ASSESSMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY COMPETENCIES POSSESSED BY OFFICE TECHNOLOGY AND MANAGEMENT LECTURERS IN TERTIARY INSTITUTIONS IN ANAMBRA AND ENUGU STATES

By

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Abstract
This study was undertaken to assess the information and communication technology competencies possessed by Office Technology and Management lecturers in tertiary institutions in Anambra and Enugu states. The study adopted a descriptive survey design. Four research questions and four hypotheses guided the study. The entire population for the study consisted of 113 OTM lecturers was studied. A validated questionnaire with reliability coefficients of 0.76, 0.86, 0.71 and 0.82 was used for data collection. The arithmetic mean and standard deviation were used to analyze data in respect of the research questions while the z-test and ANOVA were used to test the hypotheses. It was found that respondents possessed computer operation competencies at a high extent and networking, telecommunication and media competencies at a low extent. There was no significant difference in the mean ratings of the respondents in their possessed ICT competencies based on gender, experience, qualification and institution attended. It was concluded, that the respondents can hardly produce graduates with ICT competencies.

Keywords: Assessment, Information and communication technology, Competencies. Office Technology and Management, Tertiary Institutions.

1. Introduction

Office technology and management education in Nigeria has been evolving and developing with the advancement in office work and technology. As a response, many tertiary institutions in Nigeria have now changed the nomenclature from secretarial education/studies to Office Technology and Management. Igbinedion (2010) stated that secretarial education which gave birth to office technology and management started in the United States of America in the 17th and 18th centuries, by the 19th and 20th centuries the course expanded rapidly to some developed countries and spread to developing countries. Igbinedion also explained that Office Technology and Management education is a specialized phase of vocational education that prepares students to enter teaching and office occupations as capable and intelligent members of the office force. The use of secretarial services permeates all facets of a country's socio-economic and political life ranging from schools, hospitals, corporate settings, legal, medical offices etc. Amoor (2009) also explained that

OTM/secretarial education came to limelight in the last decades of the 19th century when some Nigeria nations in business partnerships with overseas exporters had to learn simple commercial subjects for the purpose of facilitating business transactions. The stages of development of OTM is taken from the manual typewriting stage, electric typewriting stage, electronic typewriting stage to word processing stage which ushered in Information and communication technology era.

Advancement in ICT has made it possible for people in different parts of the world to communicate face to face through satellite, video conferencing as well as transmit faxes embodying complex designs, drawings via regular telephone line. Lecturers have to be prepared to confront the challenges of the emerging technologies in order to fit into the industrial and information society of this global era. The rapid advancement in technology and new innovations have created various business needs, wants, challenges and has opened new opportunities like e-business. e-communication, e-purchasing, e-marketing, e-finance, e-learning and e-service. All these make use of electronic devices to conduct business practices on-line. These new opportunities pose enormous challenges to OTM lecturers and society at large. There is an urgent need to ensure that those coming through education and those currently in the workforce have the right skills for this evolving sector. There is no doubt that a comparative advantage of any nation is a function of the capacity of her population to embrace new technologies and incorporate them into production process. This comparative advantage increases with the ability of the populace to efficiently utilize the new technologies. ICT competencies are essential for driving these on-line practices. OTM lecturers must acquire them in order to deliver the new methods of communication in their teaching programmes for instance the acquisition of power point sub skills will enable them use computers and multi-media projectors to reform their instructional delivery system.

Indeed the state of advancement in ICT and the expected level of competency on the part of OTM lecturers in higher education have tended to constitute a challenge to the OTM practitioners and the only means of establishing the true state of affairs is to address the competency levels of OTM lecturers in Anambra and Enugu state, as an example. The study is motivated by the fact that there has been excitement of the introduction of ICT for the training of OTM students, the situation on ground and qualities of OTM graduates does not seem to support the enthusiasm. Observation in many tertiary institutions where OTM is taught, the complementary ICT gadgets seem to be in short supply and these manifest on the quality of student graduates in OTM in our tertiary institutions. This study is, therefore, significant as it will provide requisite information on the computer networking, tele-communication and media competencies possessed by OTM lecturers in tertiary institutions and it will help the tertiary institutions in packaging professional development programs for lecturers to update their ICT knowledge and skills.

2. Purpose of the study

The purpose of the study is designed to ascertain the extent to which OTM lecturers in tertiary institutions in Anambra and Enugu States possess computer operation, networking, tele-communication and media competencies for teaching OTM courses.

