

# Human and Infrastructural Resources for Quality Assurance in Polytechnic Office Technology and Management Program

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**Abstract** – The study was carried out to assess the available human and infrastructural resources quality indicators for quality assurance in the Office Technology and Management program of Polytechnics in the North Central Zone of Nigeria. The study was designed as a descriptive survey. The population of the study consisted of 87 Lecturers and Instructors employed in the OTM departments of Polytechnics in North Central Zone of Nigeria offering the NBTE accredited Office Technology and Management program as at December 2018. The instrument for data collection was a structured questionnaire with a reliability index of 0.907. Mean and Standard deviation were the tools used to analyze the research questions while the hypotheses were tested using the independent t-test statistics at 0.05 level of significance. The analysis of data showed that while the available human resources quality indicators were generally adequate, the infrastructural facilities quality indicators in the institutions studied were inadequate for quality assurance in the OTM program. The researchers, therefore, recommended that Government and or proprietors of Polytechnics running the OTM program should make substantial increase in funding to the department to provide all the necessary infrastructural facilities and to improve upon available human resources to enhance the quality of the program.

**Keywords** – Quality Indicators, Human Resources, Infrastructural Resources, Office Technology and Management Program.

## I. INTRODUCTION

A polytechnic is a tertiary technical institution offering post-secondary technical Education programs leading to the award of diplomas and or certificates such as the National Diploma (ND) and Higher National Diploma (HND). The purpose of setting up polytechnics is to achieve the twin goals of academic excellence as well as meeting the manpower requirements of the national economy. The broad goals of polytechnics include producing competent manpower with entry level employment skills to function as technicians, higher Technicians, technologists or professionals, depending on the level of training, in their fields of specialization (NBTE, 2014).

The Office Technology and Management (OTM) program is one of the courses offered in Nigerian Polytechnics. The program is designed to equip students with secretarial skills for employment in various fields of endeavor. Students of this program are exposed to courses in their special areas as well as courses in general education. In addition to the acquisition of quality vocational skills in Office Technology and Management, the students are equipped with quality work competencies and socio-psychological work skills, which are very essential in everyday interactions with others (NBTE, 2004).

In order to regulate technical, technological and other professional programs offered outside university education, the Federal Republic of Nigeria (1977) created the National Board for Technical Education as the organ saddled with the responsibility of quality assurance in Nigerian Polytechnics vide Act No. 9 of 1977. The

Board supervises and regulates, through an accreditation process, the programs offered by technical institutions at secondary and post-secondary school levels. In pursuance of its mandate to ensure quality of programs run in accredited polytechnics (NBTE, 1993; NBTE 2004; NBTE, 2014) spelt out standards in the areas of curriculum design, implementation and evaluation, staffing, school facilities, students support services, staff professional development as well as program management structure which must be available in each accredited polytechnic for it to get the approval to start or to continue offering a program. These publicized minimum standards are the quality indicators which accreditation teams beam their searchlight on when on accreditation visits for purposes of ensuring quality assurance in all approved programs.

Human well as infrastructural resources are some of the most important factors needed for the success of any educational endeavor especially those tailored towards acquisition of skills like polytechnics. Heathfield (2019) described human resources as all the people employed by an organization i.e. the people that staff and operate an organization. Human resource plays significant role in determining quality in higher education. Tertiary educational institutions must therefore enhance their human potential both qualitatively and quantitatively by attracting, developing and keeping talents in the teaching and research career. According to Heathfield (2020), human resources refer to “all employees willing to trade their labor, knowledge, or time for compensation to improve an organization.” Human resource plays a significant role in determining quality in higher education. Tertiary educational institutions must therefore enhance their human potential both qualitatively and quantitatively by employing, developing, and retaining talents in the teaching and research. Excellence can only result from a positive professional environment anchored on transparent and competitive procedures (European Commission, 2005).

The NBTE minimum standard guidelines (NBTE,1993; NBTE, 2014) require that there should be adequate academic staff in the right number and mix for a proposed program as to allow for the teaching of all the courses specified in the curriculum. For a single stream of the National Diploma program, a minimum of four qualified lecturers or three lecturers and one instructor (where necessary) is required. Where the streams are double or more the number of lecturers should be pro-rated. Teaching staff should possess a minimum of a first degree in addition to membership of an appropriate professional body. Adequate post-qualification experience in the industry and teaching is expected of would-be lecturers and or instructors.

