may be reinforced in civil law and/orcriminal law; it is accepted that without the extra encouragement of potential regulatoryaction or litigation, many organizations would not act upon their implied moralobligations.

Management (employer) must take reasonable and practical steps to ensure the health and safety of workers (employee) and any other persons present in the industry. The employer mustalso ensure that employees are "aware of their responsibility and duties"Workers are obligated to take reasonable care to protect their own health and safety andthat of another workers present. Furthermore, Workers must help the management to ensure theirand safety and other workers in industry, including workers employed' by a differentemployer (contractors).

Suppliers must take reasonable and practical steps to ensure that:

- ➢ Any tool, appliance orequipment supplied is in safe operating condition.
- ➢ Any tool, appliance, equipment, designated substance or hazardous material suppliedcomplies with act or the regulations.

Key components of the OSH management system

All managers, team leaders and workers' representatives in emergency operations need to be trained in the development of the OSH management system in outbreaks and emergencies through the ICS.

1. Workplace policy on OSH;

2. Organizational structure and roles and responsibilities for OSH within the ICS;

3. planning, including resource mobilization (e.g. human resources, personal protective equipment (PPE), monitoring equipment, medicines and vaccines, procedures and guidelines on OSH);

4. monitoring and evaluation mechanism (e.g. indicators, checklists).The following are key requirements for the OSH management specific to emergency response workers during outbreaks and emergencies:

5. Selection of the right persons with qualifications and skills for the required job.

6. Training of selected professionals in health and safety risk assessment, risk management and risk communication management.

7. Assessment and management of OSH risks during deployment.

8. Health surveillance covering monitoring for adverse impacts of deployment on the physical, mental and social health of responders, and management of these impacts, including through psychological support and counselling. Selection of the right persons with qualifications and skills for the required job. This is an important step in organizing any response mechanism, whether for disease outbreaks or any other emergency. The process includes matching the requirements of the potential emergency with the

qualifications, skills and physical and mental status of the persons to be selected. Training requirements for OSH management during outbreaks and emergency responseTraining is an integral element of the deployment process for response workers in an emergency response to outbreaks, chemical and radiation incidents and natural disasters in order to equip them with knowledge, attitudes and skills to ensureappropriate behavior for protecting their personal health and safety – both so they can remain healthy and safe and so they can carry out their response activities effectively.

All workers who are expected to be involved in the response to an outbreak or other public health emergency should be trained in the following:

1. Basic assessment and management of OSH hazards and risks in the field, covering physical, chemical, biological, mechanical and psychosocial hazards;
2. Hazards and risks associated with specific outbreak or emergency situations such as Infection Prevention and Control (IPC) and the basics of chemical and radiation safety;
3. Roles and responsibilities of emergency responders under the ICS;
4. Personal security in the field;
5. incident reporting on diseases, injuries and incidents during the emergency operations.

Additionally, during the response, workers should receive daily briefings and instructions on Safe working practices relating to specific hazards and risks to their health and safety. Also, such daily briefings would serve as a good opportunity for supervisors to check the health Status of the workers Emergency responders (e.g. workers employed in medical treatment Units, laboratories and burials, as well as chemical and radiation workers) may need, in addition to the

above, training in awareness and specific skills (e.g. use of PPE and chemical and radiation decontamination procedures).Communication with workers involved in outbreaks and emergencies risk communication is a crucial part of the response plan and is required at all stagesof deployment. Communication is the responsibility of all supervisors in the field. The key principles for risk communication with health and other emergency workers during outbreaks and emergencies include:

1. Risk communication with workers should be personal, face-to-face, and should not Rely solely on posters and health education materials;

2. Workers' representatives should be involved in risk communication;

3. Workers should not learn from the media about risks and dangerous situations; all accidents should be discussed with workers and preventive measures should be taken immediately;

4. Risk communication with workers should promote a no-blame culture;

5. Risk communication should be fair and should address fears, rights and entitlements and the effectiveness of measures for protection. Psychological support and counseling the emergency response process is associated with high levels of stress which affect emergency responders through all stages of deployment. Therefore, the aim of psychological support is to prevent and manage stress and its impacts on physical, mental and social health Throughout deployment and afterwards. The effects of stress encountered during an assignment do not magically disappear when Emergency response personnel return home. Protection against the impact of stress requires Psychological first aid as well as specialized counselling and psychological support from Professionals.