3. Problem of the study

Since the level at which a teacher can perform depends on his level of competence, OTM lecturers are required to possess ICT competencies covering computer operation, networking tele-communication and media, among others. The problem of this study is that no study has been conducted to assess the ICT competence of OTM lecturers in the area which will reveal any deficiencies and direct remedial actions. This leaves a gap in knowledge which this study seeks to

fill as a major step towards ensuring that OTM lecturers in the area of the study are ICT competent enough to impart the knowledge and skills to prospective office technology managers.

4. Limitations of the study

Due to time constraint, the researchers did not include other information and communication technology competencies in the study which could have revealed all the ICT competencies possessed by OTM lecturers in tertiary institutions in the area of study and shed more light on their status and propel suitable remedial actions. However, this did not, in any way, negate the objective of the study or the validity of the findings.

5. Research Questions

5.1 To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess computer operation competencies for teaching OTM courses?

5.2 To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess networking competencies for teaching OTM courses?

5.3 To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess tele-communication competencies for teaching OTM courses?

5.4 To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess media competencies for teaching OTM courses?

6. Null hypotheses

6.1 Male and female OTM lecturers in tertiary institutions in Anambra and Enugu States do not differ significantly in their mean ratings on the extent they possess computer operation competencies for teaching of OTM courses.

6.2 There is no significant difference in the mean ratings of OTM lecturers in tertiary institutions in Anambra and Enugu States on the extent they possess networking competencies for teaching OTM course as a result of teaching experiences.

6.3 The qualification possessed by OTM lecturers in Anambra and Enugu States tertiary institutions do not significantly affect their mean ratings of the extent they possess telecommunication competencies for teaching OTM courses.

6.4 The types of tertiary institutions attended by OTM lecturers in Anambra and Enugu States tertiary institutions do not have significant influence on the extent they possess media competencies

7. Method

The design of the study is a descriptive survey as recommended by (Nworgu, 2006) for studies that seek opinion of a population or its representative sample on an existing phenomenon using questionnaire or interview. The study was conducted in Anambra and Enugu States of Nigeria which are in the south east zone. The States are located east of the Niger, the people speak the same language, are very enterprising and place high value on education. Population of the study consists of 113 OTM lecturers in all the ten tertiary institutions offering OTM courses in the area which include male and female of different educational attainments and lecturing experiences. The entire population was studied without sampling because the size is not too large. A validated 5-point rating scale questionnaire with 50 items was used for the study. The reliability of the instrument was determined with the split half method. The instrument was administered to 14 OTM lecturers from two institutions in the nearby Ebonyi state and the data collected were analyzed with the Spearman

Rank Order Correlation Coefficient formula to determine the relationship between the two scores and the reliability coefficients of 0.76, 0.86, 0.71 and 0.84 were obtained for the four sections of the instrument which indicated that the instrument was reliable. Copies of the questionnaire were administered directly by the researchers and two coached assistants to the OTM lecturers in their institutions with the help of their Heads of Department. Contacts were established with the Heads of Department to know when to re-visit the institutions to retrieve the completed instrument. This procedure ensured careful completion of the instrument by the respondents as well as a high response rate as 104 copies (representing 92 percent) were retrieved and used for the study. The arithmetic mean and standard deviation were used to analyze data to answer the research questions and establish the homogeneity or otherwise of the respondents' means while z-test and ANOVA were used to test the hypotheses at 0.05 level of significance.
A mean rating that is equal to or greater than 3.5 would be regarded as possessed at a high extent while any item with a mean rating that is less than 3.5 would be regarded as possessed at a low extent. A hypothesis will be upheld if the calculated value is less than the significant level of 0.05 and rejected if the calculated value is equal or greater than the significant level of 0.05.

8. **Results:** .

Research Question 1.

To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess computer operation competencies for teaching of OTM courses?

