STRATEGIES FOR ENHANCING THE NEEDED SKILLS FOR STARTING AND DEVELOPING AN AUTO MECHANIC WORKSHOP IN MINNA, NIGER STATE

BY

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2014/1/49590TI

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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, **WANKYO Sesugh Augustine Gilbertwith matriculation number 2014/1/49590TI, an** undergraduate student of the department of Industrial and Technology Education, certify that the work embodied in this project titled**: "STRATEGIES FOR ENHANCING THE NEEDED SKILLS FOR STARTING AND DEVELOPING AND AUTO-MECHANIC WORKSHOP"** Is a collection of my original research work and it has not been presented for any other qualification anywhere. Information from other sources (published or unpublished) has been duly acknowledged.

WankyoSesugh Augustine Gilbert **.....**

Sign and Date

2014/1/49590TI

CERTIFICATION

The project titled: "STRATEGIES FOR ENHANCING THE NEEDED SKILLS FOR STARTING AND DEVELOPING AN AUTO-MECHANIC WORKSHOP" by Wankyo Augustine Gilbert Sesugh with the matric number 2014/1/49590TI meet the regulations governing the award of the degree of bachelor of technology in the Department of Industrial and Technology Education, School of Science and Technology Education, Federal University of Technology, Minna and it is approved for its contribution to scientific knowledge and literary presentation

This project has been read and approved as meeting the requirement for the award of B. Tech degree in Industrial and Technology Education, School of Technology Education, Federal University of Technology, Minna.

Dr. Abubakar M. Idris
Project Supervisor **Signature and Date**

Dr. I.Y. Umar
Head of Department **Signature and Date**

External Examiner **Signature and Date**

DEDICATION

This project work is dedicated to my beloved Parents Mr and MrsWankyo I. Joseph and loved ones who helped to achieve these.

With profound joy and gratitude in my heart, I dedicate this project also to God Almighty for His Unshakable and Unbreakable Faithfulness. His Divine and constant guidance in my life has made this project a reality today. Thank God.

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ABSTRACT

This study was designed to examinethe strategies for enhancing the needed skills for starting and developing an auto mechanic workshop in Minna, Niger state. Four research questions and two null hypotheses guided the study. A descriptive survey research design was used for the study. The study was conducted in all the auto mechanic workshops in Minna Metropolis of Niger state. A total of 100 respondents consisting of 5 motor vehicle mechanic master craftsmen and 95 senior apprentices in motor vehicle auto mechanic workshops in Minna metropolis of Niger state. A structured questionnaire developed by the researcher and validated by 3 experts from Industrial Technology Education Department Federal University of Technology, Minna was used for data collection for the study. Mean and standard deviation were used for answering research questions, while t-test statistics was used for testing the null hypotheses formulated for the study at 0.05 level of significance. The findings among others revealed that the auto mechanics in Minna metropolis of Niger state needs the ability to remove the engine from the vehicle, demonstrating emotional intelligence in the workplace, improvement on job despite positive feedback and become a thoughtful leader.The study recommended among other things,Relevant facilities for effective implementation of the automobile technology should be provided by government and other enabling bodies. There should be a partnership between the automobile industries and the institution towards skill acquisition. Workshop and seminars should be organized for students on skill acquisition in their respective area of specialization.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

The Advance Learners Dictionary (2019) defines maintenance as the process of protecting or preserving someone or something, or the process of keeping something in good condition or in shape. Maintenance is the upkeep of property or equipment (Merriam Webster 2017). Also, the act of causing something to exist or continue without changing its state but keeping it in a better condition by making repairs, correcting problems. On a personal level I think cleaning my dirty ceiling fan at the end of every month is maintenance, not as soon as it begins to make noises.

Culture is an umbrella term which encompasses the social behavior and norms found in human societies, as well as the knowledge, beliefs, arts, laws, customs, capabilities, and habits of the individuals in these groups. (Wikipedia 2011). Human acquire culture through the learning processes of enculturation and socialization, which is shown by the diversity of cultures across societies. A cultural norm codifies acceptable conduct in society; it serves as a guideline for behavior, dress, language, and demeanor in a situation, which serves as a template for expectations in a social group.

There is no single universally accepted definition of culture (Omotehinshe et al., 2015b) because it is difficult term to define. Definitions tend to vary from one country to another, one continent to another. What is morally acceptable in one country may be abominable in another. Culture is a fuzzy set of basic assumptions and values, orientations to life, policies, procedures and

behavioural conventions that are shared by a group of people, and that influence (but do not determine) each member's behaviour and ones interpretations of the 'meaning' of other people's behaviour. Therefore, culture consists of (overall activity of) attitudes, values, basic assumption, arts, customs, belief, and embodiments that shape the behaviour of individuals in a given society. Culture is an origin of life of a particular society or group of people with unique behavior and way of life. In simple term, people's culture is the summation of their complete way of life.

Maintenance culture is the values, way of thinking, behavior, perception and the underlying assumptions of any person or group or society that considers maintenance as a matter that is important (priority) and practices it in their life. Suwaibatul et al. (2012). When a person or group has maintenance culture, they would have the attitude to maintain, preserve and protect the public facilities. Maintenance culture is not universal in nature, Florence (2011) postulated. It is usually derived or learns through a person making maintenance a natural daily practice that can be followed and emulated by others. According to Mark et al. (2006), the concept of maintenance culture is the internal environment between management and staff in ensuring effective maintenance through the sharing of ideas, beliefs, and values of each member in an organization. Developing and embracing maintenance culture through effective leadership, sound policy, attitudinal development among others would not only enhance national development but also enlist our country among the comity of developed nations.

Public property is property that is dedicated to public use and is a subset of state property. The term may be used to either describe the use to which the property is put, or to describe the character of its ownership, (owned collectively by the population of a state). This is in contrast to private property, owned by an individual person or artificial entities that represent the financial interests of persons, such as corporations. State ownership, also called public ownership,

government ownership or state property, are property interests that are vested in the state, rather than an individual or communities (Wikipedia, 2015).

Maintenance culture in Nigeria is one of the lowest around the world, especially, in our principal towns and cities where the majority of public properties are located. In the rural areas, the story is different and pleasant to hear. The traditional practice of communal clearing of community owned places and such as market playground is in almost every village and in private homes. Also, it is customary to refurbish building interiors with mixtures of cow dung or natural red clay. The end result is attractive and totally indigenous.

Mnamali (2003) asserted that we have no maintenance policy and therefore no such culture exists. Buildings deteriorate overtime due to age, environmental conditions, usage of the building method of design, materials used for construction, the method and quality of construction, and the maintenance management of the buildings (Zubairu 2001, Olotuah 2006, Cheng, Tsai, Lien & Chen 2007). Inadequate maintenance culture is a peculiar feature of almost every public building in Nigeria. According to Rotimi and Mtallib (1995) is partly due to poor maintenance culture on one hand and partly due to the absence of an appropriate benchmark (something, whose quality is known and which can therefore be used as a standard with which other things can be compared).