Rights, duties and responsibilities of employers and workers during outbreaks and emergencies Protecting the health and safety of health-care workers and other emergency responders is Crucial to maintaining an adequate and functional workforce and ensuring the continuity of the emergency response and essential health services. In an emergency situation such as an Outbreak, chemical spill or radiation release, where workplace risk changes rapidly, employers Need to be prepared to adapt their usual practice in consultation with workers, their representatives and technical experts in order to achieve a reasonable balance of safety versus obligation to work. Box 1 describes the risk allowance policy applied in Sierra Leone during the 2019 response to the covid-19 outbreak there.

General rights and responsibilities of employers and workers in dealing with the OSH risks during management of outbreaks and emergencies, the following. General rights, duties and responsibilities of employers are specified in the International Labour Organization (ILO) Occupational Safety and Health Convention of 1981 (No. 155) [10]: Employers have overall responsibility to ensure that all practicable preventive and protective Measures are taken to minimize occupational risks:

1. Employers are responsible for providing adequate information, comprehensive instruction andnecessary training on OSH, for consulting workers on OSH issues Related to their work, and for notifying the competent authority (e.g. labor, medical Inspectorate) of cases of occupational injuries and diseases;

2. Employers are required to provide workers with adequate protective clothing and Protective equipment and appropriate training on their use, to prevent, so far as is reasonably practicable, the risk of adverse effects on health;

3. The following general rights, duties and responsibilities of workers apply:

4. Workers are required to report immediately to their supervisor any situation that they Have reasonable justification to believe presents an imminent and serious danger to their lives or health. Until the employer has taken remedial action, if necessary, the employer cannot require workers to return to a work situation where there is a Continuing imminent and serious danger to life or health;

5. Workers have the right to remove themselves from a work situation that they have reasonable justification to believe presents an imminent and serious danger to their Lives or health. When a worker exercises this right, he or she shall be protected from any undue consequences;

6. Workers are responsible for following established OSH procedures, avoiding the Exposure of others to health and safety risks, and participating in training provided by the employer.The following general principles from the ILO Occupational Safety and Health Convention of 1981 (No. 155) also apply:

7. OSH measures shall not require workers to incur a financial cost;

8. Cooperation between employers and workers and/or their representatives within the Workplace shall be an essential element of workplace-related prevention measures, such as through workers' safety delegates, safety and health committees, and Collaboration in providing information and training.The ILO's List of Occupational Diseases Recommendation, 2002 (No. 194) provides that Infections and post-traumatic stress disorder, if acquired through occupational exposure, are Considered occupational diseases, and that affected workers have the right to compensation, Rehabilitation and

curative services.Rights and responsibilities of employers and workers in emergency response settings emergency response workers, including health-care workers, have a contractual obligation and a duty of care to provide services that may put them at risk of infections, toxicities, injuries and diseases. Despite the duty of care, in the face of increased risks inherent to the work in emergencies, emergency response workers may, according to the national context, situation

CHAPTER THREE

RESEARCH METHODOLOGY

The methodology used in thisstudyarediscussed in the following sub- heading, Research design, area of study, populationofthe study and samplings techniques, Instrument for data collection, validity of instrument,Administration oftheinstrument, Method of data analysis, and decision rule.

3.1Research Design

Asurvey design was used for this study because it is observational procedure, it is uses structural questionnaires to seek the view of the respondent on the assessment of industrial safety practice in NigerState.

3.2 Area of the Study

The study was carriedout in ametalworkingindustry in NigerState thisindustryis technology Incubation Center Minnabranch, located at David mark road, behind Federal Roads Safety Commission, Tunga.This has many operational departments Such as engineering, metal fabrication and commercial department.

3.3 Population of the Study

The management staffs and skilled workers of the above-mentionedindustrywere used as the population of the study, the total population for this study is 90. It included 60

Skilled workers and 30 management staff of the industry. Since the population was small there noneedfor sampling.

3.4 Instrument of Data Collection

Thequestionnaire was the main instrumentused for the execution of this study. Thequestionnaire was developed andused, to elicit data from the respondents on thepertinent issues that boarder on this study.

3.5 Validity of Instrument

The instrument used for data collectionwasdesigned by the researcher under the guidance of project supervisor.Theinstrumentwasalsovalidatedby experts inthe department of industrial and technology education, federal university of technology, Minna

Their correction and suggestion werereflected in the final copy of the instrument.

