



# **Enhancing The Maintenance Of Equipment In Mechanical Technology Workshops For Practical Skills Acquisition In Kogi State Technical Colleges**

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## **ABSTRACT**

The study investigated strategies for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical learning in Kogi State technical colleges. Three research questions guided the study. The design was a descriptive survey and the instrument used was a structured questionnaire. The population for the study was 100 respondents, 92 students and 13 teachers from four technical colleges in Kogi State, namely, Government Technical College Idah, Government Technical College Ankpa, Government Technical College Gboloke and Government of Technical College Mopa. The instrument was face validated by three experts two from Department of Technology and Vocational Education, and one expert in the field of Measurement and Evaluation from the Department of Computer and Mathematics Education both in the Faculty of Education, Enugu State University of Science and Technology. The data collected were analyzed using mean and standard deviation. The findings revealed amongst others that; employment of workshop attendance, periodic inspection of equipment, organizing workshops for teachers on maintenance of equipment, timely lubrication of the equipment, cleaning of equipment after used viable enough for enhancing maintenance of equipment in mechanical technology workshop in provide adequate support for the maintenance of Mechanical Technology equipment in technical colleges and students should understand their role in maintenance of Mechanical Technology equipment in workshops and equally undertake routine maintenance with the guidance of the teacher.

**Keywords:** maintenance, equipment, workshops, mechanical technology, learning

## **INTRODUCTION**

Maintenance is any activity that is carried out on any equipment either to restore it or to retain the equipment in a good and acceptable working conditions. Maintenance involves all technical and other procedures performed in order to retain the satisfactory working condition of a machine or part or restoring it to an acceptable working condition so that the set task can be performed at the schedule time and under given condition. The Nigerian Educational Research and Development Council (NERDC, 2014) states that maintenance is an action taken on equipment to keep it working or to restore it to a good working condition, it stresses that if an item is not properly taken care of, it will be prone to breakdown, where the equipment is showed to breakdown, it will cause inconveniences and delay the work being done sometime, equipment can cause loss of life if not properly maintained.

Equipment maintenance is the means by which mechanical assets in a facility are kept in working order. Equipment maintenance involves regular servicing of equipment, routine checks, repair work, and replacement of worn or nonfunctional parts. Mechanical technology Equipment include power saw machine, lathe machine, milling machine drilling machine, hand-operated machines, grinding machine among others (Ezeji, 2014). Equipment of machinery is frequently handled reactively (such as after a breakdown) though it may also be done proactively, as with preventive and predictive maintenance.

Preventive maintenance keeps assets in good repair through regularly scheduled servicing, predictive maintenance relies on equipment monitoring to detect problems before they result to breakdown.

Therefore, the Nigeria Education Research and Development Council (NERDC, 2014) identified the purpose of the maintenance as follows; to make the equipment function properly; avoid preventable breakdown to reduce chances of accidents and ensure safe use; avoid the inconvenience of equipment failures; to make the equipment last longer; and reduce loss of time and thereby saving money. In order to achieve the above purposes, there is every need to adopt various types of maintenance as follows; preventive, corrective and routine as well as predictive maintenance.

Preventive maintenance is a type of maintenance or practice that involves inspection, lubrication, cleaning and testing of an equipment or facility used in factory or laboratory. Mohammed (2015) stated that preventive maintenance is used to delay the breakdown of equipment, and also reduce the severity of any breakdown that might occur. The author noted that servicing as routine cleaning, lubrication and adjustment may significantly reduce wear and prevent breakdown. This process will eventually lengthen the life span of such equipment and ensure continued services but if breakdown happened repair and corrective maintenance will be carried out on the machine.

Corrective maintenance is a work carried out to restore (including adjustment and repair) an asset that has ceased to meet working and services standards. Amuka (2013) stressed that corrective maintenance is employed when there is malfunctioning or complete breakdown of the equipment. Similarly, Ameh (2015) defined corrective maintenance as a work or action needed to restore the integrity of damage or deteriorated structure which includes the repair or replacement of defective parts. This act could be avoided through regular checks and routine maintenance of workshop equipment.

