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**PROBLEMS OF IMPROPER MAINTENANCE AND UTILIZATION OF MECHANICAL TECHNOLOGY WORKSHOPS, FACILITIES AND EQUIPMENT IN TECHNICAL COLLEGES OF BAUCHI STATE**


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By

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**Abstract**

*This study sought to identify problems associated to improper maintenance and utilization of mechanical technology workshops and workshop facilities and equipment in Technical Colleges within Bauchi State. A survey research design was adopted among teachers and students of Technical Colleges within the state. All teachers and students offering this course constitute the entire population for the study. A total of (20) twenty mechanical teacher and (95) ninety five students at NTCI and NTCII constitute the population. A total of (20) twenty items questionnaire developed by the researcher served as an instrument for data collection among teachers and students within the three (3) samples Technical Colleges within the state. Data collected was analyzed using mean, quite a number of strategies was identified which among others would helped improved the maintenance and utilization of tools/equipment in mechanical technology processes. Recommendations were made such as government should trained workshop instructors in this area, in-service training and seminar/workshop for teachers to update their knowledge and students should go out for excursion to various organizations. If these recommendations were adopted it would improved on teachers and students maintenance culture and utilization of tools and equipment set aside for maximum utilization of the mechanical workshop among the 6 six Bauchi State technical colleges.*

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**Introduction**

Nevertheless, the development of a successful Technology Education to a sustainable economic growth cannot be overemphasized (World Bank, 2004). Federal Republic of Nigeria [FRN] (2004) states that Technical or Technology Education would provide the technical knowledge and vocational skills necessary for agriculture, industries, commercial for economic development through the provision of well-trained personnel at sub-professional grades and the middle level manpower.

Mechanical Technology is one among the trades courses offered at Technical Colleges which allowed the individual student to fit into an industrial production units for the purposes of machining process (Msheliza, 2011) observed that it is general knowledge that any nation, community, state or society that has no adequate provision for an occupational training achieved less in the present economic and technological break through (Mohammed, 2009). Technical and Vocational Education prepares learners to develop profitable, social habits required for the societal technological and scientific development (Oranu, 2000).

Osioma (1997) opined that the need for technical and vocational education in an industry, depends largely on from the right caliber of skilled manpower. It was reveal in a study conducted by Efijika (2004) that so many problems were identified concerning improper maintenance and utilization of

mechanical technology workshop which has become obstacles to the trade at most levels in our educational sector. The problems identified include poor condition of service to mechanics/tools, poor maintenance culture by teachers/and students, inadequate in service training to teacher, workshops, seminars and poor supply of electricity by the Power Holding Company of Nigeria etc. Similarly Adeyemi (2008) observed that student lacks interest in the area and this affect the maintenance and utilization of mechanical technology trade as a course in technical college level. Therefore, the main focus of this investigation is to identify strategies which if adopted by the government would help reduces cost implication for the maintenance and utilization of tools/equipment used in the mechanical technology workshop at technical college level in the state.

**Purpose of the Study**

The major purpose of this study is to identify factors responsible for improper maintenance and utilization of the mechanical technology workshop and workshop facilities and equipment in technical colleges.

This study specifically determined:

1. The habits exhibited by teachers and student toward the maintenance and utilization of tools, machines and facilities.

2. The extend of students involvement in the maintenance and utilization of the mechanical shop and the workshop facilities.
3. The government effort towards the maintenance and utilization of the workshop facilities.
4. The strategies that could be adopted to improved maintenance and utilization of tools, machines and facilities in the workshop.

#### Research Question

1. What are the habits exhibited by teachers and students toward utilization and maintenance of tools, machines and workshop facilities?
2. What is the extend of students involvement in the maintenance and utilization of workshop facilities in the mechanical technology workshop?
3. What are the efforts of development put forward by the government toward maintenance and utilization of tools, machines and facility in the mechanical shop?
4. What are the strategies that if adopted could improve the maintenance and utilization of facilities in the mechanical shop?

#### Methodology

The research design adopted for the study was which among a survey research designed. It was carried out in Bauchi State among the six 6 state technical colleges, where three 3 schools were

represented the population for the study was all the technical colleges teachers and students offering mechanical engineering trades in the 3 sampled schools, which include Technical College Bauchi, Technical College Gadau and Technical College Gumau and 3 principals. A questionnaire items was developed by the researcher for data collection among students and teachers. The questionnaire was divided into section: A, B, C & D each with five 5 items on a five point likert scale.