The ratio of staff to students is expected to be not more than 1:20 while the maximum teaching load of academic staff should not be more than 15 - 18 hours per week. Generally, the mix of teaching staff that is, Principal Lecturer to Senior Lecturer to Lecturer I and below should be 1:2:5. In addition, the guidelines require that there should be an adequate number and mix of non-teaching staff to service the program. Each department is also expected to have a full complement of clerical or administrative staff consisting of a departmental secretary or typist, a clerical officer, cleaner, and a messenger (NBTE, 1993; NBTE, 2014).

In addition, infrastructural facilities in educational institutions, consist of the facilities provided to help students develop their full potentials. These facilities include buildings, classrooms, libraries, workshops, studios, specialized laboratories, cafeterias, media centers, toilets, water points, restrooms, building equipment, building fixtures, furnishings, related exterior facilities, and other equipment necessary for the effective and efficient operation of an educational program (USLegal, 2019).

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Buildings, classrooms, studios, laboratories, equipment, and other infrastructural facilities are highly importa-

-nt elements of learning environments in schools as there is strong evidence that high-quality infrastructure facilitates better instruction, enhances student learning outcomes, and cuts down on dropout rates, among other benefits (Teixeira, Amoroso, & Gresham 2017). The minimum standards (NBTE, 2014) requires that the infrastructural facilities available should be enough to sustain an initial intake of 60 students in the first and second year and for teaching all the subjects enumerated in the curriculum of the program prior to approval for an institution to admit students into a program. These facilities may include laboratories, workshops, farms, studios, classrooms, and staff offices. The laboratories should have been completed, fully equipped, and commissioned before the approval inspection is made by the Board and before the first set of students are admitted. Where the new students are to use existing laboratories with other programs, adequate arrangements should be made to accommodate the new program. The full complement of the tools, instruments, and equipment in the NBTE minimum list of equipment for the program should be provided. The list of facilities and other resources required for running the Office Technology and Management program is contained in the NBTE curriculum and course specifications (2004). The guidelines require that necessary measures must be taken to ensure that existing facilities (which are to be shared) will not over-stretched as a result of the introduction of a new program.

The availability of adequate classroom (s) or lecture theatre for the program is also a very important requirement. Ideally, the NBTE guidelines require at least two classrooms each fully equipped to sit not less than thirty (30 No) students at a time should be available to the program. Where classrooms are centrally allocated to the various courses, the NBTE guidelines require that such additional courses should not reduce the number of class contact hours of existing courses. The guidelines also require accommodation in the library for an additional ten (10) readers for an HND or ND Program and twenty (20) readers for a new ND and HND Program.

Staff offices are also required to be made available for all teaching and non-teaching staff of a program. The least acceptable shall be two lecturers to a room, and senior lecturers and above in rank should have individual offices. In addition, a large general office should be provided for the program, equipped with duplicating Machine, photocopying machine, typewriters, table and chairs for the secretary to the department, writing table and chair for the clerical officer, filing cabinets, notice board for staff and students, bookracks, sitting chair for staff or students waiting to consult, as well as air conditioner and or fan (s). In order to ensure adequate and regular use of offices, classrooms as well as installed equipment and machines, the guidelines require that adequate provision should be made for regular power, gas, and water supply to the laboratories, workshops, studio, and other facilities for the program (NBTE, 2014).

## **II. STATEMENT OF THE PROBLEM**

There has been increasing concern for quality assurance processes in higher education around the world over the past two decades. This is as a result of the general realization that a well-educated workforce is essential for increased productivity and for maintaining a competitive edge in the global as well as knowledge based economy. The ever increasing demand for quality education to meet the needs of a competitive global workplace has propelled the issue of quality assurance to the front-burner in national discourse especially in respect of Polytechnic education. In the field of Office Technology and Management, special observation and anecdotal inferences suggest that the program introduced in the year 2008 may be beset with challenges that

may make it incapable of fully attaining its objectives. This situation demands full attention and quick resolution because of the important role of office Technology and Management in National Development. The management of official communication; the administration of the office; as well as the processing of information without which no serious business can survive or thrive in the present information and communication (ICT) age depends heavily on office management. A number of studies have been carried out to investigate issues, problems as well as challenges of the Office Technology and Management program since it started running in Polytechnics across Nigeria.

Abubakar, Kazaure, and Yusuf (2013) noted that in spite of the existence of hundreds of polytechnics and other technical/vocational colleges, educational outcome of technical and vocational institutions has, to a large extent, been disconnected from the industrial and socio-economic needs of the country due to undue emphasis on paper qualification at the expense of competence. Sokyes, Wetnwan and Bewaran (2018) posited that in spite of the quality assurance systems put in place by the National Board for Technical Education (NBTE) and the Polytechnics for quality skill acquisition in Office Technology and Management program, little evidence exists to show that the quality assurance practices in the program is meeting its expectation.

