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Cultivating Positive Maintenance Culture among Technical Teachers.

By

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Abstract

The study was designed to investigate: the factors hindering technical teachers from maintaining their workshop tools and equipment, and ways to cultivate positive maintenance culture among technical teachers. A 26 items questionnaire was used, to collect data from the principals/vice principals and 140 technical teachers randomly sampled from technical colleges in Niger State. Mean standard deviation and t-test of independent samples were used as statistical tools. Findings revealed: lack of planned maintenance programme in school workshop, absence of budgetary allocation to schools for maintenance purposes, irregular staff development through conferences and seminar/workshops and non – availability of spare parts. It was recommended among others that: adequate fund be made available to schools for maintenance purposes, workshops, or seminars/conferences should be organized timely for technical teachers on effective equipment and tools maintained

Introduction

Maintenance can be defined as the act of taking good care of tools and equipment to prolong its life-span and to prevent it from sudden breakdown. Jarret (2000) sees maintenance as a process whereby machines are constantly checked and faults rectified to avoid any loss in man-hours and to boast production. Ekenze (1991), opined that maintenance is work undertaken in order to keep or restore every facility to an acceptable standard. According to Blesanz and Blesanz (1964), culture refers to the leaned portion of human behaviour, the ways of thinking, feeling and doing that man himself has developed as part of his environment. The term culture from view of Olaitan (2000), is a fairly consolidated pattern of learned behaviour of a group of people, which are usually transmitted from generation to generation. It is the aggregate of a people's cherished ways of life, the essence of their being as members of society.

Maintenance culture as applied to this paper is an acquired and sustained habit of ensuring tools and equipment are in good condition through maintenance. Orikpe (1994) state that a system with maintenance as an integral part of its culture makes conscious efforts and takes appropriate steps and precautions to ensure that available

equipment within the system attains its maximum possible life span. A good maintenance culture ensures that machinery functions properly even without eliminating depreciation. Olaitan (2000) further lamented that a nation that has cultivated a maintenance culture is, therefore, that nation that has accepted to "speak and practice" maintenance as an integral aspect of her philosophy, citizens of that country are brought up to believe that:

- nothing is useless;
- there is no end to the use to which an equipment can be put;
- a machine or equipment must be aided to exhaust its natural lifespan;
- it is unwise and indeed an economical sabotage to allow an equipment deteriorate to a point of collapse/breakdown before it will taken care of;
- every warning signal in any equipment or machine must be promptly attended to;
- each individual should be personally responsible for any equipment left in his/her care.

Administrators, supervisors and teachers must never loose sight of the importance of maintaining tools and equipment in schools. The major responsibilities of the teacher is to keep the tools and equipment in first- class condition at all times. It is when tools and equipment are continuously maintained in excellent condition that a complete and sound educational programme may be offered. A teacher will only succeed where his students perform operations with tools and equipment that are kept in first – class condition. There are three reasons for keeping tools and equipment in first-class condition;

- to promote a high degree of efficiency
- to maintain safe working conditions
- and to keep cost of operation and prolong the life of equipment. When a student find that he cannot do good work because of the condition of equipment, he soon develop a negative attitude toward the works.

Ekenze (1991), opined that the implications of cultivating maintenance culture are:

- the facilities and equipment will be preserved and wasted prevented;
- there will be more functional equipment and tools or effective use;
- there will be increase in skilled manpower production and economic stability will be promoted.
- People will become more creative and innovative and there will be increase in foreign exchange reserve as there will be less importation of new equipment.

Statement of the problem

Nigeria industrial development is largely dependent on the available competent workforce in addition to the raw materials, equipment procured. This is because; only with production of dedicated skill-work force can material be harnessed, manipulated and transformed into products. But skilled workers are made through good training from well maintained tools and equipment. Onwuchekwa (2003), agress that most of the equipment, hand tools and others have indeed breakdown as a result of in adequate maintenance and this has affected practical exercises in schools. Idris, Ejikeme and Ijebor (2005) and Olaitan (2000) emphasized that maintenance culture in Nigeria is very poor in schools, homes, offices and industries. Onwuchekwa (2003) further revealed that workshop tools and equipment are laying waste due to breakdown. Some, according to him, are still alive are forced to breakdown by dust, and cobweb due to negligence and lack of care. When tools and equipment are in excellent

condition, meaningful teaching-learning processes can become effective. That makes the study seeks ways to cultivate positive maintenance culture among technical teachers.

Research questions

This study sought answers to the following research questions.

1. What are the factors hindering technical teachers from maintaining their workshop tools and equipment?
2. What are ways to cultivate positive maintenance culture among technical teachers?

Hypotheses

The following null hypotheses were formulated and tested in the study at ($P<0.05$) level of significance.

