

## ASSESSMENT OF WORKSHOP FACILITIES FOR EFFECTIVE TEACHING-LEARNING DELIVERY IN INDUSTRIAL AND TECHNOLOGY EDUCATION DEPARTMENT, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

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### Abstract

*This study assessed the workshop facilities for effective teaching – learning delivery in Industrial and Technology Education Department of the Federal University of Technology Minna Niger State. The study adopted descriptive survey. A structured questionnaire was used to collect data for the study. Data collected were analyzed using percentages. The findings revealed that the workshop facilities for effective teaching – learning delivery are not adequately available in Industrial and Technology Education Department of the Federal University of Technology Minna, workshops are not well equipped and effectively functioning, that students seldom perform practical exercise and that there are no technical staff for some option while one technical staff is serving two option at a time. This enable the students to lack adequate practical knowledge. It was recommended that all broken down equipment including the obsolete ones should be repaired or replaced to promote effective skill acquisition and training in all the options. Special orientation on the operation and maintenance of the procured workshop facilities should be organized as at when due to update the instructors and workshop technicians about proper handling of the facilities. Donor agencies such as TETFUND, UNDP, UNESCO etc, should be encouraged to assist in equipping the Institution workshops.*

**Keywords:** *Assessment, Teaching- learning, workshop facilities*

### Introduction

Workshop is a place where practical activities are being carried out. It supports teaching and learning activities in the school by providing demonstrations of tools and machines used in teaching and research purposes. A workshop is a building where tools, equipment, machines and consumable materials that are being used for teaching and learning a trade are kept. (Azonwu 2017)

The acquisition of practical skills relating to occupations is to provide technical teachers with intellectual and professional background adequate for teaching technical subjects. However, in order to further buttress this fact of skill training, technical institutions are expected to focus on workshop practices in addition to the classroom lectures as stated in the National Policy on Education (2014) that for effective participation of students in practical work the teacher-students' ratio should be kept at 1:20

Technical institutions were established in order to embrace technological development and advancement in Nigeria. The industrial (vocational and technical) aspects of education have been identified as responsible manpower delivery systems which play prominent roles in national technological transformation and industrialization. Industrial education which is a generic term for vocational and technical education prepares individuals for the world of work. Technical and Vocational Education (TVE) also known as Industrial and Technology Education (ITE) is interlaced with skill acquisition and hence sustainable employability. Teaching and learning of Industrial and Technology Education (ITE) are two in one; the graduates of the programme are expected to teach the theories, demonstrate in terms of teaching as well practically oriented in order to solve Industrial problems. Teaching is an interaction that exists between an instructor and learners/students in a given context (classroom/workshop). The aim of teaching is not only to transfer information but also to transform students from passive recipients of other people's knowledge into active constructors of their own and others' knowledge. Learning is the process of acquiring new or modifying existing knowledge, values and skills. Learning can be successfully achieved when it involves practical. In other to be sure that learning as taking place, the instructors assess the learners.

Assessment is the process of testing and making a judgment about something, someone's knowledge, ability, skills and so on. Assessment of workshop facilities is to determine the state of workshop facilities on students' acquisition on teaching and learning. The assessment of workshop facilities has to do with collecting data in



order to pass judgment on the effectiveness of hand tools, machines tools, equipment, infrastructure and studio for teaching/learning Industrial Technology Education in the Federal University of Technology Minna.

**Statement of the Problem**

The objective of technical institutions in Nigeria is to make the recipient self-reliant, gainfully employed or pursue further education in technical programme in institutions at different levels. Such institutions include polytechnics, colleges of education (technical) and universities offering technical courses (FRN, 2014). To achieve these objectives adequate teaching- learning equipment facilities and qualified teachers have to be fundamental. It has been observed that there is inadequate provision and utilization of educational facilities in all technical institution in Nigeria that enable the achievement of technology education objectives (Aina, 2000).

The insufficient supply, non-functional and/or lack of material resources such as tools, equipment and workshop have also limited the extent of skill acquisition in technical/technology education institutions because the school system lays more emphasis on the traditional classroom setting.

