

**Information Communication Technology Manipulative Competencies Required by Office Technology and Management Lecturers for Effective Instructional Delivery in Public Tertiary Institutions in Niger State**

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**Abstract**

*This study looked at the ICT manipulative competencies that OTM lecturers require for effective instructional delivery in public tertiary institutions in Niger State. One research question and a research hypothesis were formulated for the study. The study used a descriptive survey and included 36 OTM lecturers from three government-owned tertiary institutions in Niger State, Nigeria (Federal and State Polytechnics and Federal and State Colleges of Education). Due to the small population, the study has no sampling, but it was ultimately based on the 35 questionnaires that were retrieved after administration. The research instrument was validated by two research experts from Kwara State University, Malete. For reliability of the instrument, the research instrument was pilot tested at Kwara State College of Education, Ilorin, and Kwara State Polytechnic, Ilorin, and the data obtained was analyzed using Cronbach Alpha and the result gave 0.86. Data were gathered through the use of a questionnaire called “ICT Competencies Required (ICTCR)”. The research question was answered using the descriptive statistics Mean and Standard Deviation, and the inferential statistics t-test was used to test the hypotheses at a significance level of 0.05. The findings revealed a non-significant difference in the mean ratings of OTM lecturers on the ICT manipulative competencies required for effective instructional delivery in public tertiary institutions in Niger State, Nigeria, in the 21st century. This led to the conclusion that OTM requires a number of ICT manipulative competencies for effective instructional delivery in public tertiary institutions in Niger States, Nigeria, in the 21st century. Therefore, it was recommended, among other things, that, OTM lecturers should receive on-the-job training, particularly on how to operate information and communication technologies and how to use them for effective classroom instruction in the 21<sup>st</sup> century. In addition, the relevant regulatory bodies (NCCE, NBTE, and NUC) should add more ICT manipulative activities to the OTM curriculum to keep up with current ICT trends and prepare students for active roles in the 21<sup>st</sup>-century office.*

**Keywords:** information and communication technologies, manipulative competencies, office technology and management

Numerous functions and purposes have been served by computer technology, which has become ingrained in a contemporary global society. As a result, the job of OTM lecturers in tertiary institutions is now enhanced by technological advancement. According to Mumuni and Sam (2018), technology generally contributes to the performance of OTM lecturers by providing them with the intellectual tools and practical experience they need to instruct their students correctly. As a result, the application of information and communication technologies (ICTs) to the effective and efficient interpretation of OTM courses is the primary focus of technology. According to Perron et al. (2017), ICTs broadly encompass all electronic devices used to transmit, manipulate, and store data. This includes all of the various computing devices (such as laptops, computers, smart phones, scanners, printers, and projectors, among others) that perform a wide range of information and communication tasks; E-mail, SMS/MMS text messaging, Video Chat (like Skype), and software (MSWord, Excel, Power Point, CorelDraw) Social media sites like Facebook, Twitter, and WhatsApp. To put it another way, ICTs, are electronic tools that can be used to manipulate and maintain any kind of information.

The roles that OTM graduates would play in the workplace of the 21st century and the training they receive have been influenced by ICTs. It has been recognized for its usefulness and is regarded as an essential component of OTM Education's professional development. According to Ndubuisi, (2021) improving one's academic, professional, and personal performance necessitates the mastering of technological tools. According to Perron et al. (2017), ICT has contributed to the improvement of instructional delivery and the expansion of access to education, both of which contribute to an improvement in the quality of education by making teaching and learning a process that is active and relevant to actual situations. This means that OTM lecturers must have ICT skills in order to fulfill their pedagogical responsibilities and teach the various courses in the OTM Education curriculum that will teach students the necessary modern office skills for today's office environment (Ezenwafor, 2017). Green (2016) added to this by stating that ICT is the most significant skill that tertiary institutions face.