The declining maintenance culture in Nigeria and its effect on public buildings and all other properties has become a major concern to the government at various levels. This study examines ways of improving maintenance culture and its effect on quality of public properties.

A great portion of a nation wealth is evident in the total value of its public properties and buildings; it is also an important factor in the production of building to be preserved. A poorly

maintained building in a decaying environment depresses the quality of live and contributes in some measures to anti social behavior which threatens the socio-political environment it finds itself in.

According to Stephen (2002) public properties services rarely perform as well as desired. The causes emanate from deficiencies in design, construction, commissioning and maintenance, many researchers have also observed that the generators of maintenance problems could be looked upon has caused during the design stage or construction stage or initiated during the usage stage or the user's carefree attitudes (Bad maintenance culture) which will eventually deteriorate the condition of the property.

He further said that all these could be planned for during the design stage. Maintenance problems though do manifest during the use of the building, their causes might be during the idea interpretation stage.

These made Dekker (2002) to assert that thinking on the maintenance should start in the design phase. According to Speight (2000), it is at the design stage that the maintenance burden can be positively influenced for better or for worse. Where the designer fails to make adequate consideration for minimizing maintenance problems, it always turns out to be a big problem when the building is eventually occupied for usage, the consideration for effective maintenance as one of the parameters for the building design.

Seeley (1997) also said that a skillful design can reduce the amount of maintenance work and also make it easier to perform, since good maintenance begins on the drawing board.

1.2 Statement of the Problem

There has been no doubt a highly poor maintenance culture in public buildings in Nigeria. It is observed that people are generally nonchalant in public spaces.

Obasanjo Commercial Shopping Complex is a building that has a total number of 62 shops occupied by over hundred workers and 8 toilets (four on the top story, four on the ground floor), In-store shopping, with wheelchair-accessible entrance. It is located in the heart of Minna, Zungeru Rd. Minna, Niger State. The facility has been constantly accessible to hundreds of operators and non-operators, cars, motorcycles across the state capital since its commission for use in 2007.

UNESCO (2012) literacy rate of the population places Niger State as the 25th literate state out of the 36 states in Nigeria with a data of 37.5% over the years. This further explains the great deal of illiteracy in this particular area which obviously translates certain behaviours in public spaces. It is observed by the researcher that waste bins are limited, the available ones are either full beyond harmless due to inefficiency of cleaners which affects the condition of the facility environment.

Billboards, sign posts, stickers, around the area should be seen as tools that can be used to project these set of signs showing various ways of improving maintenance culture and further generate discipline, an influential philosophy amongst members of the society, government, facility managers and occupants of public buildings across Nigeria just like how nose masks and social distancing are key practices to help prevent contact and further reduce the rate of COVID-19

infections in most public buildings today. However, this research is assessing needs for improving maintenance culture and quality of public properties in Nigeria.

1.3 Objectives of the Study

The following are the objectives of this study:

1. To determine what crucial factors are measured in improving maintenance culture and quality of public properties in Nigeria.
2. To ascertain needs for improving maintenance culture and the quality of public properties through improved maintenance culture.
3. To determine the factors affecting maintenance culture and quality of public properties in Nigeria.

1.4 Significance of the Study

The following are the significance of this study:

This research will serve as a resource base to other scholars and researchers interested in carrying out further research in this field subsequently, if applied will go to an extent to provide new explanation to the topic.

The findings from this study will educate the government and policy makers, stakeholders in building and the general public on the need for improvement in maintenance culture as a way of improving the quality of public property.

1.5 Scope of the Study

This study on improving maintenance culture and quality of public properties in Nigeria will cover the attitude of Nigerians to the adequate maintenance of public properties, looking at needs to improve maintenance culture with a view to improve the quality of public properties.

1.6 Research Questions

1. What crucial factors are measured in improving maintenance culture and quality of public properties?
2. What are the needs for improving maintenance culture in Nigeria?
3. What are the factors affecting maintenance culture?

1.7 Hypothesis of the Study

Ho_1 There is no significance difference between the main response of On-sight Operators and Building Workers on the crucial factors measured in improving maintenance culture and quality of public properties.

HO_2 There is no significant difference between the main response of On-sight Operators and Building Workers on the benefits of maintenance culture and the quality of public properties through improved maintenance culture

HO_3 There is no significant difference between the main response of On-sight Operators and Building Workers on the possible methods used in implementing maintenance culture and quality of public properties.

CHAPTER TWO

2.0 REVIEW OF RELATED LIETRATURE

2.1 Introduction

Maintenance culture can be seen as a communal attribute of a group or a group of people exercising a common interest. Kumar & Suresh (2008) postulated that maintenance is an action taken to prevent a device or component from failing or to repair normal equipment degradation experienced with the operation of the device to keep it in proper working order. This paper therefore considers maintenance as a process of preserving an asset or facility in its state of continuous use and function, above a minimum acceptable level of performance, over its design span life.

Companies undertake efforts to reduce costs and at the same time improve quality and productivity. These efforts include an examination of the maintenance requirements. The production system of any company requires effective maintenance attention necessary for its continuous functioning (Omotehinshe, et al., 2015a). This will increase equipment life, availability and retains its proper functioning. Poorly maintained equipment may conversely lead to more frequent failure of the equipment, low utilization rate and delaying of production schedule. Equipment that is malfunctioning or misaligned may cause a higher scrap rate or produce products with a questionable quality. Swanson (2001) considered poorly maintained equipment as a necessary evil. This is contradicted by Alsyouf (2007) who saw regular facility

maintenance as a source of profit making rather than just unavoidable and unpredictable expenses.

2.2 Needs for Maintenance

A thorough adherence to a well-defined and developed maintenance strategy will take care of facility breakdown or malfunction thereby allowing facility managers to concentrate on capitalization (Omotehinshe et al., 2015a; Akinyemi, Gambo, Ankeli, & Dabara,2016). In the absence of this, measurable time will be required to develop and define a maintenance strategy, communicate it, and last focusing on the tactical choice, for how to achieve it. Tactics are the actual activation needed to implement the strategy, which concerns the management of processes, people, and physical asset infrastructure (Camphell & Reyes-Picknell, 2006). The management's objectives must be realized in accordance with safety, environmental regulations and also in a cost effective way. The integration of machines, men, methods and means into a well-designed strategy requires indispensable managerial capacity (Waeyenberghad & Pintelon, 2002).

Below are some of the accruable benefits if maintenance culture is embraced in our society:

- Keeping assets in utmost working condition in order to minimize downtime and disruption to services
- Keeping facilities in a state of good repair for the owner's health and safety
- Keeping assets from deteriorating in appearance and aesthetics
- Keeping facilities so as to optimally achieve their full potential service life

- Leveraging efficiencies that can be reflected on the owner's statement of financial position
- Satisfying a legislated duty that is owed to owners, occupants and guests on the property
- Preventing unnecessary damage to assets or facilitation that may result in their performance failure.