There have been complaints from many quarters that graduates of industrial technology education in the recent time are not performing well on the job. According to Jemerigbe (2002), many industrial organizations are no longer willing to offer employment to products of technical institutions because of their lack of work experience which sometimes constitute a risk to their business. Hence, this study will assess workshop facilities for effective teaching-learning delivery in Industrial and Technology Education.

**Objectives of the Study**

The study assessed workshop facilities for effective teaching-learning delivery in Industrial and Technology Education (ITE) in Federal University of Technology Minna. Specifically, the study determined;

1. the availability of workshop facilities for the acquisition of technology skills in ITE Workshop.
2. the adequacy of workshop facilities for effective teaching-learning in Industrial and Technology Education Department Workshop.
3. the strategies to improve on the provision and utilization of workshop facilities for teaching-learning in ITE Workshop.

**Research Questions**

The study answered the following research questions;

1. What are the available workshop facilities for the acquisition of skills in Industrial Technology Education Department Workshop?
2. How adequate are the workshop facilities for effective teaching-learning in Industrial and Technology Education Department Workshop?
3. What are the strategies to improve on workshop facilities for teaching-learning in ITE workshop?

**Methodology**

The study adopted a descriptive survey design. The study was carried out in the Department of Industrial and Technology Education, Federal University of Technology Minna in Niger State. The population of the study consisted of 26 academic staff in the department.

**Table 1: Percentage of questionnaires returned**

S/N	OPTION	NO OF RESPONDENT USED		NUMBER RETURNED	%
		LECTURER	TECHNICAL STAFF		
1.	Automobile	6	-	6	100
2.	Building	4	1	5	100
3.	Electrical/Electronics	6	1	6	85.71
4.	Metalwork	3	-	2	66.67
5.	Woodwork	5	-	4	80
	Total	24	2	23	86.48

As shown in Table 1 a total of twenty-six Staff were given questionnaires and only 23 or 86.48% were returned which were used for data analysis.

Questionnaire was drafted by the researcher and validated by five staff, each from Automobile, Building, Electrical/Electronics, Metalwork and Woodwork options were used for the study. The instrument was administered and retrieved personally by the researcher. Data collected were analyzed using percentage count.



**Results**

1) **Research question 1:** What are the workshop facilities available for the acquisition of skills in Industrial Technology Education Department Workshop?

Key: A= Available NA= Not Available %= Percentage

**TABLE 2: Percentage ratings of the respondents on safety kits available for skills acquisition in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
1	Safety Kits:	Automobile	60%	A
		Building	45.71%	NA
		Electrical/Electronics	15.62%	NA
		Metal work	33.33%	NA
		Wood work	60%	A
		Mean Percentage	31.98%	NA

Results in Table 2 showed that the safety kits in the workshop of Industrial and Technology Education Department had a percentage mean rating ranged between 15.62% to 45.71% for Electrical, building and Metalwork while Automobile and woodwork have 60% each and a grand mean rating of 31.98%. Any items with a percentage mean rating below 50% were regarded as unavailable. Thus, Industrial and Technology Education of the Federal University of Technology Minna, Niger State, Nigeria do not have required safety kits in the workshop.

**TABLE 3: Percentage ratings of the respondents on hand tools available for skills acquisition in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
2	Hand tools:	Automobile	57.29%	A
		Building	61.25%	A
		Electrical/Electronics	68.89%	A
		Metal work	70.31%	A
		Wood work	73.68%	A
		Mean Percentage	66.28%	A

Results in Table 3 showed that facilities in the Industrial and Technology Education Department workshop had a percentage mean rating ranged between 57.29% to 73.31% and a grand mean rating of 66.28% respectively. Any items with a percentage mean rating from 50% and above were regarded as available. Thus, hand tools for effective teaching and learning delivery in the workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state are available.

**TABLE 4: Percentage ratings of the respondents on portable hand tools available for skills acquisition in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
3	Portable hand tools:	Automobile	18.06%	NA
		Building	34.29%	NA
		Electrical/Electronics	22.73%	NA
		Metal work	25%	NA
		Wood work	43.75%	NA
		Mean Percentage	28.77%	NA

Results in Table 4 showed that facilities in the Industrial and Technology Education Department workshop had a percentage mean rating ranged between 18.06% to 43.75% and a grand mean rating of 28.77% respectively. Any items with a percentage mean rating below 50% were regarded as unavailable. Thus, there is no availability of portable hand tools for effective teaching and learning delivery in the workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state.