Here, competency means having the knowledge, skills, and abilities to do a job well. According to Azemikhah (2018), competency is a quality that needs to be conceptually and physically developed by both the teacher and the learner. He was of the opinion that it begins with the mind's development based on the components of competence (underpinnings and attributes), moves through physical development that is perfected by performance (based on performance criteria), and finally ends with a balanced mind and hands. As a result, competency can be defined as the capacity to perform one's duties or responsibilities in accordance with the required standards in an office or business setting while also demonstrating a high level of knowledge, skills, and attitude.

According to Amoor (2018), OTM Education is a vocational business program that is offered in tertiary institutions to educate and train students to become OTM teachers, secretaries, and administrators with the necessary skills

and competencies for a career in teaching, office work, or business. According to Utoware and Amiaya (2016), OTM education is also viewed as a curriculum that equips students with the necessary competencies, skills, knowledge, understanding, and attitudes to work in industries, the public sector, and as business owners.

Typewriting, Speedwriting, and Office Practice are among the traditional OTM Education courses. However, the new OTM curriculum has been infused with a number of ICT courses in the 21st century, where the use of computers and other technologies has dominated virtually every aspect of the workplace (NCCE 2012). These courses include Office Technology and Management, Word Processing, Database Management, Desktop Publishing, and Computer Appreciation and Application. This development is in line with the Federal Republic of Nigeria (FRN 2014), on which states that the objective of vocational education, which includes OTM education, is to provide students with the appropriate mental and physical skills, abilities, and competencies as tools for living in and contributing to their society.

According to Ugwoke (2018), OTM Education is now technology-based, work-focused, skill-based, and result-oriented. This was confirmed by Nwabuona (2017), who said that OTM Education focuses on combining adequate and pertinent business knowledge with office information and technical skills to solve organizational problems. By imparting the necessary knowledge, skills, and attitude to students, it aims to produce a new hybrid of administrators or professionals in OTM education who are able to respond to the demands of a dynamic and intensely computerized workplace. According to Amoor and Magaji (2015), a study conducted by the International Association of Administrative Professionals (IAAP) has shown that the future office will be characterized by highly advanced office technology and information systems that necessitate expertise as well as advanced administrative and technical skills. This provides further support for this assertion. Therefore, OTM instructors must prepare for this challenge by continuously updating their knowledge and skills in the use of a variety of technological tools and gadgets in the classroom to produce graduates who are technologically savvy, relevant, and capable of handling such an office. This is due to the fact that ICT competencies has been identified as the relevant key competencies for OTM education. ICT competencies is required in any knowledge-based society where the tools used to complete assigned tasks change rapidly (Batagarawah & Lope Pihie, 2017).

To put it another way, ICTs Manipulative Competences refers to the lecturers' capacity to make use of the various ICT hardware and software applications that are available for data management. Not only do lecturers need to be proficient in the use of these ICT tools and automated office spaces, but they also need to be able to teach these skills to students in an effective manner. In a novel way, this would significantly improve the quality of instructions. It would also keep students engaged in class and boost their motivation. It promotes technological literacy and makes it easier to acquire fundamental technological

skills, according to Ololube (2017). As a result, the focus of this study was on the ICT manipulative competencies in office technology and management that are necessary for efficient instructional delivery in the twenty-first century.

### **Research Question**

The research question raised to guide the study was:

What are the ICTs manipulative competencies required by OTM lecturers for effective instructional delivery in the 21<sup>st</sup> century in public tertiary institutions in Niger States, Nigeria?

### **Research Hypothesis**

The hypothesis generated from the research question was:

**H<sub>0</sub>:** There is no significant difference in the mean ratings of male and female OTM lecturers in the ICTs manipulative competencies required in OTM for effective instructional delivery in the 21<sup>st</sup> century in public tertiary institutions in Niger States, Nigeria.

