

Trinity University, Nigeria  
Society for Multidisciplinary & Advanced Research Techniques (SMART) Africa  
IEEE Computer Society, Nigeria  
The ICT University Foundations, USA.

---

## LASUSTECH Multidisciplinary Innovations Conference (LASUSTECH-MIC)

---

16<sup>th</sup> – 18<sup>th</sup> April, 2022

# Appraisal of Students' Ability in Practical Skills at the Former Lagos State Polytechnic, School of Engineering Technology, Ikorodu, Nigeria

**Dawodu, M.O. & Ogunfowora, R.A.**

Department of Electrical/Electronic Engineering  
Lagos State University of Science and Technology  
Ikorodu, Lagos State, Nigeria

E-mails: dawodu.m@mylaspotech.edu.ng, oladipupo\_musiliu@yahoo.com

Phone No: +2348023309025



---

### Proceedings Citation Format

Dawodu, M.O. & Ogunfowora, R.A. (2022): Appraisal of Students' Ability in Practical Skills at the Former Lagos State Polytechnic, School of Engineering Technology, Ikorodu, Nigeria. Proceedings of the LASUSTECH 30<sup>th</sup> iSTEAMS Multidisciplinary Innovations Conference. Lagos State University of Science & Technology, Ikorodu, Lagos State, Nigeria May 2022. Pp 109-118 [www.isteams.net/lasustech2022](http://www.isteams.net/lasustech2022)  
DOI: <https://doi.org/10.22624/AIMS/iSTEAMS/LASUSTECH2022V30P10>

# Appraisal of Students' Ability in Practical Skills at the Former Lagos State Polytechnic, School of Engineering Technology, Ikorodu, Nigeria

Dawodu, M.O. & Ogunfowora, R.A.

Department of Electrical/Electronic Engineering  
Lagos State University of Science and Technology  
Ikorodu, Lagos State, Nigeria

## ABSTRACT

In this research work, an attempt has been made to identify strategies for appraisal of students' ability in practical skills in school of engineering technology, Lagos State Polytechnic. Questionnaire was the instrument used in collecting data from respondent. The population for the study comprises of the lecturers and technologists in the School of Engineering, Lagos State Polytechnic, Ikorodu. Due to the small no of the staff involved, the entire population was considered. The data obtained has been analyzed through the use of Means. The research findings reveal that lack of consumables for practical, inadequate training facilities, overcrowded class and the limited period allocated to practical activities are some of the problems often encountered in appraising students' ability in practical skills. It also shows that, preparation of checklist, appraising students' safety concerns, appraising students' liberty in handling practical work, appraising students' ability to follow standard procedure, appraising students' ability to identify suitable tools are some of the strategies that could be adopted for the effective appraisal of students' ability in practical skills. By and large, the study has established the need for proper funding by government in areas of facilities provision and training, NBTE to ensure adequate time for practical in curriculum and school administrators to encourage safety education, use of checklist in assessment and continuing professional development amongst others. With the aforementioned recommendations, practical skills in the Polytechnic will be better appraised and subsequently give room for adequate skills acquisition and self-reliant, which is the object of economic growth.

**Keywords:** Strategies, students' ability, practical skills, economic.

## 1. INTRODUCTION

Education is rightly perceived as the medium for efficient human and national development. Ovbiagele and Igbiniedion (2012) assert that "education is essential drive force for progress". The duo is in accord that educational institutions are centers for human betterment. There is no gain saying that education plays fundamental roles in the social and economic improvement of any nation. According to Okoye (2002), an educated man is the gentleman who is socially, morally, intellectually and physically prepared to fit into, and is useful to himself and to the society. It follows then that to be able to fit into the society and be fully incorporated into it, one need to obtain some vocational skills and competencies for self-reliance, being the object of entrepreneurship. This reality makes vocational education popular as an answer to the social and economic challenges of nations, Nigeria inclusive.