The problem of this research work, in view of the aforementioned issues, is to assess the human and infrastructural quality indicators available for quality assurance in the Office Technology and Management Program of Polytechnics in North Central Zone of Nigeria with a view to identifying areas of deficiencies that should be remedied if graduates of the program from these institutions must be capable and able to compete for available vacancies around the world in line with the grand goal of the program.

#### *Purpose of the Study*

The main purpose of this study was to assess the human and infrastructural quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics in North Central Zone of Nigeria. Specifically, the work will seek to:

1. Assess the human resources quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics.
2. Assess the infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics.

### **III. RESEARCH QUESTIONS**

The following research questions guided the study:

1. What is respondents' assessment of the human resource quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics?
2. What is respondents' assessment of the infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics?

### **IV. RESEARCH HYPOTHESES**

$H_0$ : There is no significant difference between the mean ratings of respondents from state and federal polytechnics human resources quality indicators available for quality assurance in the office technology and ma-

-nagement program of Polytechnics.

Ho<sub>2</sub>: There is no significant difference between the mean ratings of respondents from state and federal polytechnics on the infrastructural facilities quality indicators available for quality assurance in the office technology and management program of Polytechnics.

## **V. REVIEW OF RELATED LITERATURE**

The importance of adequate human and infrastructural facilities for teaching all courses at all levels of an educational program cannot be overemphasized. Issah, Abubakari, and Wuptiga, (2016) in a study on the state of academic facilities and its influence on teachers' job stress in Tamale Polytechnic, Ghana concluded that "inadequate or complete lack of academic facilities would not only impair academic productivity, but rather exert undue stress on teachers and available facilities". Ugwuanyi and Eze (2008 as cited in Amiaya, 2014) also concluded the success of an academic program can be affected by the resources available for its curriculum implementation. As such, the Office Technology and Management, as an ICT based academic program, can only be effectively implemented when all relevant resources needed, especially the material resources of ICT are adequately provided.

Human resource plays very vital role in determining quality in higher education. Tertiary educational institutions must therefore enhance available human resources in qualitative and quantitative terms by employing, developing and retaining talents engaged in the teaching and research assignments. Excellence can only result from a positive professional environment based on transparent and competitive procedures. NBTE minimum standard guidelines (NBTE, 1993; NBTE, 2014) stipulate that there should be a full complement of teaching staff in the right number and mix for a proposed program as to allow for the teaching of all the courses listed in the curriculum. For a single stream National Diploma (ND) program, a minimum of four qualified lecturers or three lecturers and one instructor (where necessary) are required. Academic staff are expected to possess a minimum of a first degree in a relevant program in addition to membership of appropriate professional body. Prospective lecturers and or instructors are also required to have post qualification experience in industry and teaching (NBTE, 2014).

Ihionkhan and Braimah (2017) assessed the instructional resources available for implementation of the curriculum of the Office Technology and Management (OTM) programs of Polytechnics in Delta and Edo States of Nigeria compared to the standard stated in the guidelines approved by the National Board for Technical Education (NBTE). The study concluded that the equipment available for use in the departmental laboratories was grossly inadequate in the polytechnics studied. The researchers, therefore, recommended that the National Board for Technical Education (NBTE) should improve upon its regulatory and supervisory activities to ensure that facilities and resources available for running the OTM program in polytechnics meet the stipulated standard.

Amiaya (2016) assessed the availability of new technologies for teaching in the OTM departments of Polytechnics in Delta State, Nigeria. The study was guided by two research questions and two null hypotheses. Data for the study was collected through the instrument of a questionnaire. In view of the findings of the study, it was concluded that new technologies required for the teaching of OTM courses were not adequately provided for and hence were not adequately utilized by lecturers in Polytechnics in Delta State. The researcher, therefore,

recommended that the relevant proprietors should fund the acquisition of the new technologies required for the teaching of OTM courses for quality assurance purposes.

## VI. RESEARCH METHODOLOGY

The study was designed as a descriptive survey. The population of the study consisted of 87 Lecturers and instructors in the OTM departments of Polytechnics in North Central Nigeria offering the accredited Office and Technology and Management program as at December 2018. No sample was drawn as the total population was studied. The questionnaire was the instrument for data collection. The research questions for the study were answered using the mean score for each item while the hypotheses constructed for the study were tested using the t-test tool of the Statistical Package for Social Sciences was used with alpha established at 0.05 level.