2.3 Maintenance Taxonomy

There are many philosophies of maintenance. However this paper intends to limit itself to those that concerned facility maintenance, some of which are discussed below,

2.3.1 Planned maintenance: The maintenance organized and carried out with fore thought, control and the use of records to a predetermined plan.

2.3.2 Unplanned maintenance: The maintenance carried out to no predetermined plan. This is the restoration of sudden defective facility to its functional state.

2.3.3 Preventive maintenance: The maintenance carried out at predetermined intervals or corresponding to research criteria and intended to reduce the probability of failure or the performance degradation of an item. Preventive maintenance is an action performed on a time or machine run based schedule that detect, preclude, or mitigate degradation of a component or system with the aim of sustaining or extending its useful life though controlling degradation to an acceptable level (Kumar & Suresh, 2008). This approach to maintenance management is predominantly recurring or time-driven tasks performed to maintain acceptable levels of availability and reliability (Mobley, 2002). Comprehensive preventive maintenance programs schedule repairs, adjustments machine rebuilds for all critical equipment while more limited programs only consist of minor adjustments and lubrication. The scheduling guideline for these

programs is the common denomination due to the fact that, all preventive maintenance management programs assume that equipment will degrade within a certain period of time (Mobley, 2004). The strategy is cost effective, energy saving as well as increased component life cycle and reduced equipment or process failure. The problem with the preventive approach to maintenance is that the operation mode and plant specific variables have a direct impact on the normal operating life of equipment. For example does the mean time between failure (MTBF) vary between a pruning handling water and one handling abrasives. Mobley, 2004 opined.

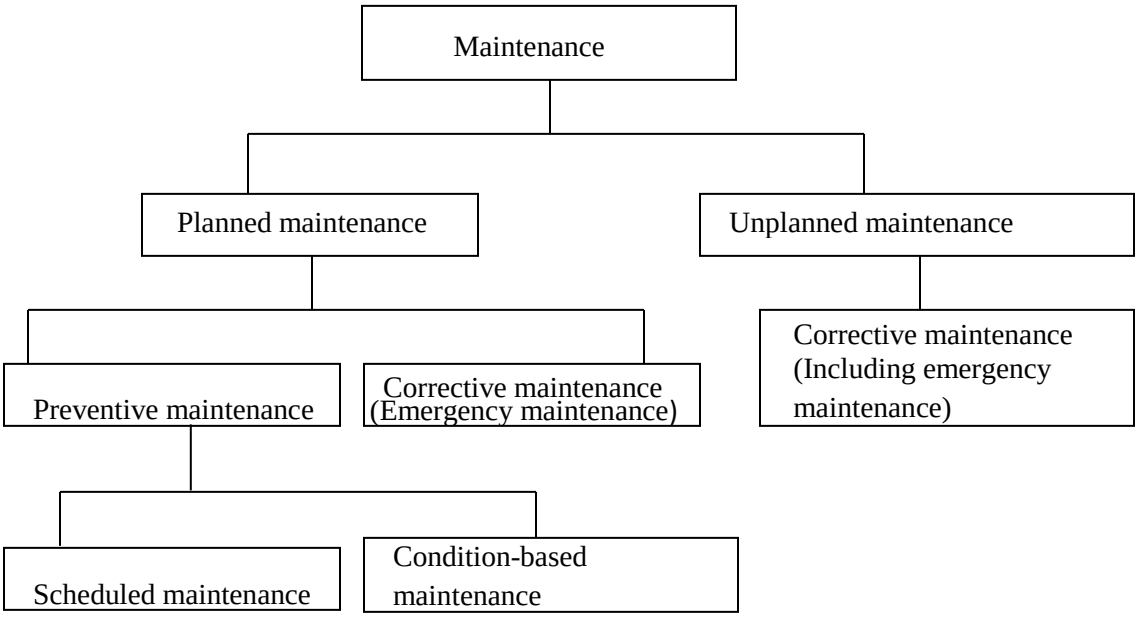

Fig. 1: Classification of maintenance/Source: British Standard Institute.

2.3.4 Corrective maintenance: The maintenance carried out after a failure has occurred and intended to restore an item to a state in which it can perform its required function. This maintenance strategy is simple and straightforward, "fix it when it breaks" (Mobley, 2004) i.e. the defective items are fixed either after failure or during failure (Moubray, 1997). The corrective technique does not take any maintenance action until failure occurred. This maintenance management philosophy is rarely used altogether without any preventive tasks, (lubrication and

adjustment). Still, in a corrective environment, the equipment are not rebuilt nor repaired in greater extent until it fails to operate (Mobley, 2004). This enjoyed low cost investment for maintenance and few staff is required.

2.3.5 Emergency maintenance: The maintenance which is necessary to put in hand immediately failure occurred to avoid serious consequences, (Mobley, 2004). This is sometimes referred to as day-to-day maintenance, resulting from such incidences as gas leaks and damage.

2.3.6 Schedule maintenance: The preventive maintenance carried out to a predetermined, say, interval of time, number of operations or mileage.

2.3.7 Condition-based maintenance: The preventive maintenance initiated as a result of knowledge of the condition of an item from routine or continuous monitoring, see figure 2.

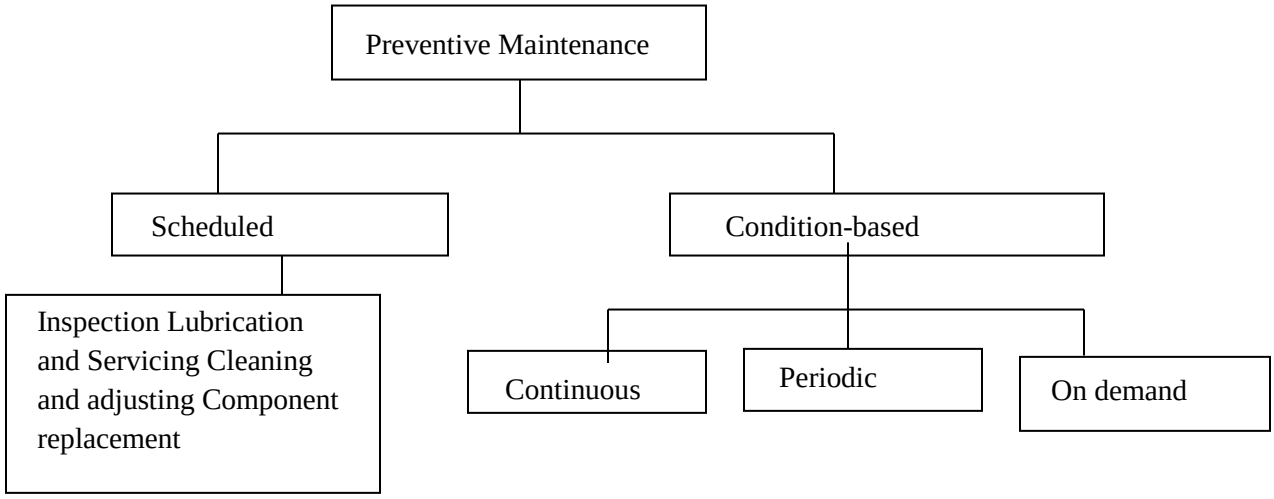

Fig. 2: Condition-based maintenance/Source: Mobley, 2004

2.4 Quality

Quality is the standard of a product or service as measure against other things of similar kind. It is also the degree of excellence of a product or service. According to James Harrington, (2006). The American National Standards Institute (ANSI) and the American Society for Quality (ASQ)