**TABLE 5: Percentage ratings of the respondents on equipment available for skills acquisition in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
4	Equipment:	Automobile	16.67%	NA
		Building	34.29%	NA
		Electrical/Electronics	15.62%	NA
		Metal work	33.33%	NA
		Wood work	60%	A
		Mean Percentage	31.98%	NA



Results in Table 5 showed that equipment in the Industrial and Technology Education Department Workshop had a percentage mean rating ranged between 18.06% to 43.75% and a grand mean rating of 28.77% respectively except for Woodwork that has 60% availability of equipment. Any items with a percentage mean rating below 50% were regarded as unavailable. Thus, the equipment for effective teaching and learning delivery in workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state are unavailable.

2) **Research question 2:** How adequate are the workshop facilities for effective teaching-learning in Industrial and Technology Education Department Workshop?

Key: Ad= Adequate NAd= Not Adequate %= Percentage

**TABLE 6: Percentage ratings of the respondents on adequacy on safety kits for effective teaching-learning in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
1	Safety Kits:	Automobile	60%	Ad
		Building	46%	NAd
		Electrical/Electronics	42%	NAd
		Metal work	63%	Ad
		Wood work	55%	Ad
		Mean Percentage	53.04 %	Ad

Results in Table 6 showed that safety kits in the Industrial and Technology Education Department workshop had a percentage mean rating ranged between 42% to 46% for Electrical and Building option while 55% to 63% for Automobile, Metalwork and Woodwork and a grand mean rating of 53.04%. Any items with a percentage mean rating below 50% were regarded as inadequate while items from 50% and above are adequate. Thus, there are adequate safety kits in the workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state.

**TABLE 7: Percentage ratings of the respondents on adequacy of hand tools for effective teaching-learning in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
2	Hand tools:	Automobile	58.33%	NAd
		Building	35%	NAd
		Electrical/Electronics	69%	Ad
		Metal work	70.31%	Ad
		Wood work	74%	Ad
		Mean Percentage	61.24 %	NAd

Results in Table 7 showed that the adequacy of hand tools in the Industrial and Technology Education Department Workshop had a percentage mean rating ranged between 35% to 74% and a grand mean rating of 61.24%. Any items with a percentage mean rating below 50% were regarded as inadequate. Thus, there are adequate hand tools for effective teaching and learning delivery in workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state.

**TABLE 8: Percentage ratings of the respondents on adequacy of hand tools for effective teaching-learning in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
3	Portable Hand tools:	Automobile	11.11%	NAd
		Building	13.33%	NAd
		Electrical/Electronics	17%	NAd
		Metal work	25%	NAd
		Wood work	52.08 %	Ad
		Mean Percentage	19%	NAd

Results in Table 8 showed that the adequacy of portable hand tools in the Industrial and Technology Education Department Workshop had a percentage mean rating ranged between 11.11% to 52.08% and a grand mean rating of 19%. Any items with a percentage mean rating below 50% were regarded as inadequate. Thus, there are no adequate portable hand tools for effective teaching and learning delivery in workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state.



**TABLE 9: Percentage ratings of the respondents on adequacy of equipment for effective teaching-learning in Industrial Technology Education Department Workshop.**

S/n	Type of Facility	Programme	%	Remark
4	Equipment:	Automobile	11.11%	Ad
		Building	32.29%	NAd
		Electrical/Electronics	16%	NAd
		Metal work	33.33 %	NAd
		Wood work	60 %	Ad
		Mean Percentage	30.47%	NAd

Results in Table 9 showed that the adequacy of equipment in the Industrial and Technology Education Department Workshop had a percentage mean rating ranged between 11.11% to 60% and a grand mean rating of 30.47%. Any items with a percentage mean rating below 50% were regarded as inadequate. Thus, there are no adequate equipment for effective teaching and learning delivery in workshop of Industrial and technology Education Department of the Federal University of Technology Minna, Niger state.

3) **Research Question 3:** What are the strategies to improve on the provision and utilization of workshop facilities for teaching-learning in ITE workshop?