## VII. RESULTS

### A. Research Question 1:

How adequate are the human resource quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics?

Table 1. Mean and standard deviation of respondents' assessment of human resource quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics.

S/N	Quality indicator	N	Mean	Std. Dev	Remarks
1	Process, in place, for recruitment and retention of all categories of staff as well as process of co-opting staff (where necessary) for the OTM program.	86	2.6279	.65163	Adequate
2	Laid down procedure for ensuring that academic staff recruitment made by the Polytechnic attracts competent and qualified persons for the OTM program amongst others.	86	2.8488	.71154	Adequate
3	Adherence to laid down procedure in staff recruitment processes for the OTM program	86	2.8837	.70991	Adequate
4	Number and quality of academic staff available for effectively running the OTM program.	86	2.6860	.85765	Adequate
5	Number and quality of non academic staff available for effectively running the OTM program	86	2.7209	.71375	Adequate
6	Number and quality of staff available for implementation of ICT component of the OTM program curriculum	86	2.6512	.69903	Adequate
7	Number and quality of staff available for implementation of other core professional courses listed in the OTM curriculum (e.g. keyboarding, shorthand, modern office technology, office practice etc.)	86	3.0233	.75110	Adequate
8	Number and quality of staff available for implementing the service courses component of the curriculum (accounting, use of English, Communication in English, entrepreneurship education etc.)	86	3.0581	.67484	Adequate
9	Number and quality of technicians and or technologists employed to maintain and supervise the use of facilities provided in the available laboratories and studios for the OTM program	86	2.3953	.80116	Inadequate
	<b>Grand Mean</b>		<b>2.759</b>		<b>Adequate</b>

Source: Field survey, 2019.

Table 1 shows that respondents rated the process, in place, for recruitment and retention of all categories of staff as well as process of co-opting staff (where necessary) for the OTM program ( $\bar{x} = 2.6279$ ); laid down procedure for ensuring that academic staff recruitment made by the Polytechnic attracts competent and qualified persons for the OTM program amongst others ( $\bar{x} = 2.8488$ ); adherence to laid down procedure in staff recruitment processes for the OTM program ( $\bar{x} = 2.8837$ ); number and quality of academic staff available for effectively running the OTM program ( $\bar{x} = 2.6860$ ); number and quality of non academic staff available for effectively running the OTM program ( $\bar{x} = 2.7209$ ); number and quality of staff available for implementing the ICT component of the OTM program curriculum ( $\bar{x} = 2.6512$ ) number and quality of staff available for implementation of other core professional courses listed in the OTM curriculum (e.g. keyboarding, shorthand, modern office technology, office practice etc.) ( $\bar{x} = 3.0233$ ), number and quality of staff available for implementing the service courses component of the curriculum (accounting, use of English, Communication in English, entrepreneurship education etc.) ( $\bar{x} = 3.0581$ ) as “adequate”. The number and quality of technicians and or technologists available to maintain and supervise the use of facilities provided in the available laboratories and studios for the OTM program ( $\bar{x} = 2.3953$ ) was, however, rated as “inadequate”.

**B. Research Question 2:**

How adequate are the infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics?

Table 2. Mean and standard deviation of respondents’ assessment of infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics.

S/N	Quality indicator	N	Mean	Std. Dev.	Remarks
1	The available classroom infrastructure for the OTM department to effectively implement its program.	86	2.5233	.87752	Adequate
2	The departmental staff offices available for all levels of staff employed for the program	86	2.4767	.89083	Inadequate
3	Stock and variety of serviceable office equipment in office practice laboratory for running the program program	86	2.1628	.80965	Inadequate
4	ICT facilities and laboratories available for running the practical ICT units of the OTM program	86	2.4070	.77274	Inadequate
5	Number and sizes of Typing pools available for running the OTM program	86	2.3488	.73192	Inadequate
6	Number of serviceable typewriters available in the typing pools for the program	86	1.8837	.74231	Inadequate
7	Size of departmental library available for the program	86	2.0698	.74819	Inadequate
8	Stock of professional secretarial books available for staff and students in the Polytechnic and departmental libraries	86	2.2326	.74635	Inadequate
9	Provision for Internet connectivity for running practical ICT lecture component of the OTM program	86	1.9070	.71337	Inadequate
10	Provision for alternative power supply for running laboratories as at when necessary	86	2.4419	.91529	Inadequate

S/N	Quality indicator	N	Mean	Std. Dev.	Remarks
11	Available facilities for records management in the OTM department	86	2.3256	.78877	Inadequate
12	Available toilets and water supply points for staff and students	86	2.1860	.90113	Inadequate
	<b>Grand Mean</b>		<b>2.247</b>		<b>Inadequate</b>

Source: Field survey, 2019.