3.6 Administration of Instrument

The questionnairesare the maininstrumentusedfor thisassessment.

The designed questionnairewas personally administered by the researcher, by visiting theindustry the above mentioned

Industry, included in the study with a copy of an introductionletter from the project coordinator.

3.7 Method of Data Analysis

The collected data wasanalyzed by using mean, standard deviation, andt-test. The null

Hypothesiswas tested at 0.05 significant. A four pointscale ranking was used as shown below

Strongly agreed(S.A) 4

Agreed(A) 3

Disagreed. (D) 2

Strongly disagreed. (S.D)1

The formula below is used to calculate the mean.

$$X=\frac{\sum fx}{f}$$

=Sum of normalvalue

X =mean

F= frequency

Decision Rule

To determine the acceptance level, a mean score of 2.5and above will be chosen asdecision point between agreed and disagreed. Therefore, a mean score of 2.5 an above will be

chosen as a decision point for agreed, while below 2.5 will be consider as disagreed. The acceptance level was determined as shown below.

$$\frac{4+3+2+1}{4}$$

$$=\frac{10}{4}$$

$$= 2.50$$

CHAPTER FOUR

RESULTS AND DISCUSSION

In this chapter the data presented were gathered through the response of management Staff and skilled workers of technologyincubation center Minna, Niger State.

This is analyzed and computed based on the research question and hypothesis which guided the study

4.1 Research Question One:

What is the extent of compliance with the existing safety precaution in industrial Workshop?

Table I shows the mean response of management staff and skill workers on what is the extent of compliance with the existing safety precaution in industrial workshop?

N_1 - 30, N2= 60

S/N	ITEMS	X_1	X_2	Xt	REMARK
1.	Fire extinguishers are routinely service and displayed Conspicuously	1.197	2.18	2.08	Disagreed
2.	Approved protective wears are always worn by all Workmen	3.00	3.08	3.04	Agreed
3.	Compartments such as working rooms are adequately Lighted	3.07	2.88	2.98	Agreed
4.	There are proper emergency exits in the workshop.	1.57	1.48	1.53	Disagreed

5	The workshop is adequately ventilated.	2.90	2.87	2.89	Agreed
6.	Caution/ prohibition tags are displayed on equipment That must be operated.	3.20	2.73	2.97	Agreed
7.	Slogans such as poster on safety are displayed on Specific section of the workshop.	2.73	2.72	2.73	Agreed
8.	The entire machines in the workshop are with safety	2.23	2.70	2.97	Agreed
9.	There are fire extinguishers located in a strategic Position in the workshop.	1.80	1.75	1.78	Disagreed
10.	10 Every worker is provided with protective hand gloves, Safety boots and helmet.	3.43	3.35	3.39	Agreed

KEY

X_1 = Mean response of management staff

X_2 = Mean response of skilled workers

Xt = Average mean of management staff and skilled workers

N_1 = Total number of management staff

N_2 = Total number of skilled workers

The result presented in Table 1 above show that respondent agreed with all the items as theExtent of compliance with the existing safety precaution in industrial workshop.

4.2 Research Question Two:

What is the level of safety practice awareness in the industries?

Table 2 shows the mean response of management staff and skilled workers on what is the level of safety practice awareness in industries?

N_1= 30, N2= 60

S/N	ITEMS	X_1	X_2	Xt	REMARK
11.	The workers are aware of fire safety plans,	1.197	2.18	2.08	Agreed
12.	The workers are aware of general laboratory safety.	3.00	3.08	3.04	Agreed
13.	The workers are aware of general electrical safety	3.07	2.88	2.98	Disagreed
14.	The workers are aware of general mechanical safety.	1.57	1.48	1.53	Agreed
15	The workers are aware of general safety on chemical.	2.90	2.87	2.89	Disagreed
16.	The workers are aware of building security	3.20	2.73	2.97	Agreed

KEY

X_1 = Mean response of management staff

X_2 = Mean response of skilled workers

Xt = Average mean of management staff and skilled workers

N_1 = Total number of management staff

N_2 = Total number of skilled workers

The result presented in table 2 above shows that the respondents in agreed with the entire item as the level of safety practice awareness in industries in Lagos state.