Table 1: Mean and standard deviation of respondents' assessment of the extent of possessed computer operation competencies. N = 104

S/N	Computer operation competencies	Mean	SD	Remarks
1	Connect all hardware components of the computer system.	3.8	1.24	High extent
2	Boot up and shut down the computer system.	4.5	0.89	"
3	Effectively utilize the input devices for word processing.	4.3	0.92	"
4	Edit and format documents effectively.	4.1	1.06	"
5	Utilize secondary storage devices e.g. diskette, flash drive, and CD.	4.0	1.11	"
6	Create worksheets with Microsoft Excel	3.6	1.25	"
7	Create and present materials to enhance teaching and learning with Microsoft power point.	3.5	1.19	"
8	Utilize Corel Draw for different drawings.	2.6	1.20	Low extent
9	Utilize Desktop Publishing.	2.8	1.35	"
10	Utilize Database Management System	2.8	1.35	"
11	Use the scanner correctly.	3.3	1.18	"
12	Manipulate a projector.	3.1	1.34	"
13	Manipulate a digital camera.	3.0	1.29	"
14	Manage files in the computer	3.8	1.06	High extent
15	Use different types of printers both black and colour printer.	3.8	1.11	"
16	Maintain security of data.	3.5	1.34	"
17	Install and use anti-virus softwares.	2.9	1.43	Low extent
	Grand Mean	3.50	1.2	High extent

Data in Table 1 show that ten computer operation competencies have mean scores ranging from 3.50 to 4.50 which means that the respondents possessed them at a high extent. The rest with mean scores between 2.6 and 3.3 indicate that the respondents possessed them at a low extent. The grand

mean score of 3.50 indicate that, generally, the respondents possessed computer operation competencies at a high extent. The standard deviation scores indicate that the respondents were homogenous in their assessment.

Research Question 2.
To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess networking competencies for teaching of OTM courses?

Table 2: Mean and standard deviation of respondents' assessment of the extent of possessed networking competencies. N = 104

S/N	Networking competencies	Mean	SD	Remarks
18	Use internet for e-mail and browsing.	4.2	0.96	High extent
19	Use the internet to update file transfer protocol (FTP) and engage in newsgroup/usernet, chart and face book.	3.2	1.42	Low extent
20	Use internet for e-commerce(exchange on information and transactions between customers and vendors).	3.3	1.27	"
21	Save a web page to a location on a drive.	3.1	1.32	"
22	Use the internet for data collection and information exchange.	4.0	1.03	High extent
23	Use the internet for e-banking.	2.1	1.27	Low extent
24	Use the internet to interact with students on line.	2.1	1.41	"
25	Apply internet explorer in creating a new file folder and printing.	3.0	1.33	"
26	Use website browser and internet search engine for surfing the web.	3.0	1.33	"
27	Format web pages.	2.7	1.41	"
	Grand Mean	2.9	1.3	"

Data in Table 2 show that eight networking competencies have mean scores ranging from 1.27 to 1.42 which means that the respondents possessed them at a low extent. The rest with mean scores between 4.0 and 4.2 indicate that the respondents possessed them at a high extent. The grand mean score of 2.90 indicate that, generally, the respondents possessed networking competencies at a low extent. The standard deviation scores indicate that the respondents were homogenous in their assessment.

Research Question 3.
Table 3: Mean and standard deviation of respondents' assessment of the extent of possessed telecommunication competencies. N = 104

S/N	Telecommunication competencies	Mean	SD	Remarks
28	Use telex facilities in sending or receiving correspondences	3.2	1.29	Low extent
29	Teach the method of communication using e-learning.	2.8	1.37	"
30	Demonstrate skills in Very Small Aperture Terminals (VSATs).	2.5	1.29	"
31	Teach the use of machines for sending messages.	3.2	1.37	"
32	Install and configure telecommunication software.	2.4	1.21	"
33	Practice correct communication ethics and etiquette according to guidelines and laws	3.2	1.26	"
34	Work collaboratively and cooperatively in a technology setting.	3.1	1.22	"
35	Demonstrate knowledge and skills in the effective operation of mobile cellular phones.	3.6	1.28	High extent
36	Use electronic organizer technology for information storage.	3.1	1.33	Low extent

37.	Use wireless technology	3.2	1.41	"
38.	Operate internet telephony	2.9	1.36	"
	Grand mean	2.9	1.30	"

Data in Table 3 show that only item 35 on tele-communication competence has a mean score of 3.6 which means that the respondent possessed the item at a high extent. The rest with mean scores between 2.4 and 3.2 indicate that the respondents possessed them at a low extent. The grand mean score of 2.90 indicate that generally the respondents possessed tele-communication competencies at a low extent. The standard deviation scores indicate that the respondents were homogenous in their assessment.

Research Question 4.

To what extent do OTM lecturers in tertiary institutions in Anambra and Enugu States possess media competencies for teaching of OTM courses?