Routine maintenance is maintenance activities such as regular inspections of machine servicing. Routine maintenance is done on a regular basis, whether that is daily, weekly, monthly, or yearly. Routine maintenance is an important part of keeping systems up to date and functional (Elobuike, 2015). Routine maintenance tasks are small and simple in nature and only require basic maintenance skills to perform well. These may be completed daily, weekly, monthly, quarterly, or annually. Companies that invest in routine maintenance can extend the service lives of their assets, reduce emergency and equipment, hence they will breakdown and maintenance, keep their production lines or facilities up and running more consistently. Routine maintenance is a type of preventive maintenance and also a key part of total productive maintenance in which machine operators perform small maintenance tasks to increase the reliability of the machines they use everyday (Mohammed, 2014).

A meaningful education programme can only be offered when equipment, tools and facilities are continuously maintained. Each of these facilities needs to be in a good working condition at all times to enhance the students training. Various maintenance measures should be employed to ensure efficient and effective servicing of these equipment in order to keep them operational and to eliminate preventable breakdown. The equipment and the facilities under such good working conditions are used to carry out practical skills activities in technical workshops among which is the mechanical Engineering crafts trades workshops in technical colleges. The Federal Republic of Nigeria (FRN, 2014) the National Policy for education states that Technical or Technology Education would provide technical knowledge and vocational skills necessary for agriculture, industries, commercial for economic development through the provisions of well trained personnel at sub professional grades and the middle level manpower. These facts cannot be achieved without readily available and operational machines and tools.

Mechanical Engineering crafts trade is one of the trades courses offered in Technical Colleges which allowed the individual students to fit into an industrial production units for the purpose of machinery operators. Mechanical crafts trade as a programme supposed to be done in a classrooms setting that is known as workshop. The workshop for the teaching and learning of Mechanical engineer of crafts trades need to be well equipped and maintained (Mshelica, 2011).

The workshop for the teaching and learning of mechanical crafts trade need to be well equipped and maintained. Mechanical technology teachers and students are directly involved in the use of mechanical technology equipment for teaching and learning of practical skills in the workshops. Mechanical technology crafts trades cannot be taught successfully without equipment which are appropriately kept in

the workshops (Fakomogbon, 2014) safe keeping equipment is necessary to keep them readily available for use in the workshops. When the equipment are well maintained and are in good condition, the students will be engaged in meaningful practical works activities which will make them to be competent towards self-actualization (Nwagwu, 2013). The need for readily functional equipment and machine tools in Mechanical Technology Crafts Workshop cannot be over emphasized. This is because of the laudable objectives that mechanical technology hold for students and teachers and in national technological development.

Therefore, there is every need for the government, school management, teachers, students and community at large to ensure that equipment are maintained regularly for durability, availability and to save cost. The need for enhanced maintenance of equipment on the part of government, schools managements, teachers and students cannot be over emphasized. The equipment are used by the students for practical works which help the student to have creative and innovative abilities that enhance self-reliance and most importantly attaining proficiency in skills acquisition. Maintained equipment are in good condition for students' effective practical works activities which eventually help them to develop interests in technology programmes in future (Nwagwu, 2013).

The governments which are the sole owners of some schools are expected to provide funds for the maintenance of the equipment, and constantly supervise schools to ensure that the equipment in the workshops are adequately maintained for practical skill acquisition among the students of mechanical technology programme for sustainable self-employment on graduation. The students who are the recipients of the theoretical knowledge and practical skills inherent in mechanical programmes are expected to be ready to learn preventive, corrective and predictive maintenance and are capable of applying them correctly. They are expected to co-operate with their teacher in carrying out maintenance exercise on equipments during practical lessons. Teachers who are the chief facilitators of the theoretical knowledge and acquisition of practical skills are to use equipment for specific operations and carry out preventive and corrective maintenance carefully. They (the stakeholders) in mechanical technology programme are expected to monitor the equipment timely (Mkpa, 2013).

Cloane (2014), stated that mechanical technology equipment in schools are not properly maintained but are abandoned, not readily used for teaching and learning and students are not be properly exposed to the practical operations of the mechanical technology equipment, their used, maintenance practices and repair that will enable them acquire mechanical technology skills. In the society today, it appears that the graduates of mechanical technology are unable to use simple mechanical technology equipment in the solving of day-to-day domestic, industrial and workshops problems. More so, majority of the workshops are poorly equipped for the training of technology teachers and students.

In Kogi State, this condition has persisted and students are trained without the Mechanical Technology equipment. This in turn produces students without good practical experience in schools. Some of the available equipment are not used due to their faulty conditions in teaching and learning of practical skills in mechanical technology, while such schools workshops and equipment would have been in good condition and equally meet the expected standard if properly maintained by expertise in the profession (Abdullahi, 2013).

