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CLASSROOM AUTOMATION AND EMPLOYABILITY OF OFFICE TECHNOLOGY AND MANAGEMENT (OTM) GRADUATES IN THE 21ST CENTURY ELECTRONIC OFFICES

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Abstract

The drastic shift from traditional to automated office procedures requires that office Technology and Management (OTM) students in Nigerian Polytechnics should be technologically trained to increase their chances of getting employed in today's modern technological offices. This study assessed the level of automation of the Classrooms/Laboratories/Model Offices in OTM departments in two Polytechnics in Lagos State (Yaba College of Technology (YABATECH) and Lagos State Polytechnics (LASPOTECH)). To achieve this objective, three research questions and two hypotheses were tested. The total population of 140 students of the graduating class was used for the study, out of which 70 were systematically sampled. Descriptive survey design was adopted and validated research instrument (questionnaire) with five Likert scale was used for data collection. The data collected were analyzed using weighted mean and chi-square test. The major findings were: that most of the equipment in the automated/model offices were either obsolete or inadequate for effective teaching/learning activities, that classroom automation will facilitate students' performances which will improve their employability status after graduation. It was therefore recommended that schools Polytechnics should as a matter of urgency automate their classrooms/model offices with modern technological gadgets and personnel needed to impart the required skills into the potential office managers for their employability in the 21 century electronic offices.

Keywords: Automation, Employability, Digitalization, Model office, Office Manager.

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Introduction

Office environment of today is a beehive of jet speed workflow ushered in by the digital revolution in office automation and management for mobility, collaboration, and speed in performing office functions. Office Automation is referred to as the "entire process of introducing the use of various sophisticated technological and telecommunication equipment/gadgets into the modern offices for performing office operations with a view to increase efficiency and productivity. This introduction has necessitated a drastic change in methods and procedures of performing office functions such that the once-upon-a-time tedious and traditional method of running office functions with archaic machines has now been replaced by faster and more efficient means of running the office even at less cost with modern machines. In view of this, the education section has witnessed a significant transformation driven by the need to urgently prepare students for the challenges of the 21st century world of work. In the same vein, the National Board for Technical Education (NBTE) in 2006 changed the nomenclature of former Secretarial Studies programme in Polytechnics to Office Technology and Management (OTM) - a field of study that focuses on acquisition of skills and the application of technological/management principles to optimize office operations in order to prepare the students as potential office managers (King & Fretwell, 2023). In the words of Atanu and Amodu (2022) OTM programme is a broad-based interdisciplinary course that encompasses various topics including office administration, information technology, communication and management to equip students with necessary skills and competencies for their employability in the world of work. This new nomenclature brought about a change in the curriculum in order to incorporate more Information and Technology-oriented courses that will enable students acquire appropriate digital and flexible skills which is the bedrock of the modern technological offices. It also ushered in a new phase of teaching/learning environment popularly referred to as "automated classroom" or "Model Office".

THE AUTOMATED CLASSROOM/MODEL OFFICE

Automated classroom is a classroom or teaching/learning environment specially equipped with various modern technological digitally interconnected resources (human and materials) for effective technology-enhanced teaching and learning activities (Abraham-Ibe, 2021). It should provide a simulated office environment where learners would be exposed to real work situations with modern office equipment so as to adequately prepare them for employment in any modern office. Automated classroom according to King and Fretwell (2023) emerged as a result of integrating technology into classroom instructions in order to produce skilled office managers that can meet with the modern technological advancement required by entrepreneurs and employers in the 21st century.

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Effective technology integration in OTM programme will be achieved when the use of technology-enhanced tools in the automated classroom is routine, transparent and supports curricula goals.