Table 4: Mean and standard deviation of respondents' assessment of the extent of possessed media competencies. N = 104

S/N	Media competencies	Mean	SD	Remarks
39	Effectively use distance learning desktop video conference and tele-conferencing teaching technology.	2.5	1.41	Low extent
40	Produce print based products such as newsletters, brochures, posters etc.	2.7	1.41	"
41	Produce electronic slides and overheads for electronic teaching.	2.6	1.34	"
42	Use painting and drawing tools to produce images	2.4	1.27	"
43	Produce print based fliers	2.6	1.38	"
44	Edit and produce a video text	2.4	1.41	"
45	Demonstrate mastery of characteristics of different media, strengths and weaknesses of different media.	2.9	1.38	"
46	Demonstrate mastery of media communication resources.	3.0	1.23	"
47	Use a Video Tape Recorder.	3.5	1.30	High extent
48.	Use closed circuit, TV via cable satellite.	2.7	1.28	Low extent
49	Use Radio and TV Broadcast.	2.8	1.45	"
50	Effectively manipulate a fax machine	2.9	1.48	"
	Grand mean	2.8	1.36	"

Data in Table 4 show that only item 47 on media competence has a mean score of 3.5 which means that the respondent possessed the item at a high extent. The rest with mean scores between 2.4 and 3.0 indicate that the respondents possessed them at a low extent. The grand mean score of 2.80 indicate that generally the respondents possessed media competencies at a low extent. The standard deviation scores indicate that the respondents were homogenous in their assessment.

Hypothesis 1:

Male and female OTM lecturers in tertiary institutions in Anambra and Enugu States do not differ significantly in the mean ratings on the extent of computer operation competencies possessed for the teaching of OTM courses.

Table 5: **z**-test analysis of the difference between respondents' mean ratings on the extent of their possessed computer operation competencies based on gender (male and female)

Gender	N	X	SD	z-cal	A	Df	z-crit	Remark
Male	43	3.4	1.82	0.38	0.05	102	2.00	NS
Female	61	3.5	1.82					

Since the result in table 6 shows that with 102 degrees of freedom and testing at 0.05 level, the critical z-value of 2.0 is more than the z-calculated value of 0.38, we would, therefore, conclude that no significant difference existed between the assessment of male and female respondents' on the possessed computer operation competencies. The hypothesis was therefore, upheld.

Hypothesis 2:
There is no significant difference in the mean ratings of OTM lecturers in tertiary institutions in Anambra and Enugu States on the extent of networking competencies possessed for the teaching of OTM courses as as a result of teaching experiences.

Table 6: **z**-test analysis of the difference between respondents' mean ratings on extent of their possessed networking competencies as a result of teaching experiences.

Gender	N	X	SD	z-cal	A	Df	z-crit	Remark
Below 10 years	37	3.3	1.87	0.76	0.05	102	2.00	NS
Above 10 years	67	3.1	1.82					

Since the result in table 7 shows that with 102 degrees of freedom and testing at 0.05 level, the critical z-value of 2.00 is more than the z-calculated value of 0.76. we would therefore, conclude that no significant difference existed between the assessment of respondents' on the networking competencies possessed by OTM lecturers as a result of teaching expereinces. The hypothesis was therefore, upheld.

Hypothesis 3:
The qualification possessed by OTM lecturers in Anambra and Enugu States tertiary institutions do not significantly affect their mean ratings of the extent they possess telecommunication competencies for teaching OTM courses.

Table 7: Summary of One Way Analysis of Variance (ANOVA) of respondents rating on the telecommunication competencies possessed as a result of academic qualifications.

Sources of variation	Sum of squares	DF	Mean squares X^2	F-Cal	F-tab	Level of significance	Remarks
Between Group	0.25	2	0.13	0.93	3.32	0.05	NS
Within Group	4.09	30	0.14				
Total	4.34						

The results in table 8 above showed that the calculated F-value of 0.93 is less than the table F-value of 3.32 with 2 and 30 degrees of freedom at 0.05 level of significance. Based on the values, the null hypothesis of no significance difference is accepted. The implication is that the qualification possessed by OTM lecturers in Anambra and Enugu States tertiary institutions do not significantly affect the mean rating of their telecommunication competencies for teaching OTM courses,

Hypothesis 4:
The types of tertiary institutions attended by OTM lecturers in Anambra and Enugu States tertiary institutions do not have significant influence on the extent they possess media competencies

Table 8: Summary of One Way Analysis of Variance (ANOVA) of respondents rating on their possessed media competencies based on the type of institutions (university, polytechnics, and colleges of education).