Vocational education as contemplated in the Nigeria's National Policy on Education is concerned with qualitative technological human resource growth which is aimed at a national pool of skilled and self-reliant craftsman, technical and vocational fields (Okafor, 2011). This type of education is competency-based and aims at the attainment of skills and sound scientific knowledge to be able to endure with the emergent demands of technology driven world. Vocational Education is education based on occupation or employment. It is also known as Career and Technical Education or Technical and Vocational Education and Training (TVET). It is a type of education that prepares people for exact trades, craft and career at various levels from trade, craft, technician or professional positions in engineering, business, accountancy, nursing, medicine, architecture, secretary ship (Office Technology and Management) etc. (Auta,2015)

Practical, according Dictionary.com (2015) is an act of being motivated toward or fitted for actual work or useful activities. Skill, according to Encarta Dictionary (2009) is the ability to carry out an activity very well. It signifies expertise or ability developed in the course of training. This covers not only the trade and craft skills developed by apprenticeship but also higher-grade performances in many fields (Gregory 1987 cited in Kayode, 2009). While development implies growth or progress in the attainment of skill in order to meet the need of workplace or industry (Dictionary.com, 2015). Skill Development means developing yourself and your skill sets to enhance value for the organization and for your own career development (University of California Human Resources [UCHR], 2015). Constantly learning and developing one's skills requires recognizing the skills needed for mobility, and then successfully seeking out trainings or on-the-job opportunities for developing those skills (UCHR, 2015). UCHR further proposed that skill development should follow what it termed as the 70-20-10 rule: That is 70% of your development should originate from on-the-job activities and action learning; 20% of your development should come from relations with others; while 10% of your development should come from training, including classes, seminars, webinars, podcasts, conferences, etc.

Professionals have agreed that practical skill development is the art of building upon those skills acquired or possessed to a more advance level for effective performance. This simply infers that skills are first acquired and then subsequently developed upon through practice and utilization. Okorie in Kailani and Cornelius (2012) explained that practical skills are developed whenever procedural instructions are complemented with performance activities. For the practical skills to be developed among students, opportunities are given to them for full involvement and practices under real life condition. Hence, Polytechnics provide practical experience to students as part of their training programmes which conforms with classroom instructions. The Federal Republic of Nigeria (FRN) (2013) highlighted that the objectives of polytechnics among others are to:

- a) (i)Provide technical knowledge and the required skills for agricultural, industrial, commercial and economic development of the country.
- b) (ii)Contribute to national development through high level manpower training.
- c) (iii)Train and impart the capabilities imperative for the production of technicians/technologists as well as other skilled and enterprising personnel.
- d) (iv)Prepare those who can use scientific and technical skills to clear environmental hazards for man's convenience.
- e) (v)To reduce skill shortages through the production of skilled manpower relevant to the needs of the labour market.

Therefore, polytechnic programmes pay particular attention on students' Practical Skills Development.

## 2. RELATED ISSUES AND LITERATURE

In order to ensure sound development of abilities and skills in any course of instruction, individual students must operate under real life situation. The NBTE minimum standard for instructional delivery in Polytechnics is 50% theory and 50% work practice, in addition to a compulsory Student Industrial Work Experience Scheme (SIWES), however, as a result of many obstacles polytechnic students are usually unable to develop the required practical skills to enable them become self-reliant. Evidences abound from literature to show that graduates of the nation's educational system in general and particularly those from the polytechnic fail to perform as expected. Wellington in Kailani and Haruna (2014) was also scared by the several complaints from industries that new recruits from schools especially those from polytechnics do not have the basic skills for tasks performances.

Consequently, technical teachers' preparation according to Aina (1990) is very essential if and only if such teachers are to implement the necessary and satisfactory task in the methodology of inculcating knowledge, practical techniques in student. They should be totally skilled and be capable craftsmen with reasonable period of industrial and practical experiences (Ma'aji, 2002). Supporting Aina (1990)'s assertion, Okoro (1993) declared that "..... All practical courses must stress practical activity (so that the student can be proficient in their respective field of specializations). Any technical course in which a huge portion of the allotted time is not dedicated to practical work, projects, and experiment is not likely to be very successful" The recognition of the above mentioned objectives as outlined in the Minimum Academic Standard (2008) lies on the use of suitable appraisal techniques; as "...evaluation is a learning process" (Enemali, 2010). Unfortunately, in Nigeria, one of the evils associated with skills training is appraisal (Okorie and Ezeji, 1988; Okoro, 2000).

This situation has therefore necessitated this study to identify strategies for appraisal of students' ability in practical skills in Polytechnic, School of Engineering Technology.

Specifically, the study intends to:

- a) Determine the problem often encountered in the appraisal of students' ability in practical skills.
- b) Identify strategies which could be adopted to ensure effective appraisal of students' ability in practical skills.