defines quality as “the totality of features and characteristics of a product or services that bears on its ability to satisfy given needs”. Different authors have defined quality different ways. For instance, Crosby (1989) defined quality as “conformance to requirement” Juran (1993) views quality as the satisfaction of customer need i.e. “fitness for use” of a product, and one of the most popular definitions of quality as a meeting or exceeding customer expectations. Evan and Dean (2000) view quality as a philosophy with dimensions and can be summed up as ‘doing things properly’ for competitiveness and profitability. It is a measure of excellence or state of being free from defects, deficiencies and significant variation. ISO 2005 standard defines quality as the totality of features and characteristics of a product or service that bears its ability to satisfy stated or implied needs. Tam, Deng, Zeng, and Ho 2000, opined that quality and product effectiveness in building construction industry refers to a “fitness for uses” i.e. quality that is determined by the customers. Quality philosophy reflects various perspectives at individuals, groups of society.

Quality of public properties requires a healthy maintenance culture in which everybody is responsible for quality improvement. Research carried out by UNICEF (2005) shows, in a modern construction world people are allowed to hold various views regarding quality which of course can change with time and situation. With the help of this quality culture each organization develops a system of interrelated teams which provide inputs and outputs. Hence the team plays a dual role and takes the responsibility of ensuring that its output matches the retained input.

2.5 Development

Development is considered as a change or transformation into a better state and the indications of the quality of life (Dabara, Okorie, Ankel, & Alabi, 2012; Omotehinshe et al 2015b; Ankeli, Dabara, Gombo, Lawal, & Agidi, 2016). Indications such as infant mortality and maternal

mortality rate; shifts in social status; employment opportunity; life expectancy; decrease in fertility; housing; water supply; nutrition and education would improve the well-being of all citizens if properly managed. Development is an attempt at improving the condition of human existence (Gboyega, 2003). This implies improvement in the material well-being of all citizens in such a way that the future is secured. Development is determined by the rate at which a country accumulates social, cultural, industrial, technical and other artifacts, (Rostow, 1960). Development is partly a process, whereby a country can achieve reasonable self-sustaining growth which facilitates and enhances industrial and technical progress in the interest of people, (Rostow, 1960). Development is usually taken to involve not only economic growth, but also some notions of equitable distribution, provisions of health care, education, housing and other essential services all with a view to improving the individual and collective quality of life, (Naomi, 1995).

2.6 National Development

Lawal & Oluwatoyin (2011) described National Development as the overall development or collective socio- economic, political as well as religious advancement of a country or nation. Development in social value, in the worth of man is quintessential to national development. National development can therefore be seen as the sustainable improvement in both material and humans life of a nation.

2.7 Causes of Poor Maintenance Culture

The following are some of the identified factors responsible for the poor maintenance culture in our society:

2.7.1 Corruption: Obayelu (2007) defines corruption as an effort to secure wealth or power through illegal means for private gain at public expense; or a misuse of public power for private benefit while Lipset & Lenz (2000) compared the growth of corrupt practices, in all its manifestations with human race. Ogundiya (2009) in his work saw corruption as the exploitation of public position, resources and power for private gain. Corruption is not only found in democratic and dictatorial politics, but also in feudal, capitalist and socialist economies. Christian, Muslim, Hindu and Buddhist cultures are equally bedeviled by corruption (Obayelu, 2007). Corruption has threatened our national development because there is no effective and functional mechanism that can control the menace. A sitting government awards projects (without means of its completion) only to be abandoned by its successor due to personal gain. One government would award projects and build infrastructural facilities while successive government who should maintain and consolidate on existing ones would totally abandon them because they believed that awarding new projects at inflationary cost would profit the administration rather than the public.

2.7.2 Leadership: Good and effective leadership is essential to national development. Ability to formulate policy, transform potential to reality and proper leadership to subordinate are the major features of a sound leader. Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objective (Yukl, 2006). Leadership also is the shifting of owns vision to high sights, the raising of man's performance to higher standards, the building of man's personality beyond its normal limitations (Peter, 1977). Few among our leaders are up to the tasks whereas majority of them really have no ingredient of effective leadership which may account for why most of the Nation's facilities are in shambles and decay. It is a general believe

that one cannot give what one doesn't have. Most of our leaders lack maintenance culture, vision, passion and empathy (Omotehinshe et al., 2015b) which are some of the leadership ingredients required to influence and stimulate people's behaviour towards maintaining and sustaining existing facilities.

2.7.3 Attitudinal problem: More worrisome is Nigerians attitude towards government property as well as their private properties. Public office holders, according to Peter (1977), hardly rehabilitate their official buildings or facilities until when such assets stand the danger of risking the life of the users. It is common knowledge in Nigeria that most incoming governments make little or no efforts in keeping existing facilities in a proper shape through maintenance and rehabilitation rather they would abandon the inherited facilities and embark on new ones with a view to draining the little resources of the state.

2.7.4 Nonchalant attitude: Noted Omotehinshe et al. (2015a), of individuals towards their health, building, cars amongst other had made them to spend huge amount of money on things that ought to have been prevented or rehabilitated through the act of maintenance program.

2.7.5 Lack of policy: Another reason why most of our public and private facilities are in total state of mess is non-existence of maintenance policy. Policy is a law, regulation, procedure, administrative action, incentive or voluntary practice of governments and other institutions. There is no single blue print, program or scheme is it federal or state level on how public facilities should be maintained. Our elected legislators, both at the federal and state levels, are yet to take concrete steps in promulgating effective laws that would take cognizance of major maintenance problems encountered in the administration of public facilities. On their own part,

executive arms are busy inaugurating ad-hoc committees or agencies on how to sustain, maintain and rehabilitate the nation's facilities in order to handle the national development.

2.8 Summary of Review of Literature

This chapter covered review of literature assessing needs for improving maintenance culture and quality of public properties and that it played a very vital role in the construction industries and the development of the socio-economic of every nation and the existence of man. It synthesizes the literature on the following themes: a background study of maintenance, culture, needs for maintenance/accruable benefits of maintenance culture, maintenance taxonomy which include (emergency based, corrective, conditioned based, planned, scheduled maintenance etc.), quality, public properties, development, national development, and causes of poor maintenance respectively.