1. There is no significant difference between teachers and principals/vice principals regarding factors hindering maintenance of school workshop tools and equipment.
2. There is no significant difference between teachers and principals/vice principals regarding ways to cultivate positive maintenance culture among technical teachers.

Design of the study.

This study is a descriptive survey research, because it involves the use of questionnaire to determine the responses and perceptions of teachers as well as principals/vice principals on way to cultivate positive maintenance culture among technical teachers in Niger State.

Instrument for Data Collection.

This instrument used for collection of data was a structured questionnaire. It consists of twenty six (26) items divided into two (2) section A and B. two experts in measurement of evaluation from Industrial and Technology Education Federal University of Technology Minna validated the instrument.

Methods of Data Analysis.

The data collected was analysed using mean frequently count, mean, standard deviation and t-test. Modified likert type scale was developed using strongly agree, S.A (4), Agree A (3), Disagree, D (2), strongly disagree S.D (1), and undecided U.N (0). The cut of point was fixes at 2.00 therefore any time that altercated a mean of 2.00 and above was regarded as agreed while any mean below 2.00 was regarded degreed. To test the two hypotheses a degree of freedom of 159 and t table value of 1.96 was used. So any item that is less than t – table value was accepted, while those equal or greater than t – table value were rejected.

Population and sample

The population for the study comprised of the all teachers and principals/vice principals in all the seven technical colleges in Niger State. While all the principals/vice principals were used for the study, 140 teachers were selected using random sampling techniques.

Result

The result for the study is presented according to Research questions and hypotheses formulated to guide the study.

Research Question 1

What are factors hindering technical teachers form maintaining their workshop tools and equipment?

Table 1: The mean and t-test analysis of the respondent regarding factors hindering technical teachers from maintaining their workshop tools and equipment.

N1 = 140, N2=21

	Item	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	$S.D_1$	$S.D_2$	T	Remark
1	Lark of government equipment maintenance policy for schools.	3.22	3.40	3.31	0.92	0.81	-0.93	Accepted
2	Teachers are not properly assigned maintenance role.	2.64	3.03	2.86	1.84	1.75	-0.95	Accepted
3	Absence of budgetary provision for maintenance of tools and equipment.	3.06	3.25	3.16	0.96	0.87	-0.92	Accepted
4	Some teachers are not qualified.	2.52	2.84	2.68	1.26	1.20	-1.14	Accepted
5	There is no motivated for technical teachers	3.24	3.10	3.17	0.84	0.82	0.73	Accepted
6	Shortage of technical teachers in technical colleges.	3.20	3.10	3.15	0.61	0.59	0.72	Accepted
7	Over loading technical teachers with other school duties.	3.35	2.94	3.15	1.26	1.54	1.14	Accepted
8	Non-challant attitude to equipment maintenance.	3.61	3.04	3.33	1.62	1.55	1.58	Accepted
9	Some equipment have no operating/maintenance manual.	3.02	2.91	2.97	0.84	0.81	0.58	Accepted
10	Technical teachers are not involved in purchase of tools and equipment.	3.45	3.01	3.23	1.46	1.38	1.33	Accepted
11	Non-challant attitude to equipment maintenance.	1.86	2.02	1.94	0.97	0.92	-0.73	Accepted
12	Lack of planned maintenance programme in school workshops.	3.30	3.33	3.32	0.62	0.55	-0.23	Accepted
13	School authorities show less concern to maintenance.	2.34	1.94	2.15	1.42	1.36	1.19	Accepted
14	Inadequate maintenance tools and testing instruction.	1.82	2.03	1.93	0.95	0.88	-1.01	Accepted
15	Irregular staff development through conferences and seminars/workshops.	1.82	2.03	3.22	1.46	0.38	1.21	Accepted

Keys

N_1 =Number of teachers N_2 =Number of principals/Vice principals

$\bar{X}_t$ = Mean of teachers, $\bar{X}_2$ = mean of principals/vice principals

$\bar{X}_t$ = Average mean = $\bar{X}_1+\bar{X}_2/2$

SD_1 =Standard Deviation of teachers, SD_2 = Standard Deviation of principals/ vice principals

t = t-test analysis of respondents

The analysis in table 1 revealed that the responds agreed with all the items except items 11 and 14. it also shows that there is no significant difference between mean responses of technical teachers and principals/vice principals in all items.

Research question 2.
What are the ways to cultivate positive maintenance culture among technical teachers?

Table 2: The mean and t-test analysis of the respondents regarding ways to cultivate positive maintenance culture among teachers.