Automated classroom goes beyond teaching basic computer skills and software programs in a separate computer class but rather it must emanate from the curriculum in ways that deepen and enhance flexible learning opportunities (International Association of Administrative Professional, 2024). In the words of Nguyen (2024) and Umeh (2021) technology-enhanced teaching and learning in this classroom will be of great benefit to OTM graduates because tomorrow's job market would not just accept any-how graduate but would require office managers who have technological skills in-line with the 21st century office technologies. This is in line with the assertions of Ademiluyi (2019) and Shehu (2022) that as technology advances and organisations evolve, the approaches, methods and techniques of teaching students also need to adapt for learners to effectively understand the different aspects of modern office operations and resources management for organizational efficiency and productivity. However, Atanu and Amodu (2022), Abosede, Oguntimehin and Abraham-Ibe (2024) regretted that these classrooms are not properly/adequately equipped for practical instructions which results in the production of unqualified and unproductive graduates/office managers. They noted that the dearth or lack of adequate personnel for proper utilisation of these technological gadgets in the classrooms has led to haphazard training, poor skill acquisition, inadequate exposure and intimidation of graduates in the work environment. Adeyemi (2024), Okeke and Nwosu (2023) highlighted numerous challenges such as limited access to reliable internet, outdated infrastructural facilities and unavailability of digitally literate personnel as hinderances to effective integration of automated classroom in OTM programme in Nigerian Polytechnics. The study conducted by Okoro (2020), Agbaeze (2023), Akueyinwa and Ngozika (2021) equally revealed that there are limited/over-crowded automated classrooms, obsolete and inadequate equipment, tools, and material resources in some tertiary institutions that run OTM programme for effective teaching of students.

STATEMENT OF THE PROBLEM

For Office Technology Management (OTM) graduates to acquire appropriate technological skills for gainfully employment in the 21st century digital/technological office environment, they need to be trained in an automated classroom or technology-enhanced environment (National Policy on Education in Abraham-Ibe, 2021), but contrary to this expectation, the quality of graduates of this programme continues to deteriorate while employers of labour urgently need them. Researches on factors responsible for this deficiency in quality and productivity in OTM programmes Polytechnics have been conflicting.

While some were of the opinion that the dearth or lack of adequate digitally literate personnel for proper utilisation of technological gadgets are the major causes, some were to the contrary and they attributed same to lack of digitalized teaching/learning environment, obsolete and unavailability of modern technological resources (human and materials) for effective teaching/learning process. It is based on an attempt to reconcile these conflicting issues that necessitated this study to examine the role/need for classroom automation in Polytechnics for effective teaching of OTM students as prospective Office Managers and custodians of modern technological office equipment.

PURPOSE OF THE STUDY

The purpose of this study was to;

(a) Ascertain the availability of modern equipment/networking facilities in the departments for effective training of OTM students.

(b) Determine the operational skills to be acquired by OTM students for gainful employment in the world of work.

(c) Examine the extent to which technological equipment has been incorporated into OTM classrooms for teaching and learning processes..

(d) Determine whether the OTM lecturers are skilled enough for the automated classroom/laboratory practicals.

RESEARCH QUESTIONS

The following research questions were raised in the course of the study;

1) To what extent do telecommunication and technological equipment exist in the model office practice rooms or automated classrooms/laboratory in Polytechnics?
2) Are there functional and properly maintained modern office facilities in the automated classrooms/laboratories for effective teaching/learning activities?
3) Are there qualified and skilled personnel in these departments for the automated class rooms/laboratories?

RESEARCH HYPOTHESIS

The following two hypotheses were postulated and tested at 0.05 level of significance;

H0: There is no significant difference between students trained with traditional equipment and those trained with modern technological resources in an automated classroom.

H1: There is significant difference between students trained with traditional equipment and those trained with modern technological resources in an automated classroom or office practice room.

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METHODOLOGY

The study adopted simple survey design because it involved eliciting information from respondents. Abosede, Oguntimehin and Abraham-Ibe (2024) stated that when a survey centers on individual and their opinions, beliefs and behaviours, the survey design method is the most appropriate.

POPULATION

The population of the study comprised of one hundred and forty (140) Higher National Diploma (HND 2) students from Yabatech, Yaba, and LASPOTECH, Isolo, Lagos State, Nigeria. The sample size was seventy (70) respondents made up of 35 students randomly selected from each of the institutions.

INSTRUMENT

The instrument for data collection was structured questionnaire consisting of two sections ('A' and 'B'). Section 'A' sought demographic information while Section 'B' elicited technical information. The ratings of the respondents were obtained on a 5- point scale determining how they perceived employability of Office Technology Management graduates through effective practices in an automated classroom. The response options and values are as follows:- Strongly Agree (5-points), Agree (3-points), Disagree (2-points), Strongly Disagree (1-point) and Undecided (0point). The instrument was validated by two (2) experts from the aforementioned institutions in Lagos State. Necessary corrections pointed out were made before distribution.