4.3 Research Question Three:

What are the possible ways of promoting effective safety practice in the industry?

Table 3 shows the responses of the group (management staff and skilled workers) on what are

The possible ways of promoting effective safety practice in the industry?

N_1 = 30, N2 = 60

S/N	ITEMS	X_1	X_2	Xt	REMARK
17.	Prohibiting inexperience workers from working near equipment involving very high voltage.	2.57	2.85	2.71	Agreed
18.	Health and safety day should be declared in the Workshop annually to create safety consciousness among the workers	2.60	2.92	2.76	Agreed
19.	Organizing mandatory induction training on safety for new workers	3.57	3.62	3.60	Agreed
20.	Legislation of appropriate laws on safety at work by Government	2.73	3.02	2.88	Agreed
21.	Organizing seminars and workshops on safety regulations for workers.	3.27	2.28	2.78	Agreed

22.	Occupational health and safety development should be established in all workshops.	3.50	3.38	3.44	Agreed
23.	Provision of adequate lighting and ventilation in all workshops	3.63	3.67	3.65	Agreed
24.	Workmen should be prohibited from making and receiving call while working.	3.80	3.65	3.73	Agreed
25.	Maintenance culture for equipment and machine should be encouraged.	1.93	2.08	2.01	Agreed
26.	Reporting and documenting accident whether minor or major for future seminar.	3.26	3.73	3.50	Agreed
27.	Drawing instructions and rules of conduct in the workshop	3.47	3.13	3.30	Agreed
28.	Regular training of workers on safety practice	3.77	3.88	3.83	Agreed
29.	Special clothing, should be worn that will perfectly resist spark and hot slag.	3.77	3.75	3.76	Agreed
30.	Relevant test on machine, equipment and tools should be practiced.	3.80	3.43	3.62	Agreed

KEY

X_1 = Mean response of management staff

X2 = Mean response of skilled workers

Xt = Average mean of management staff and skilled workers

N_1 = Total number of management staff

N_2 = Total number of skilled workers

The result presented in table 3 above shows that the respondent agreed with all the items as

Possible ways of promoting effective safety practice in the industry.

4.4. Hypothesis One

There will be no significant difference in the mean responses of management staff and skilled workers on the extent of compliance with the existing safety precaution in workshop?

Table 4: t-test analysis of mean responses of management staff and skilled workers on what is the extent of compliance with the existing safety precaution in workshop?

S/N	ITEMS	X_1	X_2	SD_1	SD_2	t-cal	REMARK
1.	Fire extinguishers are routinely service and displayed conspicuously	1.19	2.18	1.19	1.02	-0.85	NS
2.	Approved protective wears are always worn by all workmen.	3.00	3.08	0.89	0.87	0.25	NS
3.	Compartments such as working rooms are adequately lighted.	3.07	2.88	1.08	0.94	0.89	NS
4.	There are proper emergency exits in the workshop	1.57	1.48	0.94	0.81	0.42	NS
5.	The workshop is adequately ventilated	2.90	2.87	1.06	1.07	0.14	NS
6.	Caution/Prohibition tags are displayed on equipment that must be operated	3.20	2.73	0.76	1.12	2.33	S
7.	Slogans such as poster on safety are displayed on specific section of the workshop	2.73	2.72	1.08	0.96	0.07	NS
8.	The entire machines in the workshop are with safety device.	3.23	2.70	0.94	1.08	2.42	S
9.	There are fire extinguishers located in a strategic position in the workshop	1.80	1.75	0.89	0.73	0.27	NS
10.	Every worker is provided with protective hand gloves, safety boots and helmet.	3.43	3.35	0.82	0.78	0.46	NS

Key:

X_1 = Mean of management staff

X_2 = Mean of skilled workers

SD_1 = Standard deviation of management staff

SD_2 = Standard deviation of skilled workers

t-call = test value

S = Significant

NS = Not significant

Tablet= 2.00

Df = 88

Table 4 above indicates that items 1, 2, 3, 4, 5, 7, 9 and 10 have no significance difference between the mean response of respondents (management staff and skilled workers) at0.05 level of significance. This means that the null hypothesis was accepted for each of these items listed above, while it was rejected for items 6 and 8 means that there is significant difference between the mean response of respondents (management staff and skilled workers) at0.05 level of significance

4.5 Hypothesis Two

There is no significant difference between the mean responses of management staffs and skilled

Workers on what are the possible ways of promoting effective safety practice in industry?