S/No	Item	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_T$	SD_1	SD_2	T	Remark
1	The government should come out with equipment maintenance policy for schools.	3.41	3.20	3.17	0.82	0.61	1.40	Accepted
2	Teacher should be assign maintenance role.	3.04	3.16	3.33	4.50	2.80	-o.72	Accepted
3	Maintenance fund should provided for school to teacher when need arises.	3.34	3.67	3.51	2.98	2.78	-0.50	Accepted
4	Qualified technical teachers should be employed.	3.26	3.60	3.43	2.83	2.81	-0.50	Accepted
5	Duties assigned to the technical teachers should be reduced to enabled them have time for maintenance.	3.42	3.01	3.22	2.98	2.60	0.66	Accepted
6	Spare parts should to the readily available for teachers use.	3.52	3.58	3.55	0.98	0.84	-0.30	Accepted
7	Technical teachers should be given extra pay for coming out regular maintenance activities.	3.68	3.24	3.46	2.86	2.86	0.70	Accepted
8	Regular attendance at conferences workshop/seminars by teachers.	3.20	3.28	2.79	2.80	2.74	-1.53	Accepted
9	Teachers who ignore the maintenance of tools and equipment in their care should be displined.	2.30	3.28	2.79	2.80	2.74	-1.53	Accepted

10	Technical teachers should involve in purchasing of tools and equipment.	3.39	3.01	3.25	1.46	1.65	0.74	Accepted
11	Tools and equipment maintenance manuals should be available for technical teachers.	3.54	3.41	3.48	0.95	0.92	0.59	Accepted

The analysis on table 2 revealed that the respondents agreed with all items, it also shows that there is no significant difference between mean responses of technical teachers and principals/vice principals on all the items.

Discussion

The findings revealed that teachers and principals/ vice principals accepted all the items on factors hindering technical teachers from maintenance their workshop tools and equipment, this results not coming as a surprise. Abdullahi (2000), and Olaitan (2000) highlighted factors militating against effective maintenance in their separate works to include:

- inadequate funding
- unavailability/high cost of spare parts
- shortage of skilled manpower
- maintenance of work by unqualified personnel
- Inadequate incentives in terms of salaries, allowances and mobility of the maintenance staff.
- Lack of manuals for the equipment.
-]institution lapses whereby nobody is specifically in charge and held responsible of lapses, in controlling quality of materials or labour of setting standard.

In support of this (Oduh 1992, and Okafor 1993) advanced several factors hindering maintenance of workshop tools and equipment such as non-challant attitude of most Nigerians towards government property, inability of equipment operators to effect minor repairs, lack of periodic checks of the equipment operators of our creativity, our dishonesty and poor attitudes to government property, lack of spare parts and fund. Mbata, (1990) noted that schools and colleges lack adequate management for effective utilization of educational resources to improve the quality of teaching and learning.

The acceptance of all items on table 2 shows the ways to cultivate positive maintenance culture among technical teachers. The outcome will greatly improve the quality and efficiency of educational programme. The result of this study is in line with Abdullahi (2000), who averred that, to achieve the goal of the following factors must be looked into:

- In service training for the technical personnel.
- Adequate incentives in term of salaries, allowances and mobility for the technical staff.
- Setting aside at least 15% of the capital cost of building/structures, plants or equipment annuals for maintenance.

Orikpe (1994) in the recommendations suggested that culture of maintenance should be inculcated into our daily life in order to enhance longevity of equipment and tools in schools. Workshop should be organized occasionally for technical teachers, government should fund vocational technical institution adequately, the

institutions should make adequate maintenance budgets yearly and maintenance culture should form parts of the programmes. Idris et al (2005) emphasized that if maintenance responsibilities are to be successfully carried out, the following must be considered: adequate number of staff must be involved in maintenance responsibilities, adequate training, sufficient and genuine spare parts must be stocked and our sense of patriotism and responsibilities must change for the better.

Conclusion

Cultivating positive maintenance culture among technical teachers is an aspect that cannot be neglected if the country wants to advanced or maintained her technological growth and development. Since a country's manpower are made not born, the workshop tools and equipment of the institutions where they originated must be put in first hand condition at all times. Negative maintenance culture is a weakness that caused poor learning outcome to real work situation, which led to unemployment and few employed, ought to be re-trained. Since equipment or machines undergone friction that even causes wear and tear maintenance become necessary. Idris et al (2005) lamented that even at human level, if our health care needs are not met, the person would die. A system not well maintained would naturally die.That calls for ways to imbibe positive maintenance culture among technical teachers.

Recommendations

Based on the findings the following recommendations are made.

1. Government should provide adequate fund to technical colleges to enable administrators purchase spare parts and relevant materials for maintenance purposes.
2. Workshop, seminars and conferences should be organized regularly for technical teachers to develop their mental capacity and also to serve as a motivating factors min geared their interest toward maintenance of equipment and tools.
3.) Adequate inactivates in terms of salaries, allowances and mobility should be provided to technical staff.
4. Non challant attitude towards government properties should be changed positively and people should start seeing government properties as theirs.
5. The people involve in maintenance of equipment and materials should be involved in purchasing spares and necessary materials.

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