The reviewed literature revealed that improvement on maintenance culture and quality of public properties is being adopted by companies, members of the society as a way to improve maintenance culture and quality of public properties and continue to meet the needs of the customer or society. It is also noticed that the needs for maintenance culture such as to minimize downtime and disruption to services, good repair for the owner's health and safety, maintenance taxonomy table. Going on, poor leadership, attitudinal problem, nonchalant attitude and lack of national policy identify as causes of poor maintenance culture.

CHAPTER THREE

3.0 METHODOLOGY

This chapter described the procedures used in the course of the study. Thus, the design, area of the study, population of the study, the sample and sampling techniques, instrument for data collection, validation of instrument, administration of instrument, method of data analysis as well as the decision rules would be discovered.

3.1 Research Design

Research design is a template for testing an outcome of a study in order to exercise control over factors that may stand against the validity of the findings Burns and Grove, (2003). The study adopted survey research design, with the help of structured questionnaire to the on-sight resident Operators and Public Building workers, shop owners that operate in Minna, Niger State. The survey research was considered suitable in determining the view of the respondent on the needs for improving maintenance culture and the quality of public properties in Nigeria.

3.2 Area of the Study

This research was carried out at Obasanjo Commercial Shopping Complex Minna, Niger State. It is a 3.8 (1,559) star rated shopping mall in Minna. The mall was commissioned for use by

Mu'azu Babangida Aliyu in 2007. The territory is bordered by the states of Abuja to the Central and North, Kaduna to the Northeast, Nasarawa to the East and South and Kogi to the Southwest. It is lying between latitude 9.58^0 and 9.35^0 North of the equator and longitude of 6.54^0 and 6.32^0 east of Greenwich meridian, Minna is geographically located in the Middle belt region of the country. Minna was my area of study because it is the capital and heart of the state where 75% revenue of the state is generated.

3.3 Population of the Study

The target population for the study was made of forty (40) personnel, which contains 15 On-sight Resident Operators and 25 Public Building Workers, within the selected area in Minna, Niger State.

The overall population was study.

Table 3.1: Shows the target population of on-sight, Resident Operators and Public Building Workers, within the selected area in Minna.

S/NO	INDUSTRY/CONSTRUCTION COMPANY	ON-SIGHT RESIDENT OPERATORS	PUBLIC BUILDING WORKERS
1	Obasanjo Commercial Shopping Complex Minna, Niger State.	5	11
2	Julius Berger Nigeria Limited Plc Bosso Rd Minna, Niger State.	5	8
3	Federal Ministry of Works and	5	6

Housing Dutsen Kura Gwari, Minna		
TOTAL	15	25

3.4 Instrument for Data Collection

The instrument used for data collection was a structured questionnaire developed by the researcher. It consisted of two (2) Sections. Section A consist of the introductory part while Section B is divided into three (3) parts I, II and III. Part I contains twenty (20) items which deals with the crucial factors measured in improving maintenance culture and quality of public properties. Part II contains ten (10) items which deals with the benefits of maintenance culture and quality of public properties and part III contains ten (10) items which deals with the possible methods used in implementing maintenance culture and quality of public properties.

3.5 Validation of Instrument

The instrument for the data collection was designed by researcher and was validated by three (3) lectures from Industrial and Technology Education Department to determine the appropriateness of questionnaire items before giving it to respondents.

3.6 Administration of the instrument

The instrument for the study was administered to the respondents by the researcher through the help of one research assistant from each of the afore mentioned institutions company which was later collected through the research assistant by the researcher after appropriately completed by the respondents.

3.7 Method of Data Analysis

The data collected was analyzed using mean and standard deviation, while t-test statistic was used to test the hypothesis at 0.05 level of significance. The four-point rating scale was used with the response options as shown below:

Strongly Agree (SA)	= 4 points
Agree (A)	= 3 points
Disagree (D)	= 2 points
Strongly disagree (SD)	= 1 point

3.8 Decision Rule

The level of the mean score is 2.50 was chosen as acceptance or rejection point. This is relatively interpreted according to the rating point adopted for the study. Therefore, an item with response below 2.50 was rejected, while an item with response at exactly 2.50 and above was accepted. The null hypothesis will be tested with the t-critical value (±1.960) at 0.05 level of significant.

CHAPTER FOUR

4.0 PRESENTATION AND DATA OF ANALYSIS

This chapter deals with the presentation and data analysis of the research questions and hypotheses formulated for this study. The results of the data analysis for the research questions were presented first followed by those of the hypotheses tested for the study.

4.1 Research question 1

What crucial factors are measured in improving maintenance culture and quality of public properties?

Table 4.1: Mean response of On-sight, resident Operators (X_1) and Public Building workers (X_2) on the factors affecting maintenance culture and quality of public properties.

$N_1=15, N_2=25$

S/No	ITEMS	X_1	X_2	XT	REMARKS
1	Lack of leadership	3.47	3.52	3.49	Agreed
2	Reckless operations	3.47	3.60	3.54	Agreed
3	Lack of skilled labour	3.53	3.56	3.55	Agreed
4	Poor equipment	3.47	3.56	3.52	Agreed
5	Low educated workers	3.73	3.40	3.57	Agreed
6	Lack of maintenance culture	3.40	3.64	3.52	Agreed

7	Lack of technical guidance	3.53	3.48	3.51	Agreed
8	Lack of experienced project managers	3.47	3.40	3.44	Agreed
9	Excessive overtime work	3.27	3.52	3.39	Agreed
10	Insufficient promotion of maintenance culture and quality awareness	3.53	3.48	3.51	Agreed
11	Lack of maintenance policies	3.53	3.52	3.53	Agreed
12	Tight schedule	3.33	3.48	3.41	Agreed
13	Workers' physical fatigue	3.73	3.44	3.59	Agreed
14	Financial pressure	3.80	3.44	3.62	Agreed
15	Lack of management commitment to maintenance culture and quality programs	3.53	3.52	3.53	Agreed
16	Lack of inspection procedures on site	3.53	3.44	3.49	Agreed
17	Lack of maintenance culture and quality environment	3.47	3.44	3.46	Agreed
18	Lack of maintenance and quality supervisor on building	3.60	3.52	3.56	Agreed
19	Lack of worker compensation insurance	3.07	3.48	3.28	Agreed
20	Poor maintenance culture and quality awareness among top management	3.60	3.60	3.60	Agreed

The data presented reveals that the entire respondents' extents with all the items with mean score ranging from 2.50 – 3.50. This signifies that all the items agree with crucial factors measured in improving maintenance culture and quality of public buildings.

4.2 Research question 2

What are the benefits of maintenance culture and quality of public properties in Nigeria?