In view of the aforementioned purposes, the following research questions have been formulated:

- (a) What are the problems often encountered in the appraisal of student ability in practical skills?
- (b) What are the strategies that could be adopted to ensure effective appraisal of students' ability in practical skills?

## 3. METHODOLOGY

The research was a survey type. A survey research is that which employs the study of large and small population by selecting and studying sample selected from the population in their natural setting without interference so as to ascertain the relative incidence which by impact can easily serve as forecast (Uzoagulu ,1998). The area of the study was Lagos State of Nigeria and was limited to Lagos State Polytechnic, Ikorodu. It was selected based on the fact that the researcher being a member staff will be able to carry out effective monitoring of the research material

The population was made of lecturers and technologists in the School of Engineering Technology, Lagos State Polytechnic, Ikorodu Lagos State. There were sixty-nine (69) academic staffs (lecturers and technologists) in the School of Engineering Technology, Lagos State Polytechnic, Ikorodu- Lagos State as at June, 2020. Since the population was small, there was no sampling. Thus, the entire population was studied. A five-point Likert scale questionnaire was developed for the study-by the researcher including thirteen (13) items titled “APPRAISAL OF STUDENTS’ PRACTICAL SKILLS QUESTIONNAIRE (ASPSQ)”. A total of (sixty) 60 copies of the questionnaire were circulated to the respondents by hand to obtain their responses. A total of fifty (50) copies were collected back from the respondents, representing 83% return.

The research questions were answered using mean. A cut off point was determined by finding the mean of the nominal value assigned to the option; strongly agreed (SA=5), agreed (A=4), undecided (UD=3), disagreed (DA=2) and strongly disagree (SDA=1). Therefore, taken the average of the mean for each item in the questionnaire, 3.48 and 3.35 were arrived at as the cut off for the responses of table 1 and table 2 respectively. Any response therefore, with a mean of  $\geq 3.48$  was regarded as accept; while those below were regarded as reject for table 1 and  $\geq 3.35$  was regarded as accept, while those below were regarded as reject for table 2. The instrument is one of the three measures of central tendency which are simple numbers that try to pinpoint the central location within a data set, which were evident from the cut off.

#### **4. DATA PRESENTATION AND ANALYSIS**

The results of the analysis of the study were presented in Tables 1 and 2.

##### **Research Question 1**

What are the problems often encountered in appraising students’ ability in practical skills?

**Table1: Mean of Problem, often encountered in appraising students’ ability in practical skills**

S/N	Problems	5	4	3	2	1	N	X
<b>Remark</b>								
1	Overcrowded Class	19	14	6	5	6	50	3.7
	<b>Accept</b>							
2	Limited period for practical	13	19	5	7	6	50	3.52
	<b>Accept</b>							
3	Insufficient training facilities	12	20	6	6	6	50	3.52
	<b>Accept</b>							
4	Lack of practical Consumables	18	14	6	6	6	50	3.64
	<b>Accept</b>							
5	Unwilling students	12	8	8	15	7	50	3.06
	Attitude to practical							
	<b>Reject</b>							

**Source:** Responses of Questionnaire administered for Academic Staff in School of Engineering, Lagos State Polytechnic, Ikorodu.

Table 1 showed answers to the first research question. With cut off mean of 3.48, Items 1, 2, 3, and 4 depicted the problems often encountered in appraising students’ ability in practical skills. While item 5 revealed no correlation.

### **Research Question 2**

What are the strategies that could be adopted for effective appraisal of students' ability in practical skills?

**Table 2: Mean of strategies that could be adopted for efficient appraisal of students' ability in practical skills.**

S/N	Strategies Remark	5	4	3	2	1	N	X
6	Appraising students' liberty at handling practical works <b>Accept</b>	20	6	8	8	8	50	3.44
7	Appraising the speed at which the work is done <b>Reject</b>	10	17	7	10	6	50	3.3
8	Appraising students management of materials and supplies <b>Reject</b>	8	18	8	9	7	50	3.22
9	Appraising students' ability in identification of suitable tools <b>Accept</b>	14	16	6	8	6	50	3.48
10	Appraising students' ability to follow standard procedure <b>Accept</b>	14	13	9	7	7	50	3.4
11	Appraising students' safety concerns <b>Accept</b>	14	13	9	7	7	50	3.4
12	Appraising students' paces in commencing job <b>Reject</b>	9	15	10	8	8	50	3.18
13	Preparing a checklist for the Appraisal <b>Accept</b>	10	19	6	9	6	50	3.36

Source: Responses of Questionnaire administered for Academic Staff in School of Engineering, Lagos State Polytechnic, Ikorodu.