The instrument was validated by 2 experts from Abubakar Tafawa Balewa University, Bauchi and one representative from each Technical College. Instrument was subjected to Kuder Richard ( $K_{12}$ ) reliability co-efficient and 0.89 was obtained respectively. Both the two section A & B and C & D, instrument was administered to the respondent in the mechanical engineering trades within the 3 schools respectively. Mean was used in analyzing the data collected and decision taken was based on the responses each from the items.

#### Results and Discussion

##### Research Question One

What are the habits exhibited by teacher and instructors toward utilization and maintenance of tools, machines and workshop facilities of Technical Colleges in the mechanic shop.

**Table 1:** Mean responses on the habits exhibited by teachers and instructors toward utilization and maintenance of tools, mechanics and workshop facilities at Technical Colleges in Bauchi State.

S/No	Items	$\bar{X}$	Remark
1.	Teachers and workshop instructors always think of safety when carrying out maintenance and utilization of workshop facilities.	4.20	Agreed
2.	Teachers and workshop instructors do observed the rules and regulations guiding the use of workshops.	3.00	Agreed
3.	Teachers are provided with money for carrying out maintenance and utilization of tools, machines and workshop facilities.	2.20	Disagreed
4.	Sufficient and appropriate workshop facilities and equipment for carrying out maintenance and utilization are available in all the Technical Colleges within the state	2.49	Disagreed
5	Workshops and seminars are occasionally organized for teachers, instructors for sensitization of maintenance culture at Technical Colleges.	1.08	Disagreed

Table 1 has also reveal that out of the five items provided on habits exhibited by teachers and instructors on the maintenance and utilization of workshop facilities, only two 2 items were accepted all the remaining three 3 has a mean less than 2.50 this shows that there is a partial agreement by teachers and instructors on the items.

##### Research Question Two 2

What is the extend of students/instruction involvement in the maintenance and utilization of mechanical shop facilities.

**Table 2:** Mean rating of respondents on the extend to which students/instructors involvement in the maintenance and utilization of tools machines and workshop facilities at Technical Colleges in Bauchi State.

S/No	Items	$\bar{X}$	Remark
1.	Workshop instructors paid proper attention to students while carrying out machining processes in the workshop at technical college.	3.58	Disagreed
2.	Students observed rules and regulation during practical classes in school.	3.72	Agreed
3.	Students have enough time for carrying out practical lesson in the school workshop.	2.20	Disagreed
4.	Students are placed on industrial training at various organizations to improve their skill acquisition.	3.20	Agreed
5.	Closed supervision of students' activities by teachers in the workshop on daily basis is counter-productive on the part of student.	1.98	Disagreed

Table 2 has reveal that out of the five items provided on the extend of student/instructor involvement in the maintenance and utilization of the workshop facilities 3 items were accepted while the remaining two 2 were rejected; this implies that there is a partial involvement of students and instructors in the utilization and maintenance of tools, machines and workshop facilities at Technical College

### Research Question Three 3

What are the efforts of development put forward by the government toward maintenance and utilization of tools, machines and workshop facilities in the mechanical shop?

**Table 3:** Mean rating of respondents of teachers/instructors on the efforts by the government toward maintenance and utilization of workshop facilities.

S/No	Items	$\bar{X}$	Remark
1.	Government adequately provides capital expenditure for the support of maintenance and utilization of workshop facilities.	2.00	Disagreed•
2.	Government employed trained workshop instructors for proper maintenance culture and utilization of facilities at Technical College in Bauchi State	2.20	Disagreed•
3.	Government provides enough funds for the maintenance and utilization of workshop facilities in the Technical Colleges.	2.42	Disagreed
4.	The provision of workshop tools, machines and equipment is the sole responsibility of the state government.	2.34	Disagreed
5.	Workshops, in-service training and seminar is being organized by the state ministry of education for principal, teacher on the importance of maintenance and utilization of workshop facilities.	4.50	Agreed

Table 3 has reveal that out of the five items provided on the effort made by the state government on maintenance and utilization of machineries all the four items were rejected only one item that has a mean of 4.50. This reveals that government put less effort in the educational sector.

