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INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SKILLS NEEDED BY OFFICE TECHNOLOGISTS FOR OPTIMAL PERFORMANCE IN FEDERAL POLYTECHNICS IN NORTH-EAST NIGERIA

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Abstract: The study examined information and communication technology (ICT) skills needed by office technologists for optimal performance in Federal Polytechnics in North-East Nigeria. two purposes of the study and corresponding research questions and two null hypotheses guided the study. Descriptive research survey design was used for the study. The sample of the study consisted of two hundred and twenty-two (222) office technologists in Federal Polytechnics in North-East Nigeria which were all accommodated as the sample size for the study. The instrument for data collection was self structured questionnaire titled: Information and Communication Technology Skills needed by Office technologists for Optimal Performance Questionnaire (ICTSTOPQ), was design to elicit information from the respondents. The instrument for the study was validated by three experts two from the department of business education and one from the Science Education, all from the faculty of education, Ebonyi State University, Abakaliki. The reliability of the instrument was ascertained through a pilot study involving office technologists in Federal Polytechnics in North Central, Nigeria. The data collected from the respondents from the pilot study were used to compute the reliability of the instrument. The Cronbach alpha SPSS statistical procedure was used to determine the internal consistency of the instrument which yielded overall consistency of 0.94. The instrument for the study has two parts. Part one sought information on demography of respondents. Mean and standard deviation were used to answer the questions and t-test statistic was used to test hypotheses. The hypotheses were tested at 0.05 level of significance. The results showed that word processing skills, and database management skills were needed by office technologists in Federal Polytechnics in North-East Nigeria. Based on the findings, the study recommended among others that office technologists should be trained and re-trained on the word processing skills such as skill is Microsoft word, how to format, save and retrieve documents among others for effective performance in the modern office and that office technologists needed to be equipped with desktop publishing skills for proficiency in proofreading of documents as well as be able to translate electronic information to other traditional forms in modern offices.

Keyword: Information, communication, technology, skills, office technologists and performance

Introduction

Information and Communication Technology (ICT), refers to the use of skill in combining information and communication process and devices to obtain, analyse, store, recall and transmit accurate information from one place to another. Ofurum and Ogbonna (2018), in their view stated that Information and Communication Technology (ICT) is the combination of computing, telecommunication and video techniques for the purpose of acquiring, processing, storing and disseminating vocal, pictorial, textual and numerical information. These basic objectives of ICT are made possible through the computing, telecommunication and video techniques. The computing techniques provide the capacity for processing and storing of information; the telecommunicating techniques provides the capacity for communicating the information to users; and the video techniques provides the capability for high quality display of images.

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The introduction of Information and Communication Technology (ICT) is promoting efficiency in all areas of human activities. Individuals, groups and governments all over the world are taking the advantage of this opportunity to transform the activities of various sectors through the development of new skills. Information and Communication Technology has been identified as a major factor for effective service delivery in public sector, including the polytechnics (Igbinoba, 2015). Information and Communication Technology (ICT) has changed the face of offices and consequently made business environments to wear a new look. This is particularly noticeable in the area of office administration and management (Agomuo, 2018).

Agomuo (2018) stated that information and communication gadgets, equipment and facilities improve the manner in which message is preserved, recalled, shared and relayed for information and communication purposes. Agomuo further stated that the electronic systems are now available for the performance of many functions that were formerly done manually in offices. This makes for greater effectiveness and efficiency in the performance of office activities. New digital machines and electronic equipment now make for faster, neater, more accurate and more reliable outputs. Most activities of office managers and their assistants are now based on the use of Information and Communication Technology (ICT) which promotes managerial effectiveness. With the help of Information and Communication Technology (ICT), the world has become a global village.

The possession of the appropriate ICT skills leads to the effectiveness in information processing, storage and disseminating of information in offices. Skill as a concept is the ability to use human knowledge effectively in carrying out a given task. In view of Nkokelonye (2018), skill is the ability to put into use acquired competencies, attitudes and behaviour after an exposure to theories and practices fundamental in a field of study. Odu (2018) identified three major categories of skill, which are technical skills, human skills and conceptual skills. Technical skills encompass the understanding and proficiency in specific activities, especially one involving methods and procedures. It is the ability to use knowledge, methods, techniques and equipment necessary for the performance of specific tasks. The technical skills are acquired from experience, education and training in specialised fields, such as medicine, engineering, music, office administration, and accounting among others. Federal Republic of Nigeria (FRN, 2014) stated that technical skills are for empowering and preparing youths for the world of work. On the other hand, human skills refer to the ability of an individual to work effectively to encourage co-operative effort within the group of which it belong to. Conceptual ability involves the ability to recognize the interdependence of the various functions of an organisation. Conceptual skills draw heavily on one's analytical and diagnostics capacities to identify problems and opportunities, gather and interpret relevant information, and make good problem solving decisions that serve the organizational purpose. In the context of this work, a person is said to have acquired a skill when the person can competently and professionally finish a given piece of work at a given time with minimum errors. The possession and utilization of ICT skills have become indispensable in modern offices especially based on gender.