DATA COLLECTION AND ANALYSIS TECHNIQUES

The questionnaire was administered on the seventy (70) respondents personally by the researcher. The seventy (70) copies were completed and returned, which represented 100%. The questionnaire was answered with the analysis of the ratings of the respondents using weighted mean, while the hypothesis was tested using chi-square at 0.05 level of significance. A mean score of 2.5 and above is regarded as "Strongly Agree" and a mean rating below 2.5 is interpreted as "Strongly Disagree" while undecided is left out.

TESTING OF RESEARCH QUESTIONS

To what extent does technology and telecommunication equipment/resources exist in the automated classroom/laboratory/model office in the department?

Table 1: The following Hardware Resources are available and utilized in the Automated classroom/laboratory/model office in the department.

Mean Scores of availability of Hardware Resources in the department (N-48)

S/N	ITEM	YABTECH(X)	LASPOTECH(X)	DECISION
1	Telephone/Intercom	2.2	2.0	D/A
2	Fax Machine	1.5	1.7	D/A
3	White board	3.8	3.6	S/A
4	Computers	3.7	3.33	Agree
5	Printers	2.95	3.13	Agree
6	Uninterrupted power supply	3.5	3.8	S/A
7	Laptops/Palmtops	3.0	2.6	Agree
8	Dictating Machine/Readers	2.6	2.5	Agree
9	Reprographic Machine	3.0	3.3	S/A
10	Electronic Typewriter	3.63	3.21	Agree
11	Scanner	2.1	1.25	S/D
12	Satellites	1.5	1.0	S/D

TABLE 2: Availability and utilization of Software Resources/Storage Facilities in the Automated classroom/laboratory/model office in the department.

Mean Scores of availability and utilization of soft-ware resources in the department (N-48)

S/N	ITEM	YABATECH(X)	LASPOTECH(X)	DECISION
1	Virus Scanner	2.13	2.2	S/D
2	Micro Films/Fiche	2.4	2.4	D/A
3	Modem	2.65	2.8	S/A
4	Web browser	2.10	1.20	S/D
5	Spread Sheet	2.7	2.5	Agree
6	Back-up/Floppy Disc	3.5	3.0	S/A
7	CD Rom/Flash	2.62	3.0	Agree
8	File Access Tool	3.8	3.5	S/A
9	Micro Graphic	2.33	2.2	D/A
10	Internet telephony	1.23	1.3	S/D

TABLE 3: The following Data Resources Facilities exist in the automated classroom/laboratory/model office in the department.

Mean Scores of subjects regarding Data Resources in the department (N-48)

S/N	ITEM	YABATECH(X)	LASPOTECH(X)	DECISION
1	Microsoft Word	3.7	3.8	S/A
2	Spread Sheet	3.8	2.67	S/A
3	Graphic Design	2.65	2.8	S/A
4	Electronic Data Interchange	2.0	1.32	D/A
5	Human voice recognition	2.20	1.35	S/D

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6	Audio/Sound/Figure Data	2.4	2.0	D/A

TABLE 4: Availability of Networking Resources in the Automated classroom/laboratory/model office in the department.

Mean Scores of the level of existence of Network Resources in the department (N-48)

S/N	ITEM	YABATECH(X)	LASPOTECH(X)	DECISION
1	Computer Network	1.25	1.35	S/D
2	Teleconference	2.15	1.45	S/D
3	V sat	2.4	2.10	D/A
4	Infrared Wireless Transmission	1.23	1.45	S/D
5	Sharing Information Real Time	1.25	1.35	S/D
6	Fibre-optic Cable	1.67	1.55	S/D
7	Communication Satellite System	2.0	1.65	S/D
8	E-mail	3.5	3.2	Agree
9	Internet	2.8	2.5	Agree
10	Modern	2.65	2.8	Agree

TABLE 5: The following ICT compliant personnel exist in the department

Mean Scores of respondents regarding personnel factor in the department (N-48)

S/N	ITEM	YABATECH(X)	LASPOTECH(X)	DECISION
1	Programmers	2.15	1.65	D/A
2	Network Administrators	2.0	2.4	S/D
3	System Analyst	2.4	2.4	S/D
4	Data Base Administrator	1.25	1.65	S/D
5	Computer Operators	3.2	3.2	S/A
6	Teacher with ICT knowledge	3.5	3.2	S/A
7	Teacher with Computer literacy	3.0	2.8	S/A

RESEARCH QUESTION 3: Are there qualified and skilled personnel in the department for the automated class room/laboratories/model office?