Table 5: t-test analysis of mean responses of management staff and skilled workers on what

Are the possible ways of promoting effective safety practice in industry?

S/N	ITEMS	X_1	X_2	SD_1	SD_2	t-call	REMARK
17.	Prohibiting inexperience workers from working equipment involving very high voltage.	2.57	2.85	1.10	0.95	-1.20	NS
18.	Health and safety day should be declared in the workshop annually to Create safety consciousness among the worker	2.60	2.92	1.22	1.02	-1.20	NS
19.	Organizing mandatory induction training on safety for new workers.	3.57	3.62	0.94	0.74	-0.26	NS
20.	Legislation of appropriate laws on safety at work by government.	2.73	3.02	0.74	0.91	-1.58	NS
21.	Organizing seminars and workshops on safety regulations for workers.	3.27	2.28	0.58	0.14	5.42	S
22.	Occupational health and safety development should be established in all workshops	3.50	3.38	1.08	0.64	0.58	NS

23.	Provision of adequate lighting and ventilation in all workshops.	3.63	3.67	0.81	0.68	-0.19	NS
24.	Workmen should be prohibited from making and receiving call while working	3.80	3.65	0.48	0.68	1.19	NS
25.	Maintenance culture for equipment and machine should be encourage	1.93	2.08	0.37	0.74	-1.28	NS
26.	Reporting and documenting accident whether minor or major for future seminar	3.26	3.73	0.98	0.51	-2.44	S
27.	Drawing instructions and rules of conduct in the workshop.	3.47	3.13	0.63	0.77	2.20	S
28.	Regular training of workers on safety practice.	3.77	3.88	0.57	0.37	-1.02	NS
29.	Special clothing should be worn that will perfectly resist spark and hot slag	3.77	3.75	0.77	0.68	0.10	NS
30.	Relevant test on machine, equipment and tools should be practiced	3.80	3.43	0.61	0.62	2.67	S

Table 5 indicates that items 17, 18, 19, 20, 22, 23, 24, 25, 28 and 29 have no significant difference in the mean response of respondents (management staff and skilled workers) at 0.05 level of significance. This means that the null hypothesis was accepted for each of these items listed above, while it was rejected for items 21, 26, 27 and 30 means that there is significant difference between the mean response of respondents (management staff and skilled workers) at0.05 level of significance.

4.6 Major findings

The major findings of the study are presented below

a. The extent of compliance with the existing safety precautions in an industrial workshop
b. The level of safety practice awareness in the industry.
c. The possible ways of promoting effective safety practice in the industry.

4.7 Discussion of findings

This study was designed to assess industrial safety practice in niger state. With a view develop ways of forestalling loss of skilled men power through death as a result of industrial accident. The discussions of findings were organized in order of the research question and hypotheses.

On the extent of compliance with existing safety precaution in table 1 it is indicated approved protective wears are always worn by all workmen, compartments such as work rooms are adequate lighted, the workshop is adequately ventilated, caution/prohibited tags are displayed on equipment that must be operated, slogans such as posters on safety are displayed specific section of the workshop, the entire machines in the workshop are with safety device, there are fire extinguishers located in a strategic position in the workshop, every worker is with protective hand gloves, safety boots and helmet. Accident do not just occur in isolation without something responsible for their causation. Most accident which could have otherwise been averted or prevented are caused by human or inaction.

The findings in table 2 indicate that workers are aware of fire safety plains, workers are aware of general laboratory safety, workers are aware of general mechanical safety, workers are aware of building security in the district zone where workers are not aware of some safety awareness such as general electrical safety and general safety on chemical. The non-awareness of those safety awareness is thus, one of the major cause of accident in industry. This finding is consistent with earlier report, according to Oke (2018), the incident was traced to lack of observation of safety rules and regulations by the management of the industry.