Table 4.2: Mean response of On-sight Resident Operator (X_1) and Public Building Workers (X_2) on the benefits of maintenance culture and quality on public buildings.

S/NO	ITEMS	X_1	X_2	XT	REMARKS
1	Better collaboration and communication	3.60	3.32	3.46	Agreed
2	Model-based cost estimation	3.33	3.52	3.43	Agreed
3	Preconstruction project visualization	3.47	3.60	3.54	Agreed
4	Improved coordination and clash detection	3.47	3.56	3.52	Agreed
5	Reduced cost and mitigated risk	3.27	3.52	3.39	Agreed
6	Improved scheduling/sequencing	3.73	3.40	3.57	Agreed
7	Increased productivity and prefabrication	3.40	3.44	3.42	Agreed
8	Maintenance and Quality	3.27	3.48	3.38	Agreed
9	Better builds	3.47	3.52	3.49	Agreed
10	Stronger facility management and building handover	3.47	3.44	3.46	Agreed

The data presented reveals that the entire respondents' extents with all the items with mean score ranging from 2.50 – 3.00. This signifies that all the items are the extent that the benefits of maintenance culture and quality implementation on public buildings.

4.3 Research question 3

What are possible methods used in implementing maintenance culture and quality of public properties?

Table 4.3: Mean response of On-sight, Resident Operators (X_1) and Public Building Workers(X_2) on what are possible methods used in implementing maintenance culture and quality on public buildings.

S/NO	ITEMS	X_1	X_2	XT	REMARKS
1	Improve maintenance culture and quality in public building	3.53	3.56	3.55	Agreed
2	Reduction in quality costs	3.47	3.60	3.54	Agreed
3	Completion of projects on time on building	3.53	3.44	3.49	Agreed

	construction sites				
4	Reduce rework in building works	3.47	3.52	3.49	Agreed
5	Improve employee job satisfaction	3.67	3.48	3.58	Agreed
6	Improve relationship with sub-construction	3.53	3.48	3.51	Agreed
7	Industries will get repeat contacts from existing clients	3.47	3.52	3.49	Agreed
8	Increase the chance of winning more contract/project	3.53	3.52	3.53	Agreed
9	Higher productivity in building construction projects	3.47	3.52	3.49	Agreed
10	Reduction in non-conformance with building codes on site	3.47	3.44	3.46	Agreed

The data presented reveals that the entire respondents' extent with all the items with means score ranging from 2.50 – 3.50

4.4 Hypothesis 1

There is no significance difference between the main response of on-site operators and public building workers on the factors affecting maintenance culture and quality of public buildings.

Table 4.4: T – Test analysis of on-sight, Resident Operators and Public Building Workers on the factors affecting maintenance culture and quality of public properties in Nigeria.

S/NO	ITEMS	SD_1	SD_2	Tcal	Remarks
1	Lack of Leadership	0.52	0.51	-0.32	NS
2	Reckless operations	0.52	0.50	-0.81	NS
3	Lack of skilled labour	0.52	0.51	-0.16	NS
4	Poor equipment	0.52	0.51	-0.56	NS
5	Low educated workers	0.46	0.50	2.11	S

6	Lack of personal protective equipment	0.51	0.49	-1.48	NS
7	Lack of technical guidance	0.52	0.51	0.32	NS
8	Lack of experienced labour managers	0.52	0.50	0.40	NS
9	Excessive overtime work	0.46	0.51	-1.58	NS
10	Insufficient promotion of maintenance culture and quality awareness	0.52	0.51	0.32	NS
11	Lack of policies	0.52	0.51	0.08	NS
12	Tight schedule	0.49	0.51	-0.89	NS
13	Workers' physical fatigue	0.46	0.51	1.84	NS
14	Financial pressure	0.51	0.52	2.32	S
15	Lack of management commitment to maintenance and quality programs	0.51	0.52	0.08	NS
16	Lack of inspection procedures on site	0.52	0.51	0.56	NS
17	Lack of maintenance on building environment	0.52	0.51	0.16	NS
18	Lack of safety supervisor on the building	0.51	0.51	0.48	NS
19	Lack of worker compensation insurance	0.26	0.51	-2.91	NS
20	Poor maintenance culture and quality awareness among top management	0.51	0.50	0.00	NS

The t-test analysis in table 4 reveals that there is no significance difference between the mean response of on-sight resident operators and building workers on the crucial factors are measured in improving maintenance culture and quality of public properties in Nigeria. All the items except item 5 and 14 were accepted because they fall within t-value of above 1.690

4.5 Hypothesis 2

There is no significant difference between the main response of on-sight resident operators and public building workers on the benefits of maintenance culture and quality of public properties in Nigeria.

Table 4.5 T – Test analysis of on-sight resident and public building workers on what are the benefits of maintenance culture and quality on public properties.

S/NO	ITEMS	SD_1	SD_2	Tcal	Remarks
1	Better collaboration and communication	0.52	0.48	1.76	NS
2	Model-based cost estimation	0.49	0.51	-1.14	NS
3	Preconstruction project visualization	0.52	0.50	-0.81	NS
4	Improved coordination and clash detection	0.52	0.51	-0.56	NS
5	Reduced cost and mitigated risk	0.46	0.51	-1.58	NS
6	Improved scheduling/sequencing	0.46	0.50	2.10	S
7	Increased productivity and prefabrication	0.51	0.51	-0.24	NS
8	Maintenance culture and quality	0.46	0.51	-1.33	NS
9	Better buildings	0.52	0.51	-0.32	NS
10	Stronger facility management and building handover	0.52	0.51	0.16	NS

The t-test analysis in table 4.5 reveals that there is no significance difference between the mean response of on-sight resident operators and public building workers to what are the benefits of maintenance culture and quality of public properties in Nigeria, all the items except item 6 were accepted because they fall within t-value of above 1.960

4.6 Hypothesis 3

There is no significant difference between the main response of on-sight resident operators and public building workers on the possible methods used in implementing maintenance culture and quality of public properties in Nigeria

Table 4.6 T – Test analysis of on-sight resident operators and public building workers on what are the possible methods used in implementing maintenance culture and quality of public properties in Nigeria.

S/NO	ITEMS	SD_1	SD_2	Tcal	Remark
1	Improve maintenance culture	0.52	0.51	-0.16	NS
2	Reduction in quality costs	0.52	0.50	-0.81	NS

3	Completion of projects on time on building construction sites	0.52	0.51	0.56	NS
4	Reduce rework in building works	0.52	0.51	-0.32	NS
5	Improve employee job satisfaction	0.49	0.51	1.14	NS
6	Improve relationship with sub-construction	0.52	0.51	0.32	NS
7	Industries will get repeat contacts from existing clients	0.52	0.51	-0.32	NS
8	Increase the chance of winning more contract/project	0.52	0.51	0.08	NS
9	Higher productivity in building construction projects	0.52	0.51	-0.32	NS
10	Reduction in non-conformance with building codes on site	0.52	0.51	0.16	NS

The t-test analysis in table 6 reveals that there is no significance difference between the mean response of on-sight resident operators and public building workers to what are the possible methods used in implementing them.