Key: A = Agreed D= Disagreed % = Percentage

**Table 10: Percentage ratings of the respondents on the strategies to improve on the provision of workshop facilities for teaching – learning in ITE Workshop.**

S/N	ITEMS	%	REMARK[
1	Procurement of all necessary equipment in the workshop by the government.	91	A
2	Assistance form community and private sector to technical education by donating relevant equipment to the workshop.	87	A
3	Keep appropriate records of all equipment to ensure sufficiency and avoid the duplication of supply.	87	A
4	Adequate infrastructural facilities for each option such as electricity supply, building structure etc.	91	A
5	Replacement of outdated equipment in the workshop.	87	A
6	Availability of standard and functional workshop.	91	A
7	Allow students to have enough time to get acquainted with the tools and machine in the workshop for effective skills acquisition.	82	A
8	Appropriate records of all equipment kept in the store for skills acquisition.	91	A
9	Adequate technological tools for improving skills acquisition.	82	A
10	Proper maintenance of tools and equipment.	91	A
11	Yearly assessment of available tools and equipment in the workshop.	78	A
12	Cordial relationship between the department and industries.	87	A
13	Not more than 30 students per equipment.	78	A
14	Provision of safety kit in the workshop.	80	A
15	Orderliness and enough space in the workshop.	80	A
	Total	74.47	A

Results presented in Table 10 shows that the strategies for improving the utilization of workshop facilities in Industrial and Technology Education Department range from 78% to 91% and a grand mean rating of 74.47%. Any items with a percentage mean rating below 50% were regarded as disagreed. Thus, the strategies to improve utilization of workshop facilities for teaching-learning in Industrial and technology Education Department workshop of the Federal University of Technology Minna, Niger state.

#### Findings of the Study

1. The Industrial and Technology Education Department of the Federal university of Technology Minna, Niger State of Nigeria do not have workshop facilities for effective teaching learning delivery.
2. The Industrial and Technology Education Department of the Federal university of Technology Minna, Niger State of Nigeria do not have workshop adequate portable hand tools and equipment for effective teaching learning delivery.
3. The strategies for improving on the provision and utilization of workshop facilities in Industrial and Technology Education Department of the Federal university of Technology Minna, Niger State of Nigeria workshop for effective teaching learning delivery.



### **Discussion of the Findings**

The Findings related to the availability of workshop facilities presented in Table 2 to 5 found that workshop facilities in Industrial and Technology Education Department Federal University of Technology Minna, Niger States of Nigeria required for effective acquisition of skill were unavailable. Facilities such as safety kits, hand tools, portable hand tools and equipment were unavailable. This finding is in support of Oghuvbu, (2009) who submitted that the quality of education and learning achievement of students depends on the facilities available in schools. Hence, the availability or non-availability of facilities (hand tools, equipment and machines) in colleges affects the academic performance of students.

The findings relating to availability of workshop facilities as shown in Table 6 to 9 revealed that hand tools, equipment and machines for effective teaching and learning were inadequate. This finding further revealed that, practical class could not be carried out done adequately and demonstrated as a result of shortage in supply of hand tools, equipment and machines, which affect the practical skills acquisition of the students. The finding is in support of Industrial Training Fund, (2007), which stated that a well-equipped workshop and training materials is a pre-requisite for effective skill acquisition in colleges. The finding is also in agreement with the view of (Owoeye and Yara, 2011) who posited that, the facilities and equipment constitute a strategic factor in organizational functioning and determine to a very large extent the smooth functioning of any social organization or system including education. He further stated that availability and adequacy of instructional facilities promote effective teaching and learning activities in schools while their inadequacy or unavailability may affect the academic performance of the learner negatively. Thus, the inadequacy in workshop facilities had effect on effective teaching and learning.

### **Conclusion**

The achievement to be made by students and the quality of education that the students will receive is directly related to the availability or lack of physical facilities and overall atmosphere in which the learning will take place.

Other factors may include adequacy of space for instruction, workshop space areas for each option are among the major obstacles which the study revealed as inadequate.

### **Recommendations**

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

1. Improving and maintaining schools' workshop facilities should not be limited to government alone, instructors, workshop attendants, and the school managers should take good care of the facilities.
2. That the workshop space should be adequate to cater for large population of students the design.
3. Federal and state technical institutions should be provided with adequate workshop and training facilities to meet the challenges of the new world order of science and technology.

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