The findings in table 3 contained the findings of research question 3 which is designed to find out responses from management staff and skilled workers on the possible ways of promoting effective safety practice in the industry which indicated that prohibiting of inexperience workers from working near equipment involving very high voltage, health and safety day should be declared in the workshop annually to create safety consciousness among the workers, organizing mandatory induction training on safety for new workers, legislation of appropriate laws on safety at work by government, occupation health and safety development should be established in all workshop, provision of adequate lighting and ventilation in all workshops, workmen should be prohibited from making and receiving call while working, maintenance culture for equipment and machine should be encourage, regular training of workers on safety practice, special clothing should be worn that will perfectly resist spark and hot slag. Therefore, all the above mentioned should be properly put in place to provide a safe

working environment as all these will help reduce the exposure of workers to hazard which leads to accidents Kadiri (2015), sees hazard as the condition that has the potential to cause injury, damage to equipment or facilities, loss of material or property or a decrease in the capability to perform function. According to OSHA US department of labour (2017), health and safety program contains health and safety elements of an organization's objectives which make it possible for the economy to achieve its goal in the protection of its workers at workplace. A successful occupational safety lies on the safety officer and management as well as government to organize seminars and workshops on safety regulation for management staff and skilled workers on the potential hazard in industry.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION.

5.1 Summary of the Study

The main purpose of this study is to assess the current status of industrial safety practiceIn Niger state. The specific objectives of the study was to examine the extent of compliance withThe existing safety precaution in industrial workshop, level of safety practice awareness in theIndustry and the possible ways of promoting effective safety practice in the industryThe statement of problem, purpose, significance, scope, and assumption of the study, Research question and hypothesis were well stated, tested and discussed appropriately in line with the topic. Related literature was review under the following sub-headings: concept of safety, Occupational hazard, risk and accident, the concept of industry, management leadership, safetyPractice in industrial workshop and occupational health and safety.

The instrument used for data collection was the questionnaire. The questionnaire was Administered by the researcher to a total population of ninety (90) from the industries listed Above. In analyzing the data collected the researcher made use of mean, statistics, standard Deviation, and t-test to determine the degree of agreement or disagreement, and acceptance or

Rejection as the case may be. Therefore, the research question and hypothesis were discussed Based on the findings.

5.2 Implication of the Study

The results obtained from the findings of the study indicate a lot of implications for the Management staff and skilled workers of industries in Niger state. The study provides some Crucial information on the maintenance of tools, machines and equipment, and organizing a

mandatory induction course on safety for every new staff upon employment. The findings of the study have also, exposed many factors which exposes workers to hazards in the workplace.

Likewise, the findings of the study also unveiled possible strategies of promoting effective management of job related hazards in the industry. If these findings are sincerely accepted and actively implemented by the management, it will assist in prevention of workplace hazards thatresult in accidents which might lead to serious injury to manpower or even death, in serious cases, it will also prevent damage of tools, equipment and machines and it will help in keeping the industry from hazards and accident.

The study will equally be of important to the general public who used goods and services of technology Incubation center, this because as soon as the industrial management and workers become fully aware of the important of industrial safety practice, end therefore put it into practice, hazard in the workplace will be reduced, damages of tools, equipment andmachines will also be reduced. Generally, the findings of the study will educate both management staff and skilled workers of industries on the important of safety practice, safety practice awareness and ways of promoting effective safety practice in the industry.

5.3 Conclusion

The findings of the study provide a clear and concise answer to different research questions and hypothesis stated to examine the extent of compliance with the existing safety precaution and the possible ways of promoting effective safety practice in industries in Niger state. Conclusion can therefore be drawn from the result obtained from the compliance with the existing safety precaution in industrial workshop; there is need for little improvement. Finally, there are several

ways of promoting effective safety practice in the industry in minimizing accident in the industry.

5.4 Recommendations

Based on the findings of the study, the following recommendations were made:

1. Prohibiting inexperience workers from working near equipment involving very high voltage.

2. Health and safety day should be declared in the workshop annually to create safety consciousness among the worker

3. Organizing mandatory induction training on safety for new workers

4. Legislation of appropriate laws on safety at work by government

5. Occupational health and safety development should be established in all workshop

6. Provision of adequate lighting and ventilation in all workshops

7. Workmen should be prohibited from making and receiving call while working

8. Maintenance culture for equipment and machine should be encourage

9. Regular training of workers on safety practice

10. Special clothing should be worn that will perfectly resist spark and hot slag

5.4 Suggestions for Further Research

The following suggestions were made for further research work:

1. Appraisal of industrial safety practice in Niger state.

Appraisal of maintenance culture in industrial workshop in Niger state.

3. Evaluation of safety work habit of workshop assistance in the industries in Niger state.

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