Gender is referred to the ray of socially constructed roles and relationships, personality traits, attitudes, behaviors, values, relative power and influence that society describes to the two sexes on a differential basis (Emily and Susie, 2016). Right from time immemorial, technologist had been associated with the female gender. It is sad to note that this state of development still prevails nowadays when gender equality (non discrimination) is the order of the day. Stating the disadvantage of gender discrimination, Ajei (2012) argues that gender pay gap is underpinned by other aspects to women inequality in the labour market such as occupational segregation and discrimination. Again, Boladele (2012) averred that gender differentiation and unfair employment practices exists as the proportion of female office technologists employees is low especially to the high and executive

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positions in the civil service when compared with their male counter parts. Similarly, Edwin (2018) earlier on pinpointed that in some institutions and in societies, attainable employment height for female office technologists are very much restricted, as most of office technologists are found in the closed lower segment of the staff hierarchy. This is unconnected with organization's employment and management policies which are strictly controlled and piloted by governments political interests in the running of the civil service. The performance/dedication ratings of male office technologists in the same position was seen to be higher than that of females in the civil service (Makhura, 2017). However low intelligent Quotient (1Q) and lack of the ability factor that give rise to this phenomenon (Oni, 2017).

The strategic position which the office occupies in any given organisation as the information nerve centre has in turn placed major emphasis on the use of Information and Communication Technology in offices. The universal nature of the office makes it a place of action, where various functions necessary for information handling are performed and each function involves the use of one form of technology or another (Agomuo, 2018). The author further stated that the office has been described as a place where administration, which is the management and handling of information takes place. According to Oyesode (2016), an office is a place where administrative, clerical and financial duties in an organisation are done. In the office environment of today, different types of business including the small, medium and large scale companies are relying on Information and Communication Technology (ICTs) to run their primary business operations. Devices ranging from photocopiers, computers, fax-machines, electronic communication and image processing among others have their own intelligence and are used to perform functions more efficiently in offices (Eze, 2018). As pointed by Oyesode (2016), not only do these integrated systems ensure the smooth operation of basic office functions, but they increasingly provide key interfaces between management and clients in modern offices.

An Information and Communication Technology (ICT)-based office skills, undoubtedly, offers new roles and responsibilities for office technologist. Such new roles mean that additional training, qualifications and skills are required from the office technologists (Akpomi and Ordu, 2019). In the past, the office technologists' functions were performed manually such that documents and records were maintained on papers, stored in files and drawers. As a result of modern office equipment, office technologists require to increase their skills for effectiveness and efficiency. Many office functions and office technologists duties which were previously done manually have been computerized. Atakpa (2018) stated that office technologists' functions everywhere in the world have undergone a lot of technical changes that is from the use of paper to the use of ICT. Thus, the diversities of these office technologies require the technologist to possess new skills to enable them to be relevant in modern offices. The introduction of Information and Communication Technology (ICT) in modern offices and organisations would make secretarial work more interesting and more productive. Typewriters are disappearing in favour of word processors and spreadsheets are replacing calculators. Information and Communication Technology (ICT) has changed the equipment and work group behaviours in offices. Of course, no technologist today would like to work in an office where information processes and other secretarial activities like administrative work are still done manually (Oni, 2017).

Word processing skill is the ability to use advanced software to manipulate words, sentences and paragraphs. The word processor is a type of electric typewriter with storage and processing components. One of the major features of the word processor is that as the words are typed, they are displayed simultaneously at the Visual Display Unit (VDU) which enables the technologist to effect corrections like deleting or inserting words, sentences and paragraphs before printing the documents (Agomuo, 2015).

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A database management system (DBMS) skill is the ability to organize large number of records in a database. Adesina (2016), stated that database helps in the collection of a considerable volume of data, which are verified, stored, retrieved and updated on regular basis. It is a collection of programs that allow users the ability to create, query and modify the structure in the database and to control access to it. Database is used for keeping personnel records, customer's records and assets records.