TABLE 6: Respondents' mean rating on operational skills possessed by personnel and time allocation for effective teaching/learning activities in the automated classroom/laboratories/model office.

S/N	ITEM STATEMENT	YABATECH(X)	LASPOTECH(X)	DECISION
1	Inability to operate all the automated equipments in the office practice room	3.35	3.63	Agree

S/N	ITEM STATEMENT	YABATECH(X)	LASPOTECH(X)	DECISION
2	Enough time is allocated for practicals	2.24	2.1	S/D
3	Equipments are inadequate and poorly serviced	2.7	2.88	Agree
4	Poor teaching methodology/ attitude of personnel	2.97	2.62	Agree
5	Office Practice room is always open for practices	3.63	3.04	S/D
6	Lack of adequate/enough qualified personnel	2.65	2.73	Agree

Hypothesis

H0: There is no significant difference between graduates trained with traditional equipment and those trained with ICT resources in an automated classroom.

H1: There is significant difference between graduates trained with traditional equipment and those trained with ICT resources in an automated classroom.

In order to verify this hypothesis, data collected in the questionnaire based on the three research questions were used.

S/N	Responses	O	E	O – e	$(O - e)^2$	$(O - e)^{2/e}$
	Strongly Agree	35	4	31	961	**240.25**
	Agree	18	3	15	225	**75.00**
	Disagree	04	2	2	4	**2.0**
	Strongly Disagree	3	1	2	4	**4.0**
	Total	6				321.25

Statistical hypothesis is formulated where,

E = Expected frequency
O = Observed frequency
X^2 = Calculated value is 321.25 and X^2 tabulated value at 3 degree of freedom and 0.05 level of significance is equal to 9.487

Since the chi-square calculated value of 321.25 was greater than the chi-square tabulated value of 9.487, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1).

Findings and Discussions

Results of the analysis indicated common trend in our institutions which includes inadequate or total absence of hardware, software, data and network resources in the

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classrooms. This is why most schools only teach students theoretically what and how to use the technologies without actually letting them learn practically how to use them.

It was discovered that in some institutions where the equipment exist they are either non functional, obsolete or grossly inadequate because of the population of the students. This hinders effective teaching/learning activities. In some institutions where they are found, have too many students to use them or do not have access to make adequate use of them for practices after lectures. This study was in-line with studies of Nguyen (2024) and Akionla (2023) concerning the inability of students in accessing the computer laboratories in most institutions of learning for assignments and practices for skill acquisition.

The findings also showed that only computer operators are sufficiently in supply but other personnel like System Analysts, Programmers, Data base and Networking Administrators are in short supply. This is in line with the assertion of Abraham-Ibe (2021), Shehu (2022), Akueyinwa and Ngozika (2021) that there is dearth or lack of personnel in institutions of learning to handle the proper teaching/learning of the digitalized courses and as a result, the students do not have good grasp of the knowledge to manipulate the equipment upon graduation.

In conclusion, Polytechnics should be encouraged to adequately equip their automated classrooms with modern technological gadgets to enhance skill acquisition. There should be effective and adequate practicals on the "Electronic Office" procedures than what is obtainable in the traditional offices. If these equipment are adequately installed and utilized in the automated classroom for students' practices, it would help them to acquire the necessary skills for job search after graduation.

RECOMMENDATIONS

The following recommendations were made;

1. Both Federal and State government should provide the OTM programmes in Nigerian Polytechnics with enough fund to enable them acquire the necessary technological/digital facilities needed for effective teaching/learning processes.
2. The Polytechnics in the country must create enabling environment for students by providing all the necessary equipment needed for learning, such as materials and manpower resources.
3. The institutions must limit the admission of students to the available equipment and other facilities in the department to ensure production of quality graduates that would be relevant and employable in modern society.
4. Polytechnics and various schools where OTM students are trained to automate their classrooms in order to equip the students with necessary skills and competencies so that they can reap the benefits awaiting them in the 21st century electronic office.

5. It is therefore suggested that the OTM curriculum should be reviewed from time to time to incorporate more technology-driven-courses to meet the demands of the work environment.

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