Therefore, Osioma (2014) posited that the necessity for Technical and Vocational Education in an industry depends largely on the right caliber of skilled manpower. It was reviewed in a study conducted by Efijka (2014) state that so many problems were identified concerning improper maintenance of Mechanical Technology Workshop which have become obstacles to the traders at most levels in our education sector. The problem identified includes; poor condition of service to mechanical tools, poor maintenance culture by teachers/students, inadequate in-service training of teachers to upgrade and modernize their competencies and skills through workshops and seminars, and poor supply of electricity by the Power Holding Company of Nigeria via distribution company like Enugu Electricity Distribution Company as concerns the Eastern region of Nigeria for an example. Similarly, Adeyemi (2018) observed that students lack interests in the technical areas and this affect among others the maintenance of mechanical technology trade equipment and as well as the course in technical colleges. Therefore, the

main focus of this investigation is to determine the measures for enhancing the maintenance of equipment in Mechanical Technology trade workshops for effective practical works in Kogi State Technical College.

### **Statement of the Problem**

Students of mechanical technology in technical colleges are expected to be technologically competent in order to meet up with their day-to-day activities and have interest in being creative after graduation. Hence, the ideas posed in questions also forms how can the national objectives of Mechanical Technology be achieved when the students are not given adequate orientation in the use of technological equipment that could make them to further their training in technology; when they are not taught to be technologically competent, and not taught to be creative due to poor condition of the equipment in the workshops. This would invariably lead to the teaching of Mechanical Technology theoretically rather than practically.

The worries of the researchers are that if Mechanical Technology teachers in technical colleges in Kogi State resorted to teaching these lessons more theoretical than practical result of poor condition of workshop equipment, the students may develop poor interest to further their education in technology, have little or no knowledge and skills required in mechanical technology trades which are needed for their personal, state and the national development as a whole which would make them to be creative so as to become self-reliant after graduation. With these trend of events, students may become technologically incompetent, and may not carry out their day to day to day activities creditably/unproficiency. The state of incompetency on the part of students of mechanical technology programme on graduation would tantamount to unemployment of youths and graduates which would lured them into unwholesome behaviors such as cultism, kidnapping, arm rubbery among others that make them constitute themselves into a menace to the state in particular and society at large. Therefore, there is very urgent need to determine the strategies for enhancing the maintenance of Mechanical Technology equipment. Hence, the problem of this study expressed in a question form is; what are the measure for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical skills acquisitions in Kogi State Technical Colleges.

### **Purpose of the Study**

The major purpose of this study was to determine the strategies for enhancing the maintenance of equipment in mechanical technology workshops for effective practical learning in Kogi State technical colleges. Specifically, the study sought to:

1. determine the government-related measures for enhancing the maintenance of equipment in Mechanical Technology Workshops for effective practical skill acquisition in technical college in Kogi State.
2. determine the teacher-related measures for enhancing the maintenance of equipment in Mechanical Technology Workshops for effective practical skills acquisition in technical colleges in Kogi State.
3. determine the student – related measures for enhancing the maintenance of equipment in Mechanical Technology Workshops for effective practical skills acquisitions in technical colleges in Kogi State.

### **Research Questions**

The following research questions guided the study;

1. What are the government-related measures for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical skill acquisitions in technical colleges in Kogi State?
2. What are the teacher-related measures to enhancing maintenance of equipment in Mechanical Technology workshops for effective practical skills acquisition in technical college in Kogi State?
3. What are the student-related measures for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical skills acquisition in technical colleges in Kogi State.

**METHODS**

This study adopted a descriptive survey design technical colleges in Kogi State, Nigeria. The population for the study was 105 respondents which consisted of 92 students and 13 technical teachers in the four government owned technical colleges in Kogi State namely; Government Technical College Idah, Government Technical College Mopa. There was no sampling because the population was relatively small and manageable. The instrument was a 30 item questionnaire statement to elicit responses from the respondents. The instrument was face validated by three experts, two experts are from the Department of Technology and Vocational Education, and one expert in the area of Measurement and Evaluation, from the Department of Computer and Mathematics Education both in the Faculty of Education, Enugu State University of Science and Technology. It has two parts, A & B. Part A elicited the demographic information of the respondents, while part B has three sections/clusters that collected data from the respondents with regards to the three research questions that guided the study. Sections 1 on the government-related measures for enhancing the maintenance of equipment in Mechanical Technology Workshops for effective practical skills acquisition Section 2 on teacher – related measures for enhancing the maintenance of equipment in Mechanical Technology Workshops for effective practical skills acquisition and while section 3 was on student-related measures for enhancing the maintenance of equipment in Mechanical Technology Workshops for effective practical skills acquisition in technical colleges in Kogi State.