Keys

N1= Number of on-sight resident operators.

N2= Number of public building workers.

X1= Mean response of on-sight resident operators.

X2= Mean response of public building workers.

SD1= Standard deviation of on-sight resident operators.

SD2= Standard deviation of public building workers.

Findings

The following are the findings of the study, based on the data collected and analyzed; they are highlighted based on the research questions and hypothesis.

Findings related to the factors affecting maintenance culture and quality of public buildings

1. Corruption
2. Lack of maintenance culture
3. Insufficient promotion of maintenance awareness
4. Lack of maintenance policies
5. Poor maintenance and quality awareness among top management

Finding related to the benefits of maintenance culture and quality implementation on public properties.

1. Better collaboration and communication
2. Improved coordination and clash detection
3. Reduced cost and mitigated risk
4. Increased productivity and prefabrication
5. Stronger facility management and building handover

Findings related to the possible methods used in implementing maintenance culture and quality on public buildings.

1. Improve maintenance culture and quality in public buildings
2. Reduction in quality costs
3. Establishment of lasting philosophy of maintenance culture and quality
4. Improve employee job satisfaction
5. Increase the chance of winning more operators, sponsors and developers

4.8 Discussion of Findings

The discussion of findings is strictly based on the response of respondent to all items of the questionnaire and the hypothesis test.

The result obtained based on the research question one revealed that the two groups of respondent agree with the average mean response ranging from 2.55 to 3.60 on the crucial factors are measured in improving maintenance culture and quality of public buildings.

The study had a number of specific objectives among them; To establish the extent to which quality and maintenance culture systems in the building company affects implementation of occupational maintenance and quality measures, being guided by the research question; To what extent does maintenance culture systems in a building company affect implementation of occupational maintenance and quality measures? From the study findings majority of building workers haven't really established any meaningful maintenance culture and quality systems in their company to help create a maintenance culture in their staff. According to Hughes & Ferret, (2008) suggests guiding principles which include; developing a company's maintenance culture policy statement with clear aims and objectives; the company should organize roles and responsibilities so that every individual is clear about his responsibilities and limits; planning and implementation of maintenance culture and quality performance standards and targets in the company based on risk assessment methods so that all workers are aware of the set goals towards maintenance and quality at work and endeavor to achieve the desired results; measuring of maintenance and quality achievements to provide information on the progress and current status whether set targets are being met; maintenance culture and quality performance reviews to be done regularly in order to address any short comings and changes; auditing must be carried out to ensure compliance with maintenance and quality system arrangements and procedures by all from top personnel to subordinate staff.

The study also reveals that the factors affecting maintenance culture and quality of public buildings under this cluster perceived by the respondents were ‘Corruption’, ‘lack of maintenance culture’, ‘poor equipment’, ‘lack of leadership, ‘low educated labour’, ‘insufficient promotion of maintenance culture awareness’ and ‘financial pressure’. These results are justified because any well-performed maintenance culture and quality of public property program cannot be achieved without adequate resources (Rechenthin, 2004; Aksorn and Hadikusumo, 2008). Therefore, top maintenance and quality commitment in maintenance and quality with L2L will play a significant role in providing the required resources at an appropriate level, including an experienced and skilled workforce at various levels and sufficient financial support (money), policies and promotion (billboards, sign posts, stickers). (Rollenhagen and Kahlbom, 2001; Abudayyeh et al. 2006). Moreover, maintenance culture and quality tips must be available on building billboards, sign posts, ATMs around the area, as the simple use of this tips will enhance workers and operators from the short- and long-term effects of building hazards. The study also reveals that there is no reward or recognition for the good work done by the workers which serves as a motivator for worker, which is very essential in keeping up with the good work that lead to quality product. Crosby (1989) considers recognition as one of the most important steps of quality improvement process. Kemp et al., (1997) consider the recognition procedure as basic to increasing the involvement of all employees in the operation of the business Zhang et al., (2000) state that recognition and reward activities should effectively stimulate employee commitment. Many other authors highlight the importance of rewards recognition in the Impact of maintenance and quality culture process.

The result for research question two shows the benefits of maintenance culture and quality implementation on public buildings which the two respondent agree with average mean response

ranging from 2.56 to 3.50 which signifies the benefits of maintenance culture and quality implementation on improved scheduling/sequencing, in the same way that many of these benefits save money, they save time by reducing the time of renovation cycles and eliminating maintenance schedule setbacks. It allows design and documentation to be easily changed to adapt to new information such as building conditions. Schedules can be planned more accurately and communicated exactly, and the improved coordination helps building be more likely to maintain quality.

The result for the research question three shows the possible methods of implementing maintenance culture and quality of public buildings base on the two respondent with average mean response ranging from 2.95 to 3.78 which indicates that the impact of maintenance culture and quality of public buildings, reduced re-work in building works and enhance performance and aesthetics.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Study

The purpose of this project it to examine the impact of maintenance culture and quality on public elements, identify the crucial factors measured in improving maintenance culture and quality performance on building, it seeks to assist contractors in identifying the steps necessary for the possible methods used in implementing them.

Survey approach was used to develop the study. The questionnaire developed for this research was validated by three lecturers from the department of Industrial and Technology Education of Federal University of Technology Minna. Forty (40) validated items are used for the study the validated instrument was a structured questionnaire prepared for 15 building professionals, 25 site workers. The instrument was analyzed using mean and standard deviation. The research questions were formulated and answered and the following findings was observed; lack of management commitment to maintenance culture and quality programs, lack of experienced project managers, poor maintenance culture awareness among top management, and stronger facility management and building handover, improve maintenance culture and quality on the building.

5.1 Implication of Study

The findings of the study show that the crucial factors measured in improving maintenance culture and quality performance on buildings are not adhering to, without taking note of the

crucial factors, it will lead to reckless operation, unattractive, poor maintenance overtime, financial pressure.

The findings of this study show the benefits of maintenance culture and quality implementation on public buildings. Without better collaboration and communication, model-based cost estimation, Maintenance culture tips visualization and all others that would help in the benefit of maintenance culture and quality implementation on public building would never be achieved.

The findings also show the possible methods used in implementing maintenance culture and quality on public buildings. Without Improving maintenance culture and quality on public buildings, complete neglect of operators in public buildings , reduce rework in building works and all others the maintenance culture and quality on public buildings would not be achieved.

5.3 Contribution to Knowledge

1. It exposes the researcher to know the ways of conducting good research.
2. It exposes the researcher to various method of analyzing data.
3. The researcher was able to know the crucial factors measured in maintenance culture and quality performance on public buildings.
4. The researcher was able to know the benefits of maintenance culture and quality implementation on public buildings.