Optimal job performance is the assessment of whether a person performs a job well. Optimal performance is how one performs when exerting as much effort as possible. Workers usually exhibit optimal performance when they are being observed. Therefore, some conditions that tend to foster optimal performance include work samples (often given to a potential employee during an interview), manager evaluations, and job knowledge tests. The results from these situations are the ones that are most accessible to supervisors; however, they are usually not reflected in an employee's typical, or day-to-day, performance. Vander-Byl and Shortridge (2012) describes optimal job performance as an individual-level variable, or something a single person does. This differentiates it from more encompassing constructs such as organizational performance or national performance, which are higher-level variables. For individuals, teams and organizations, optimal performance means understanding what those attributes are, how much one have of each, and how to harness them most efficiently.

In view of the aforementioned inadequacies in communication, documentation and information processing in polytechnics in Nigeria, it is doubtful if office technologists in employment of the polytechnics are skilled enough in the use of ICT for their work and service delivery. It is therefore imperative to investigate into the information and communication technology (ICT) skills needed by office technologists for optimal performance in Federal Polytechnics in North-East Nigeria.

Purpose of this Study

The main purpose of this study is to determine the information and communication technology (ICT) skills needed by office technologists for optimal performance in Federal Polytechnics in North-East Nigeria. Specifically, the study sought to determine the:

1. Word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria.
2. Database management skill needed by office technologists in Federal Polytechnics in North-East Nigeria.

Research Questions

Based on the purpose of the study, the researcher raised the following questions in other to conduct this research. They include:

1. What are the word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria?
2. What are the database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria?

Hypotheses

The following hypotheses were tested at 0.05 level of significance will guide the study:

1. There was no significant difference in the mean ratings of male and female office technologists' response on the word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria.
2. There was no significant difference in the mean ratings of male and female office technologists' response on the database management skill needed by office technologists in Federal Polytechnics in North-East Nigeria.

Methodology

Descriptive research survey design was used for the study. The sample of the study consisted of two hundred and twenty-two (222) office technologists in Federal Polytechnics in North-East Nigeria which were all accommodated as the sample size for the study. The instrument for data collection was self structured questionnaire titled: Information and Communication Technology Skills needed by Office technologists for Optimal Performance Questionnaire (ICTSTOPQ), was

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Results of the Finding

Research Questions

Research Question 1

What are the words processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria?

Items 1 – 12 in the instrument were used to answer this research question. Summary of results is presented on Table 1

Table 1: Mean ratings of word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria N-218

SN	Word Processing Skills	Mean	SD	Remarks
1	Ability to type at a reasonable speed	3.66	0.59	Needed
2	Ability to produce a mailable document	3.06	0.83	Needed
3	Ability to use Microsoft words	3.06	0.95	Needed
4	Ability to use Microsoft excel	2.73	0.87	Needed
5	Ability to format document properly	2.90	0.95	Needed
6	Ability to save documents	2.86	1.00	Needed
7	Ability to retrieve a document	2.73	1.07	Needed
8	Ability to print a document	2.78	0.99	Needed
9	Ability to transfer files from one drive to another	2.89	0.98	Needed
10	Ability to files saved in external drives	3.05	0.87	Needed
11	Ability to rename files	2.90	0.86	Needed
12	Ability to rename folders	3.02	0.90	Needed
	Grand Mean	**2.97**		**Needed**

Table 1 revealed that all the items had their mean scores between 2.73 and 3.66 and the grand mean of 2.97. This indicates that the respondents agreed that word processing skills were needed by office technologists in Federal Polytechnics in North-East Nigeria. The standard deviation scores ranged between 0.59 and 1.07. This was an indication that the opinions of the respondents did not deviate far from the central mean.

Research Question 2

What are the database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria?