The questionnaire item was structure in 5 point Likert scale assigned numerical values of Very Highly Required (VHR) 5 points and Not Required (HR) 4 points, Moderately Required (MR) 3 points Lowly Required 2 points and Not Required (NR) 1 point. The questionnaire was distributed to the students and teachers of technical colleges under the study. The 105 copies of the questionnaire were distributed to the respondents with the help of three research assistants briefed on the methods and distribution of the questionnaire which is on the methods of distribution of the questionnaire which was on the spot distribution and collection which resulted to 100% return rate.

Mean and Standard Deviation were used to analyze the data collected for the study and the decision was that 3.00 mean rating and above were regarded as required in terms of measures for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical teaching and learning; while any mean rating(s) below 3.50 mean was regarded as not required as measures for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical teaching/learning in Technical colleges in Kogi State.

**RESULTS**

In line with the three research questions which guided the study, the result of the data analysis were presented in the table below:

**Table 1: Mean responses of the respondents on the government-related measures for enhancing maintenance of equipment in Mechanical Technology workshops for practical skills acquisition in Technical Colleges in Kogi State**

S/N	The Government-related Measures are:	(x)	S.D	Remarks
1	enhanced yearly budget	3.90	0.62	Highly Required
2.	foreign technical supports (instructional & infrastructural resources)	3.87	0.22	Highly Required
3.	periodic inspection of equipment	3.81	0.30	Highly Required
4.	in-service training for technical teachers	3.59	0.76	Highly Required
5.	adequate employment of workshop attendants	3.71	0.44	Highly Required
6.	sustained funding for equipment procurements & repairs	3.61	0.42	Highly Required
7.	frequent supervision of teachers handling maintenance services	3.86	0.24	Highly Required
8.	adequate attentive in keeping the equipment operational	3.67	0.56	Highly Required
9.	occasional deployment of foreign expertise for equipment maintenance	3.67	0.56	Highly Required
10.	coaching teachers at different skills levels by technical aids staff from industries.	3.58	0.78	Highly Required
<b>Cluster Mean and Standard Deviation</b>		<b>3.73</b>	<b>0.49</b>	<b>Highly Required</b>

The above table indicates that the respondents in considering government related measure rated item 1 enhanced yearly budge (3.90) as highest in ranking, followed by periodic inspection of equipment in item 3 (3.88) was rated second while item 2 (3.87) foreign technical support was rated third. However, all the other government-related strategies were highly rated as necessary for enhancing maintenance of equipment in mechanical technology workshop for practical learning. The cluster mean of 3.73 and standard deviation of 0.49 showed highly required. The low standard deviation of 0.49 depicted that the respondents opinion are closely related.

**Table 2: Mean responses of the respondents on the teacher related measure for enhancing maintenance of equipment in Mechanical technology workshops for effective practical learning in Technical Colleges in Kogi State.**

S/N	Items on the teacher-related measures are:	x	S.D	Remarks
11	ability to use appropriate equipment for a particular operation	3.66	0.54	Highly Required
12.	frequent carrying out preventive maintenance correctly	3.60	0.45	Highly Required
13.	timely lubrication of the equipment especially moving points.	3.86	0.24	Highly Required
14.	adoption of quality control assurance maintenance plan	3.87	0.22	Highly Required
15.	use of devoted student in equipment cleaning after use under supervision by teacher, or instructors.	3.67	0.56	Highly Required
16.	periodic testing of the equipment to avoid breakdown	3.71	0.72	Highly Required
17.	ability to carrying out routine, supervision in the workshops to ensure equipment continuous operation.	3.63	0.60	Highly Required
18.	carrying out routine maintenance in the workshops to accident as a result of equipment malfunctioning.	3.59	0.76	Highly Required
19.	teaching students locations of equipment that require lubrication and, the frequent application of Grease at the points	3.60	0.62	Highly Required
20.	instructing students on different kind of lubricants and where each of them are applied.	3.64	0.74	Highly Required
<b>Cluster Mean and Standard deviation</b>		<b>3.68</b>	<b>0.55</b>	<b>Highly Required</b>

Adopt a quality control and assurance maintenance plan (3.87) was ranked highest followed by timely lubrication of the equipment (3.86) and then third in the ranking (3.71) was periodic testing of the equipment followed (3.67) was for the use of students in equipment cleaning after use under supervision. All the items were rated highly required as the teacher related measure for enhancing maintenance of equipment in Mechanical technology workshops for effective practical teaching/learning in Technical Colleges in Kogi State. The cluster mean of 3.68 further showed highly required while the low standard deviation of 0.55 showed that the respondents' responses analysed are similar.