5.4 Conclusion

In conclusion, the outcome of the study showed the need for constant re-evaluation of maintenance culture and quality practices of the public buildings in the study area because of its

vital contributions to economy development. It is evident that this study outcome explored advantage of proactive approach in managing maintenance practices by examining effects of using maintenance culture on workers' operation thereby curtailed possibility of accidents on counteractive action against future mishaps. Assumption must not be made when recruiting workers especially for commercial buildings that have workable control systems and maintenance policy. It is of very importance to ensure that every new worker employed on the building are given necessary awareness talk regarding maintenance culture practices and use of maintenance and quality tips.

More proactive measure must be put in place right from the planning stage by the clients and their representative to avert possible risk associated with their project this is a stage where all contract documents such as priced bills of quantities by registered Quantity surveyor, Contract drawings by Architect, Builders' document by licensed builder, condition of contract etc. are prepared. Therefore, adopting sustainable strategies that will eliminate possibility of accident and the operators and building workers stating the degree of confidence at which the work could be executed will go a long way in addressing the issue of maintenance culture and quality practices.

However, based on personal observation on public buildings, maintenance culture implantation and compliance has been so much neglected and suffered great set-back due to the willingness of the workers to meet their daily output and the goal of building manager in ensuring workers' wages justified their output, secondly, level of hunger also contributed to workers willingly undertaken risky jobs as means of survival or maximize their wages on public buildings.

The findings of this study has pointed out the need for the public building clients to review their maintenance culture policies and make systematic approach to accommodates some of the

critical points raised regarding the issue of maintenance culture practices challenging public buildings in Nigeria. This depicted that the variables influenced each other greatly and cannot work in isolation. It equally underscored the importance of their collective interplay in improving maintenance culture and quality performance of public buildings.

Furthermore, high demand for improvement of maintenance culture practices and use of prescribed maintenance culture and quality tips, signs on public buildings, maintenance culture guide must be taking serious most especially the building operatives that are more vulnerable to accidents, this will help them to know the maintenance demands of each public building. Sign posts, stickers, guides and tips inspections on maintenance culture should be conducted on public buildings and any identified hazards should be taken care of as soon as detected

Therefore, workers must be trained on maintenance culture awareness, risk identification, hazard management, use of first aid and proper use of varieties of maintenance tips, such as fall arrest systems because no matter how good maintenance culture policy of public buildings is without passing knowledge or maintenance culture awareness to the workers the policy may fail and disorder will persist. The study established positive relationship which suggests that training of workers on maintenance culture knowledge and use of maintenance culture tips were related.

4.3 Recommendations

The following recommendations were made on improvement strategy on maintenance culture practices among the workers as a rationale for this study and to serve as additions to existing knowledge, availability of literature and reference documents on the subject of maintenance culture and quality practices in Nigeria and world at large.

1. Public building managers should embrace strategic approach on public building such as: creating maintenance culture awareness, maintenance culture briefing, include maintenance culture matters right from the planning phase, set maintenance culture guidelines into conditions of contract, reward workers that exhibit excellent maintenance culture and quality performances.
2. Public building manager should adopt required public building base training for the operatives especially on the use of maintenance culture tips while maintenance culture managers should regularly attend maintenance culture training course.
3. The study also seeks for improvement on the involvement of maintenance and quality managers' and suggests at least one maintenance and quality manager.
4. It is on this note the study call for improved channels of communication between operators and building workers, to ensure that the objectives and maintenance needs for public buildings are well communicated to building operatives.
5. Finally, Government should intensify their effort towards maintenance culture policy and implementation by partnership with professional bodies in the built environment to organizing special training on maintenance culture practice on public buildings for the tradesmen.

5.4 Suggestions for Further Research

Based on the finds of this research study; the following suggestions were made for further research: -

1. An investigation into the impact of maintenance culture and total quality management in public buildings Minna, Niger State

2. Assessment of maintenance culture and quality practices of public buildings in Niger State, Nigeria
3. Maintenance culture and quality practices and workers' performance and promotion in public buildings Niger State

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APPENDIX B

QUESTIONNAIRE

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCTION

BUILDING TECHNOLOGY OPTION

QUESTIONNAIRE FOR ASSESSING NEEDS FOR MAINTENANCE CULTURE AND QUALITY OF PUBLIC BUILDINGS IN NIGERIA.

SECTION A

Introduction: this is research work on needs for maintenance culture and quality of public buildings

Please kindly complete this questionnaire by ticking (√) the column that represent your perception about the topic by marking the option that are closest to your experience. Be as honest as you can. All information provided will be confidential and strictly used for the purpose of this research work.

On-sight operators ☐

Public Building Workers ☐

A four-point rating scale is used to indicate your opinion as stated below:

Strongly Agree (SA) = 4 points

Agree (A) = 3 points

Disagree (D) = 2 points

Strongly Disagree (SD)= 1 point

SECTION B

I what are the factors affecting maintenance culture and quality of public buildings?

S/No	**ITEMS**	**SA**	**A**	**D**	**SD**
1	Lack of leadership				
2	Reckless operations				
3	Lack of skilled labour				
4	Poor building structure				
5	Low educated workers				
6	Lack of maintenance culture				
7	Lack of technical guidance				
8	Lack of experienced maintenance managers				
9	Excessive overtime work				
10	Insufficient promotion of maintenance culture awareness				
11	Lack of policies				
12	Tight schedule				
13	Workers' physical fatigue				
14	Financial pressure				
15	Lack of management commitment to maintenance programs				
16	Lack of inspection procedures on buildings				
17	Lack of maintenance culture and quality environment				
18	Lack of maintenance and quality supervisor on building				
19	Lack of worker compensation insurance				
20	Poor maintenance culture awareness among top management				

II What are the benefits of maintenance culture and quality implementation on public buildings?

S/No	ITEMS	SA	A	D	SD
1	Better collaboration and communication				
2	Model-based cost estimation				
3	Maintenance culture and quality tips visualization				
4	Improved coordination and clash detection				
5	Reduced cost and mitigated risk				
6	Improved scheduling/sequencing				
7	Increased productivity and prefabrication				
8	Maintenance culture and quality in public buildings				
9	Aesthetics				
10	Stronger facility management and building handover				

III What are the possible methods used in implementing maintenance culture and quality in public buildings?

S/No	ITEMS	SA	A	D	SD
1	Improve maintenance culture and quality in public buildings				
2	Reduction in quality costs				
3	Maintain quality in public buildings				
4	Reduce rework in building works				
5	Improve employee job satisfaction				
6	Improve relationship with sub-construction				
7	Industries will get repeat contacts from existing clients				

8	Increase the chance of winning more operators and skilled workers				
9	Higher productivity in public buildings				
10	Reduction in non-conformance with building codes on maintenance culture in public buildings				