Table 2 showed that the respondent settled with items 6, 9, 10, 11 and 13 as strategies that could be adopted for efficient appraisal of students' ability in practical skills, with cut off mean of 3.35 They (respondents) however disagreed with 7, 8, and 12.

## **5. DISCUSSION OF RESULTS**

The analysis on Table 1 showed that lack of practical consumables, insufficient training facilities and limited period for practical were some of the problems often encountered in appraising student's ability in practical skills. This is in sequence with the work of Abdullahi (2003) that every training school faces the difficulty of providing and maintaining workshop and appropriate facilities for technical and vocational training programme. There finding were also corroborated by Umar and Abdullahi (2010). According to Umar and Abdullahi (2010), the troubles of technical and vocational education (TVE) in Nigeria are made worse by the poor condition/

inadequacy of training facilities. Satisfactory workshop facilities are crucial for any quality learning to take place; and evaluation is part of the learning process (Enemali, 2010). The limited period allocated to practical is also not helping matters, practical activities required sufficient time to come to realization. It involves preparation, implementation and appraisal. Student should be given enough time to display their agility in handling practical task so that the teacher's appraisal would have a high degree of validity and reliability.

As regards strategies that could be adopted for successful appraisal of student's ability in practical skills, finding on table 2 revealed that appraising students' liberty in handling practical works, appraisal of students' ability in identification of suitable tools, appraisal of students' ability to follow standard procedure, appraisal of students' safety concerns and preparing a checklist for the appraisal should be adopted for effective evaluation of student's ability in practical skills. The result is in agreement with observation made by Miller (1990) that the teacher should ascertain the criteria against which the student's performance will be judged; observation check list should be used by the instructor to make a fair and reliable appraisal of the students. Similarly, Mohammed et al. (2002) observed the need for safety measure while undertaking practical works in the laboratory. According to them, safety measure in view of the harmful effect when not observed, one cannot measure the amount of suffering and unhappiness caused by various avoidable accidents in laboratories and/or workshops.

Therefore, appraising student's safety concerns as shown in item 11 should be highlighted when appraising student's proficiency in practical skills. The study also discovered that student's liberty at handling practical task should also be assessed. This strategy for assessing students' liberty in handling practical task is in conformity with the work of cooper (2006). Cooper affirmed that the future workers (students) must not only know how to make decisions for their own work roles, but they must also appreciate how the decision they make may influence others on how they perform their roles, as independent thinking enhances creativity. However, appraising the speed at which the work is done, students' management of materials and supplies as well as students' pace in commencing job were not well emphasized as a tool for appraisal of students' ability in practical skills.

## 6. CONCLUSION

By and large, the study has established that overcrowded class, limited period for practical, insufficient training facilities, lack of practical consumables are problems encountered in appraising students' ability in practical skills with students' unwilling attitudes to practical being insignificant. Also students' liberty in handling practical work, ability to identify suitable tools and materials required for the job, ability to follow standard procedure, students' safety concerns, and preparation of checklist for appraisal are essential strategies that could be adopted for efficient appraisal of students' ability in practical skills, while speed at which work is done, students' management of materials and supplies as well as students' pace in commencing job are trivial. With due implementation of the findings, practical skills in the Polytechnic will be better appraised and subsequently give room for adequate skills acquisition and self-reliant, which is the object of entrepreneurship education.

## 7. LIMITATION OF THE STUDY

During the course of study, the researcher experienced some limitations, which includes:

- 1) Difficult access to staff members as occasioned by the novel Covid-19 pandemic
- 2) The respondents were not free with the researcher as many thought the research was worthless.
- 3) The researcher was unable to collect back some of the questionnaires from the respondents; thus, only 83% of the questionnaires were collected.

## 8. RECOMMENDATIONS

Sequel to the outcomes of the findings, the following have been suggested:

- Government should provide sufficient facilities and training materials to polytechnic to ensure effective acquisition of relevant skills, knowledge and experience.
- Safety education should be emphasized in teaching and learning of practical skills.
- School administrator should make sure that a checklist is always used in the appraisal of students' ability in practical skills.
- Continuing professional development (CPD) should be encouraged so as to keep technical teachers abreast of the dynamic of appraisal.
- The National Board for Technical Education (NBTE) should ensure adequate time provision for practical and emphasize same during accreditation exercise.
- The NBTE should emphasize the recruitment of teaching staff with practical hands on for the realization of the psychomotor objective.