**Table 3: Mean responses of the respondents on the student-related measure for enhancing maintenance of equipment in Mechanical Technology workshops for effective practical learning in Technical Colleges in Kogi State.**

S/N	Items on the students-related measures includes:	(x)	S.D	Remarks
21	willingness to accept any work assigned to them by their teachers.	3.59	0.76	Highly Required
22.	deadlines to learn preventive, corrective and predictive maintenance and apply them correctly	3.74	0.86	Highly Required
23.	co-operation with their teachers in carrying out lubrication exercise on equipment	3.63	0.60	Highly Required
24.	ability to identify the kind of lubricant to be used for lubrication	3.60	0.58	Highly Required
25.	students disposition for practical exercises in the workshops	3.68	0.88	Highly Required
26.	punctual to workshop activities by the students	3.85	0.23	Highly Required
27.	obedience in doing what they are told to do	3.87	0.22	Highly Required
28.	having a good learning habit with grand interests by the technical college students.	3.56	0.87	Highly Required
29.	regular carrying out routine maintenance with the guidance of teachers/technical instructors.	3.58	0.88	Highly Required
30	cleaning of the equipment after use to remove dusts and iron fitting to avoid rusts of the equipment parts or edge.	3.68	0.52	Highly Required
<b>Cluster Mean and Standard deviation</b>		<b>3.68</b>	<b>0.64</b>	<b>Highly Required</b>

In order for student to enhancing maintenance of equipment in Mechanical Technology workshops for effective practical teaching/learning, the above Table indicates that the 10 strategies investigated are highly needed to improve maintenance of equipment in mechanical technology workshop for effective practical teaching/learning in technical colleges in Kogi State. The mean ratings are within the ranges of 3.59 to 3.87 which means that the respondents have accepted the strategies investigated. This implies that maintenance of equipment can be improved using these students related strategies in technical colleges workshop. The cluster mean of 3.68 further showed highly required and the low standard deviation of 0.64 showed that the respondent's responses did not differ remarkably.

## **DISCUSSION OF FINDINGS**

The findings of the study are discussed under the following subheadings;

### **Government-Related Strategies for Enhancing Maintenance of Equipment in Mechanical Technology Workshops for Effective Practical Work.**

The 10 strategies investigated in research question one are highly required by the respondents as government-related strategies to improve the maintenance of equipment in Mechanical Technology workshops in technical colleges. Findings with respect to research question one revealed that if government employing workshops attendance to beinvolved in carrying out maintenance services on the equipment would enhance the maintenance in Mechanical Technology workshops. This agreed with Ameh (2015), who found that employment of workshop attendants by the government to cater for the equipment in Mechanical Technology workshops will help to improve the maintenance of the equipment and equally keep the workshops in good working condition. This would help to achieve effective teaching and learning of Mechanical Technology. Mohammed (2014) also noted that the attention given to the equipment by the attendants in the workshops will help to keep the equipment in good working condition for effective practical work by the teachers and students. This would help in the achievement of the laudable objectives of Mechanical Technology in technical colleges. The study also found that provision of in-service training for technical teachers by the government would improve the maintenance of equipment in Mechanical Technology workshops for effective practical learning in technical colleges in Kogi State. This is in agreement with Abdullahi (2013) who highlighted that in-service training for technical teachers improves the maintenance of equipment in Mechanical Technology workshops because it involves the training of the hands and brain for practical work. Fakomogbon (2004) also agreed that technical in-service education, if well organized by the government, has potentials of getting technical education teachers to become better acquainted with the necessary techniques for aiding their students to learn maintenance practices for the workshop equipment in order to use them or teach technical education courses. In view of the above, government needs to employ workshop attendants, provide in-service training for technical teachers and carry out all the government -related strategies investigated in this study to enhance maintenance of equipment in Mechanical Technology workshops.