Items 13 – 23 in the instrument were used to answer this research question. Summary of results is presented on Table 2

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Table 2: Mean ratings of database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria N-218

SN	Database Management Skills	Mean	SD	Remarks
13	Ability to manage data	3.51	0.64	Needed
14	Ability to extract and list all records	3.24	0.65	Needed
15	Ability to sort records in ascending or descending order	3.15	0.88	Needed
16	Ability to generate formulated text with subtotals and totals	2.99	0.94	Needed
17	Ability to create a record in a spreadsheet	2.89	1.00	Needed
18	Ability to sort columns	2.88	0.82	Needed
19	Ability to interpret programme instructions	3.07	0.90	Needed
20	Ability to insert rows and columns	2.71	0.99	Needed
21	Ability to classify data into convenient groups	2.76	0.98	Needed
22	Ability to sort data into sequence	2.73	1.00	Needed
23	Ability to define fields and cells	2.99	0.86	Needed
	Grand Mean	**2.99**		**Needed**

Table 2 revealed that all the items had their mean scores between 2.71 and 3.51 and the grand mean of 2.99. This indicates that the respondents agreed that database management skills were needed by office technologists in Federal Polytechnics in North-East Nigeria. The standard deviation scores ranged between 0.50 and 0.78. This was an indication that the opinions of the respondents did not deviate far from the central mean.

HO_1: There is no significant difference in the mean ratings of male and female office technologists on the word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria

Data collected from the (items 1 to 12) of the instrument were separated for male and females and used to test this hypothesis at 95% confidence level. Summary of the data analysis is presented on Table 3

Results of test of Hypotheses

Table 3: t-test of significance of difference in the mean ratings of male and female office technologists on the word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria

SN	Word Processing Skills	Category	Mean	SD	t.cal	t.crit	Decision
1	Ability to type at a reasonable speed	Male	3.70	0.68	1.06	1.96	Not
		Female	3.62	0.49			Significant
2	Ability to produce a mailable document	Male	3.26	0.83	3.38	1.96	Significant
		Female	2.89	0.79			
3	Ability to use Microsoft words	Male	3.29	0.91	3.47	1.96	Significant
		Female	2.85	0.95			
4	Ability to use Microsoft excel	Male	3.01	0.93	4.68	1.96	Significant
		Female	2.48	0.73			
5	Ability to format document properly	Male	3.20	0.89	4.64	1.96	Significant
		Female	2.63	0.93			
6	Ability to save documents	Male	2.92	1.05	0.87	1.96	

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		Female	2.81	0.95			Not Significant
7	Ability to retrieve a document	Male	2.90	1.01	2.28	1.96	Significant
		Female	2.58	1.04			
8	Ability to print a document	Male	3.02	0.92	3.62	1.96	Significant
		Female	2.55	1.00			
9	Ability to transfer files from one drive to another	Male	3.14	0.91	3.72	1.96	Significant
		Female	2.66	0.99			
10	Ability to files saved in external drives	Male	3.25	0.90	3.35	1.96	Significant
		Female	2.86	0.81			
11	Ability to rename files	Male	3.12	0.85	3.81	1.96	Significant
		Female	2.69	0.83			
12	Ability to rename folders	Male	3.21	0.99	2.99	1.96	Significant
		Female	2.85	0.77			

Results of data analysis summarized on Table 3 reveals that there are significant difference in the mean ratings of male and female office technologists on all the word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria except in the ability to type at a reasonable speed and ability to save documents. As shown on Table 3 the skill needs are significantly higher for males, because they are more exposed to the use of ICT facilities more than their female counterparts in the offices.

HO_2: There is no significant difference in the mean ratings of male and female office technologists on the database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria.

Data collected with the (items 13 - 23) of the instrument were separated for male and females and used to test this hypothesis at 95% confidence level. Summary of the data analysis is presented on Table 4

Table 4: t-test of significance of difference in the mean ratings of male and female office technologists on the database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria

SN	Database Management Skills	Category	Mean	SD	t.Cal	t.Crit	Decision
13	Ability to manage data	Male	3.61	0.64	2.26	1.96	Significant
		Female	3.42	0.62			
14	Ability to extract and list all records	Male	3.24	0.73	0.11	1.96	Not Significant
		Female	3.25	0.58			
15	Ability to sort records in ascending or descending order	Male	3.30	0.88	2.59	1.96	Significant
		Female	3.00	0.86			
16	Ability to generate formulated text with subtotals and totals	Male	3.30	0.89	4.87	1.96	Significant
		Female	2.71	0.89			
17	Ability to create a record in a spreadsheet	Male	3.32	0.90	6.78	1.96	Significant
		Female	2.49	0.92			
18	Ability to sort columns	Male	3.13	0.86	4.61	1.96	Significant
		Female	2.64	0.72			
19		Male	3.41	0.88	5.62	1.96	Significant