### Research Question Four 4

What are the strategies to be adapted to improved maintenance and utilization of workshop facilities/equipment in the mechanical shop?

Table 4. Mean rating of respondents on the strategies that could be adopted to improve maintenance and utilization of workshop facilities/equipment.

S/No	Items	$\bar{X}$	Remark
1.	Teachers/instructors should be provided with the full range of in-service training, workshops and seminars in their respective area of specialization.	4.07	Agreed
2.	Provision of adequate funds for the maintenance and utilization of tools, machineries, equipment and facilities should be made quarterly for schools administrators.	4.51	Agreed
3.	Consultants should be given temporary appointment by the Ministry of Education for quarterly visitation in all the Technical Colleges to undertake group repairs.	4.75	Agreed
4.	Adequate consumable materials should be provided for practical this boosts the morale and interest of students.	3.87	Agreed
5.	Government should ensure that source of power should be provided apart from the PHN power holding.	4.08	Agreed

Table 4 on the mean rating of the strategies to be adapted to improved maintenance and utilization of workshop facilities reveals that all the five items has a high mean rating of 4 point and above. This shows that all the Technical Colleges are suffering from the maintenance and utilization of tools, machineries and facilities that required the urgent attention and government intervention.

#### Discussion of the Findings

The finding revealed that habits exhibited by teachers and instructors toward maintenance and utilization of workshop facilities should be encouraging so as to boost the morale of students of Technical Colleges. Al-Darrab (2000) opined that if the Nigerian curriculum has spelt out clearly the importance of mechanical technology, which is regarded as one of the outstanding field of production and sustainable nation development. Similarly Olaitan (1999) revealed that the curriculum and management of Vocational and Technical Education needed urgent change and modification.

The finding revealed that there is a partial involvement of students and instructors in the utilization and maintenance of tools, machines and workshop facilities at Technical College. The finding was in line with that of Henrickseen (2004) who reported that student full-participation plays an important role in skill acquisition and this provide room for student interest, Oran (2000) also opined that there is the need for improving maintenance and utilization of workshop facilities and equipment as Technical and Vocational Education services as a mean and is a pre-requisite for technological development and self-reliant.

The findings reveal that less effort was made by the state government toward improving the standards of maintenance and utilization of tools, machines and workshop facilities among the technical colleges under study. It was also reveal in

Muhammad (2011) that teachers and instructor have positive habit, but most of the time perform beyond expectation under stress and unsatisfied behaviour. Msheliza (2011) opined that if Technical Colleges and any institution that provide training in skills acquisition need to achieved the laid down aim and objectives of the National Policy on Education (2004), Government most recognized the fact that this problems do exist and possible solutions to the problem most be addressed properly by the authorities. He also recognized so many problems affecting the teaching and learning in this area which was accredited to poor maintenance and utilization of workshop facilities as a result of inadequate funds, shortage of well-trained man power, in-adequate tools, machines and equipment for practical etc in almost all the Technical Colleges within the state.

#### Conclusion

The study reveals that maintenance and utilization of mechanical workshop and workshop facilities in Technical Colleges within the state has so long been suffering as a result of some habits exhibited by teachers and instructors, and that government at its own end has not put much fund to facilitate repairs or encourage teacher in the area to acquire additional skills in the area of repairs, more so, it was also reveal from the findings of the study revealed that many at times students do not participate in the maintenance or repairs, because practical skill acquisition is an important aspect of skill acquisition in technical colleges. Certain strategies was proffered to the government, which if followed will improve the maintenance and utilization of tools, machines, and workshop facilities in general in all the Technical Colleges, which if put in place the graduates of Technical Colleges can be self employed. This will also help in reducing unemployment crises in the state.

**Recommendations**

Based on the findings of the study, the following recommendations were put forward to the government of Bauchi State.

1. The government of Bauchi State should provide enough funds for the maintenance and utilization workshop facilities in the mechanical shop.
2. Teachers and instructors in this field should be given the opportunity to attend seminars, workshops and even oversea training to update their knowledge in skill acquisition.
3. Teachers and instructors should marry the spirit of involving students in repairs and maintenance of workshop facilities; this will instill the spirit of skill acquisition.
4. The study also recommends that administrators of the various Technical Colleges should inform the government about the dilapidated conditions of the system, so that funds or consumable materials support can boost the maintenance and utilization of the mechanical workshop.

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