### **Teacher Related-Strategies for Enhancing Maintenance of Equipment in Mechanical Technology Workshops for Effective Practical Learning.**

The 10 strategies investigated in research question two are required by the respondents as teacher-related strategies to improve maintenance of equipment in Mechanical Technology workshops in technical colleges. The study indicated that, the use of appropriate equipment for a particular operation, timely lubrication of the equipment, the use of students in equipment cleaning after use under supervision, periodic testing of the equipment, among others as identified in this study were viable strategies for enhancing maintenance of equipment for effective practical learning in Mechanical Technology workshops in technical colleges. The findings of the study were in agreement with the findings of Fenker (2014) who found that teachers of Mechanical Technology could help to enhance maintenance of equipment by assigning jobs to students, carrying out routine maintenance in the workshops, teaching students location of equipment required lubrication, among others to improve equipment maintenance in secondary schools. Brubaker (2014) also agreed that carrying out preventive and corrective maintenance correctly, adoption of a quality control and assurance maintenance plan and periodic testing of the equipment, enhanced maintenance of equipment in Mechanical Technology Workshops for effective

practical work. Teachers of Mechanical Technology need to teach students the needs to carry out periodic testing and maintenance of equipment in Mechanical Technology workshops for effective practical learning in technical colleges in Kogi State.

### **Student-Related Strategies for Enhancing Maintenance of Equipment in Mechanical Technology Workshops for Effective Practical Learning in Technical Colleges**

The 10 strategies investigated (items 21-30) in research question four are required by the respondents as student-related strategies to improve maintenance of equipment in Mechanical Technology workshops in technical colleges. The study revealed that humility, punctuality, obedience, readiness and cooperation were student related strategies for enhancing the maintenance of equipment in the Mechanical Technology workshops in technical colleges in Kogi State. The findings were in consonance with the opinion of Mkpa (2013) who agreed that before a student would be able to comprehend whatever he is taught, he will need to have attributes such as humility, co-operation, punctuality, obedience amongst others, Elobuike (2015) also highlighted the virtues too. This implied that if students were obedient, they would easily carryout the instruction given to them in the workshops by the teacher and would embark on field trips to industries where maintenance services were carried out on routine bases for them to learn and carryout same in their school workshops. Esomonu (2014) also agreed that obedient by the students of Mechanical Technology would help them to embark on field trips to various industries, to carry out maintenance when on field trip. This would help to enhance maintenance of equipment in Mechanical Technology Workshops, in technical colleges.

### **CONCLUSION**

The following conclusions were drawn based on the findings of the study: Enhancing maintenance of equipment in Mechanical Technology workshops for effective practical learning in technical colleges constitute a matter of concern for the government, teachers' and. students. More so, government should see the need to enhance maintenance of equipment in Mechanical Technology Workshops in order to improve effective practical learning. There is need for government to embark on the ten strategies for the maintenance of equipment in the workshops. For instance, government needs to employ workshops attendants and provide in-service training for technical teachers to enhance maintenance of equipment in technical colleges workshops.

Teachers need to show interest in enhancing maintenance of equipment for effective practical work in Mechanical Technology workshops. Teachers need to carry out the ten strategies investigated to improve maintenance of equipment for effective practical work in technical college workshops. For instance, there is need for teachers to carry out preventive and corrective maintenance correctly, lubricate the equipment timely teachers also need to use the students to clean the equipment after use. There is need for close supervision, carry out periodic testing of the equipment.

Students need to show interest in carrying out the ten strategies investigated to enhancing maintenance of equipment in Mechanical Technology workshops for effective practical learning in secondary schools. There is need for students to obey their teachers in carrying out cleaning of the equipment after use. Students also need to be regular and punctual to workshop activities, co-operate with their teachers in carrying out lubrication exercise on the equipment.

### **RECOMMENDATIONS**

Based on the findings for this study, the following recommendations were made:

1. Government should provide adequate support for the maintenance of Mechanical Technology equipment in technical colleges.
2. Effort should be made by school management by ensuring that their administrative function to Mechanical Technology equipment maintenance are carried out for effective Workshops practice.
3. All the strategies for enhancing maintenance of equipment in Mechanical Technology Workshops identified in this study should be compiled in a-handbook manual to be used in training Mechanical Technology students in technical colleges.

4. There should be plan to link academic programmes to equipment needs by the school management in order to attach importance to maintenance of equipment.
5. Mechanical Technology teachers should teach students the needs to carrying out periodic testing and maintenance.
6. Students should understand their role in maintenance of Mechanical Technology.

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