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	Ability to interpret Programme instructions	Female	2.76	0.81			
20	Ability to insert rows and columns	Male	3.14	0.91	6.78	1.96	Significant
		Female	2.31	0.90			
21	Ability to classify data into convenient groups	Male	3.12	0.91	5.64	1.96	Significant
		Female	2.42	0.92			
22	Ability to sort data into sequence	Male	3.10	1.00	5.69	1.96	Significant
		Female	2.38	0.87			
23	Ability to define fields and cells	Male	3.26	0.80	4.55	1.96	Significant
		Female	2.75	0.84			

As shown on Table 4 there are significant difference in the mean ratings of male and female office technologists on the database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria except in the ability to extract and list all records. As shown on Table 4 the skill needs are significantly higher for males, because they are more exposed to the use of ICT facilities more than their female counterparts in the offices.

DISCUSSION

Word Processing Skills needed by Office Technologists in Federal Polytechnics in North-East Nigeria

Data analysis of research question I revealed that word processing skills were needed by office technologists in Federal Polytechnics in North-East Nigeria. This absolutely word processing skills were needed by office technologists in Federal Polytechnics. Hypothesis 1 confirmed this assertion when it stated that there were significant differences in the mean ratings of male and female office technologists on all the word processing skills needed by office technologists in Federal Polytechnics in North-East Nigeria. This finding supports the assertion of Agomuo (2015) who reported that word processing is an important skill area that is required in an ICT- based office. Advancement in technology has resulted in a lot of emphasis being placed on word processing. New ways of performing office task have emerged with new technologies. Office technologists are required to be equipped with flexible skills that would enable them function effectively in their career and even in the office. Talley (2017) stated that the word processing skills include: insert text, page set-up, delete text, setting margins, tabs, paragraphs, font specification, headers, footers and page numbering, editing documents: includes cut and paste, search and replace, merge text from one file to another file, check spelling and sentences and margins, saving files – to hard disk, disk drives and networks, print: selecting printer, the paper source, number source, number of copies, then send documents to printer to get hardcopy.

Database Management Skills needed by Office Technologists in Federal Polytechnics in North-East Nigeria

Findings of the study in respect to research question 2 on database management skills were needed by office technologists in Federal Polytechnics in North-East Nigeria. Hypothesis 2 confirmed this assertion when it stated that there were significant differences in the mean ratings of male and female office technologists on the database management skills needed by office technologists in Federal Polytechnics in North-East Nigeria. In his own opinion, Koontz (2013) stated that one of the advantages of database storage is that thousands of records can be searched in only few seconds. A database is a collection of programs that allow users to specify the structure of database, to create, query and modify the structure in the database and to control access to it. This finding is in line with Ward (2018) who stressed that these databases are useful because thousands of records can be

searched in only a few seconds. Searching the same number of records stored on paper would take a long time. In many companies, office technologists can get data from a database by using a computer network. This prevents the need to have the same data stored in each department or work group. The two elements essential to a database are coherence and organisation. Coherence means the data are related to a specific activity or purpose. Organisation means the data are related in such a way that users can meaningfully access parts of the database. Methods used to arrange records within a database include: hierarchical databases, relational databases and network databases. Hierarchical databases are tree-structured, that is, their logic goes from the broader meaning to a narrower meaning through one or several steps. Each step branches out into smaller units, and with each step, other options are eliminated. It is a process of "narrowing the field" to the desired item. Although, this structure simplifies searching, it is not particularly well suited for extensive lists' of information. Relational databases allow data to be accessed based on relationships among several databases files. This means that within a predetermined set of data fields and their relationship, one can retrieve specific information through one command. Network databases permit data to be arranged into groupings that can be connected through the use of pointers. These give users a great deal of flexibility and speed in searching for data, although the pointer structure is relatively complex to establish. Agim , Ochui and Atah (2020) confirmed that to ensure effective uses of database, the government and non-governmental organization must provide new technologies to aid in effective utilization

Conclusion

Based on the findings of the study, it was concluded that word processing skills, database management skills, desktop publishing skills, office communication skills as well as reprographic skills were needed by office technologists in Federal Polytechnics in North-East Nigeria.

Recommendations

In line with the findings and conclusion reached, it is recommended that:

1. Office technologists should be trained and re-trained on the word processing skills such as skill is microsoft word, how to format, save and retrieve documents among others for effective performance in the modern office.
2. Since the modern office needed data base, office technologist should be trained with data base management software such as microsoft excel, data base among others for accurate keeping of data in the offices.

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