## REFERENCES

1. Abdullahi, S.M (2003): Evaluation of Vocational and Technical Training programmes on Northern Nigeria prisons, Journal of League of Researchers in Nigeria. (JOLORN) 8:1.
2. Aina, O (1990): Technical and Vocational Teacher Training as a Strategy for Technical Development. J. Teacher Educ. 1:1
3. Auta, M. (2015). Strategies for evaluation of students' proficiency in practical skills in NCE(Technical) building technology education. *International Journal of Vocational education and Technical Education* , Vol. 7(9) pp 96-99.
4. Cooper, J.W (2006). Journal writing in career and technical education: A tool to promote critical thinking skills. J. Ind. Teacher Educ. 43:2
5. Dictionary.com Definition of Practical. Retrieved on March 14<sup>th</sup> 2019 from <http://dictionary.reference.com/browse/practical>
6. Encarta Dictionary. Definition of Skill. 2009. USA: Microsoft Corporation.
7. Enemali, J.D(2010). Education and Training for Industrialization. Ibadan: Striling-Horden Publishers Ltd.
8. Federal Republic of Nigeria. (2013). *National Policy on Education*. Abuja: Nigerian Educational Research & Development Council, (NERDC).
9. Kailani, S and Haruna, J.O (2014). Assessment of electrical/electronic laboratory facilities in Technical colleges in Kaduna central for access to technical, vocational education and training (TVET) and national security in Nigeria. Journal of Nigerian Association of Teachers of Technology (JONATT), Vol- 9, No-3; 82-91.
10. Kailani, I. S and Cornelius, F. S (2012). Bridging the skills gap in Technical Vocational Education and Training (TVET): A way forward for achieving the millennium development goals (MDGs) in Nigeria. In B. Ubong (Ed), A collective review of papers on quality education (Publication of the Association for Promoting Quality Education in Nigeria [APQEN]), Vol. 17, Omoku River State, Nigeria: Federal College (Tech) Printing Press. pp. 147-161.
11. Kayode, A. (2009). Bridging the skills gap in Nigeria: Framework for dialogue between Universities and employers of labour. A paper presented at the 24th conference of the Association of Vice-Chancellors of Nigerian Universities at University of Ilorin, Nigeria. June 2nd.
12. Mohammed, U.T, Gayus, B.J, Ikwuakam, O.T and Solomon, R.J (2002): Fundamental of Vocational and Technical Education. Owerri: versatile publishers.
13. Miller, W.R (1990): Instructors and their Jobs. Illinois: American technical society.
14. Ma'aji, C.Z (2002). Strategies for effective Evaluation of student's practical skills in technical education subject through process/product evaluation techniques in Kaduna state Nigeria. Unpublished PGDTE project, Department of Vocational Teachers Education University of Nigeria, Nsukka.
15. Okafor, E.C (2011). "The Role of Vocational and Technical Education in Manpower Development and Job creation in Nigeria" Journal of Research and Development, 2(1), 152 – 157
16. Okorie, J.U, Ezeji SCOA (1988): Elements of Guidance, Vocational and Career Education. Onitsha: Summer Educational Publishers.
17. Okoro, O.M (1993): Principles and Methods in Vocational and Technical Education. Enugu: University Trust Publishers.
18. Okoro, O.M (2000): Measurement and Evaluation in Education. Enugu: pacific publishers.

19. Okoye, O.J (2002). Youth Restiveness and the Role of Business Education Towards Poverty Alleviation, *Business Education Journal*, 3(5).
20. University of California Human Resources [UCHR] (2015). Career Development: Skill Development. Retrieved on April 14<sup>th</sup> 2019 from <http://hrweb.berkeley.edu/learning/career-development/skill-development>
21. Umar, I.Y and Abdullahi, S.M (2010): Repositioning of Facilities in Technical Colleges Workshop for efficiency: A Case Study of North Central Nigeria. *J. Sci. Technol. Math's Teachers Educ.* 47:3.
22. Uzoagulu, A. E (1998): Practical guide to Writing Research Project Report in Tertiary Institutions. Enugu: John Jacobs' Classic Publishers Limited.