Sources of variation	Sum of squares	DF	Mean squares X^2	F-Cal	F-tab	Level of significance	Remarks
Between Group	0.48	2	0.24	2.67	3.28	0.05	NS
Within Group	2.88	33	0.90				
Total	4.34						

The results in table 9 above showed that the calculated F-value of 2.67 is less than the Table F-value of 3.28 with 2 and 33 degrees of freedom at 0.05 level of significance. Based on the values, the null hypothesis of no significance difference is accepted. The implication is that the types of tertiary institutions attended by OTM lecturers in Anambra and Enugu States tertiary institutions do not have significant influence on their media competencies level.

9. Discussions

The result of the analysis of computer operation competencies as shown in Table 1 indicated that OTM lecturers in tertiary institutions in Anambra and Enugu States possessed computer operation competencies at a high extent. This finding disagrees with the report of Ogonnia (2008) that all the business studies teachers of secondary schools in Enugu education zone do possess moderate computer operations competencies except the knowledge of such graphic interface and ability to install and update software devices.

The test of hypothesis 1 on Table 5 indicated that there was no significant difference between male and female respondents in their possessed computer operation competencies. The findings of this study tend to agree with the reports of Onyemelukwe (2005) and Okolocha, Ile and Okolocha (2012) regarding the importance of computer operation competencies for OTM lecturers and the need for them to possess them at a high extent.

The result of the analysis on networking competencies as shown in Table 2 indicates that the respondents possessed networking competencies at a low level. Among the 10 items rated by the respondents, only two items were possessed at a high level. The finding agrees with Okolocha, Ile, Okolocha (2012) which posited that Nigerian business education lecturers' familiarity with the current hi-tech innovations in the world of business/marketing is low. This could be attributed to the level of exposure of the individual business education lecturers to current hi-tech ICT applications in the modern business world. The test of hypothesis 2 on Table 6 indicates that there was no significant difference in the mean ratings of the respondents on their possessed networking competencies based on their experiences. This agrees with the report of Owa (2005) that years of experience do not make a significant difference on business education lecturers' possession of ICT skills. However, it disagrees with the report of Braak, Iman and Lowther, Bebell, Russel, & O'Dwyer in Buabeng-Andoh (2012) that younger teachers possessed and integrated ICT into their teaching more than veteran teachers.

The result of the analysis on telecommunication competencies as shown in Table 3 indicates that OTM lecturers in tertiary institutions in Anambra and Enugu States possessed tele-communication competencies at a low level. The finding agrees with the report of Owa (2005) that all the lecturers

and students of colleges of education in Delta state possessed tele-communication competencies at a low level. The test of hypothesis 3 on Table 7 indicated that there was no significant difference in the academic qualification of the respondents in their possessed media competencies.

The result of the analysis of media competencies as shown in Table 4 indicates that the respondents possessed media competencies at a low level. Among the 12 items, rated by the respondents, only one item was possessed at a high extent while the remaining 11 items were possessed at a low level. This finding agrees with the report of Igberaharha (2009) that the business educators do not have most skill competencies in ICT packages.

The test of hypothesis 4 on Table 8 indicated that there was no significant difference in the types of tertiary institutions attended by the respondents in their possessed media competencies. This agrees with the reports of Ndinechi, G.I. & Okereke, E.C. (2005) that there was no significant difference between respondents at NCE level and bachelors level regarding their familiarity with ICT. Okolocha, Ile & Okolocha (2012) in their reports also noted that there was no significant difference in the mean rating of business educators in universities and colleges of education with regard to the use of ICT hi-tech tools in business education students.

10. Conclusion

Based on the findings of the study and their discussions, it is concluded that OTM lecturers in tertiary institutions in Anambra and Enugu states can hardly produce graduates with adequate information and communication technology competencies.

11. Recommendations

Based on the findings, conclusions and implications of the study, the following recommendations are made:

1. Office technology and management lecturers should be given sufficient training on how to use ICT in teaching and learning processes to acquire knowledge and skills in integrating the technology in classrooms at mastery level.
2. Management of tertiary institutions should provide adequate technological resources, technical and administrative support to encourage office technology and management lecturers to successfully use ICT in classrooms.
3. Government should make a stringent policy statement should be made on the use of ICT facilities in instructional delivery, and giving students' assignments that involve the use of internet and presentations softwares.
4. Tertiary institutions should provide professional development program for lecturers to update their ICT knowledge and skills.

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