Table 2 shows that respondents rated available classroom infrastructure for the OTM department ( $\bar{x} = 2.5233$ ) as “adequate”. The respondents’, however, rated such other infrastructural facilities quality indicators as departmental staff offices available for all levels of staff employed for the program ( $\bar{x} = 2.4767$ ) stock and variety of serviceable office equipment in office practice laboratory for running the OTM program ( $\bar{x} = 2.1628$ ); ICT facilities and laboratories available for running the practical ICT units of the OTM program ( $\bar{x} = 2.4070$ ); number and sizes of typing pools available for running the OTM program ( $\bar{x} = 2.3488$ ); number of serviceable typewriters available in the typing pools for the program ( $\bar{x} = 1.8837$ ); size of departmental library available for the program ( $\bar{x} = 2.0698$ ); stock of professional secretarial books available for staff and students in the Polytechnic and departmental libraries ( $\bar{x} = 2.2326$ ); provision for Internet connectivity for running practical ICT lecture component of the OTM program ( $\bar{x} = 1.9070$ ); provision for alternative power supply for running laboratories as at when necessary ( $\bar{x} = 2.4419$ ); available facilities for records management in the OTM department ( $\bar{x} = 2.3256$ ) as well as available toilets and water supply points for staff and students ( $\bar{x} = 2.1860$ ) as “inadequate”.

## VII. TEST OF NULL HYPOTHESES

### *Hypothesis 1*

There is no significant difference between the mean ratings of respondents’ from State and Federal Polytechnics on the human resources quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics.

Table 3. T-test computation of the differences in the mean ratings of respondents’ from State and Federal Polytechnics on the human resources quality indicators available for quality assurance in the OTM program of Polytechnics. (N = 86)

Group	N	Mean	Std Dev.	Df	T-test calculated	Alpha	Decision
Federal Polytechnics respondents’	41	2.7750	0.804	84	-0.269	1.98	Ho accepted
State Polytechnics respondents’	45	2.7901	0.641				

The mean and standard deviation of the ratings of respondents from State and Federal Polytechnics on the human resources quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics in North Central Zone of Nigeria are shown in Table 3. With N = 86, df = 84 and P = 0.05, the calculated t-value was -0.269 while the alpha value was  $\pm 1.98$ . The calculated t-value is not statistically significant at 0.05 level as it is less than the alpha value. Thus, hypothesis ( $H_{03}$ ) is not rejected and the conclusion is that there is no significant difference in the mean ratings of respondents’ from State and



Federal Polytechnics on the human resources quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics in North Central Zone of Nigeria.

### *Hypothesis 2*

There is no significant difference between the mean ratings by respondents' from State and Federal Polytechnics on the infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics.

Table 4. T-test computation of the differences in the mean ratings of respondents' from State and Federal Polytechnics on the infrastructural facilities quality indicators available for quality assurance in the OTM program of Polytechnics.

Group	N	Mean	Std Dev.	Df	T-test calculated	Alpha	Decision
Male respondents'	41	2.282	0.888	84	0.3592	1.98	Ho accepted
Female respondents'	45	2.214	0.713				

The mean and standard deviation of the ratings of respondents from State and Federal Polytechnics on the infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics in North Central Zone of Nigeria are shown in Table 4. With N = 86, df = 84 and P = 0.05, the calculated t-value was 0.3592 while the alpha value was  $\pm 1.98$ . The calculated t-value is not statistically significant at 0.05 level as it is less than the alpha value. Thus, hypothesis (Ho<sub>2</sub>) is not rejected and the conclusion is that there is no significant difference in the mean ratings of respondents' from State and Federal Polytechnics on the infrastructural facilities quality indicators available for quality assurance in the Office Technology and Management program of Polytechnics in North Central Zone of Nigeria.

## **VIII. CONCLUSION**

It can be concluded from the findings of the study that the human resources quality indicators available were adequate while the infrastructural facilities quality indicators were inadequate for quality assurance in the Office Technology and Management program run in polytechnics in the North Central Zone of Nigeria.

## **IX. RECOMMENDATIONS**

In view of the findings and conclusions of the study, the researchers recommend that the proprietors of the institutions running the accredited Office Technology and Management program should make more funds available to the institutions:

- I. To improve upon available human resources quality indicators to make them very adequate for quality assurance in the OTM program.
- II. To acquire all infrastructural resources needed for quality assurance in the OTM program bearing in mind the approved students population.

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