### **Methodology**

In this study, survey research design method was used. Thirty-five (35) OTM lecturers, from four (4) identified government-owned tertiary institutions (Federal and State Polytechnics, and Federal and State Colleges of Education) were surveyed in Niger State. The study was based on the thirty-five (35) questionnaires that were retrieved after administration due to the small sample size of the respondents. A four-point Likert questionnaire scale titled “ICT Competencies Required” (ICTCR) was used to collect the data: Fairly Required FR (1), Moderately Required MR (2), Very Required VR (3), and Highly Required HR (4) There were two sections to the ICTCR instrument: The demographic profiles of the respondents were examined in Section A, and the ICT manipulative skills that OTM lecturers needed to effectively deliver instruction were examined in Section B. The instruments were validated by two research experts from the department of vocational and technical education, Kwara State University, Malete, and the highlighted corrections were made for relevance, suitability, and clarity. Twelve (12) OTM lecturers from Kwara State College of Education, Ilorin and Kwara State Polytechnic, outside the study area, participated in a pilot test. The Cronbach Alpha was used to obtain a reliability coefficient of 0.86, indicating that the instrument was highly reliable.

The instrument was administered in each of the public tertiary institution by the three researchers, to facilitate quick and efficient data collection. The Mean and Standard Deviation were used to answer the research question, and t-test at significance level of 0.05 was used to test the hypothesis formulated for the study. A Mean of 2.5 and above was deemed adequate, while that of less than 2.5 was deemed highly inadequate. The null hypothesis was accepted when the significance of F was greater than or equal to 0.05, and was rejected when F was less than 0.05.

### Results

**Research Question:** What are the ICTs manipulative competencies required in OTM for effective instructional delivery in the 21<sup>st</sup> century in public tertiary institutions in Niger States, Nigeria?

Table 1

*Mean Ratings of the ICTs Manipulative Competencies Required*

S/N	Statements	X	SD	Remark
1	Connecting all of the computer's hardware, such as the UPS, speakers, mouse, scanner, and printer, among others effectively.	3.20	0.48	Required
2	Making use of input tools like a keyboard, joystick, mouse, and scanner, for example to start the computer systems, input data, navigate them, and shut them down.	3.47	0.56	Required
3	Utilizing output devices for document printing, projecting, and pre-viewing. Printers, projectors, and so on)	3.48	0.49	Required
4	Making electronic videos, slides, and overheads for use in electronic presentations and teaching.	2.69	0.62	Required
5	Utilizing security guards and anti-virus software to safeguard documents and files.	2.95	0.66	Required
6	Using search engines and website browsers to browse, download, and upload information online.	3.45	0.71	Required
7	Making use of desktop publishing software to create documents like textbooks, lecture materials, and more.	2.50	0.44	Required
8	Preserving and sharing documents using secondary storage options like CDs, flash drives, and floppy diskettes.	3.23	0.43	Required
9	Using all kinds of projectors and digital cameras effectively to improve presentation and lecture delivery.	2.82	0.51	Required
10	Using a variety of software, including MS Word, Excel, CorelDraw, and others to create and process worksheets, graphics, and data.	3.53	0.62	Required
<b>Grand Mean</b>		<b>3.13</b>	<b>0.51</b>	<b>Required</b>

**Source: Field Study 2022**

According to the grand Mean of Table 1, all of the items in the manipulative competencies cluster must be taught by OTM instructors in Niger States public tertiary institutions. It was determined that connecting all of the

computer's hardware, such as the UPS, speakers, mouse, scanner, and printer, among others effectively (3.48) and utilizing security guards and anti-virus software to safeguard documents and files. (3.45) are necessary for effective teaching. On the other hand, the ability to manipulate documents by using output devices (such as monitors, projectors, and printers) for pre-viewing, projecting, and printing 3.53) was deemed very important for efficient teaching. With a standard deviation of 0.560, the ability to install and use anti-virus and security guard software to safeguard files and documents appears to be the most essential manipulative competencies for OTM instructors to possess in order to teach effectively.

### Test of Hypothesis

The results of the test of the hypothesis were interpreted thus:

**H<sub>0</sub>:** There is no significant difference in the mean ratings of male and female OTM lecturers in the ICTs manipulative competencies required in OTM for effective instructional delivery in public tertiary institutions in Niger State.

Table 2

#### *T-test Statistics*

Variable	N	X	SD	Df	Std. Error	t-Critical	t-cal	Sig	Remark
Male	29	3.54	0.61	34	0.052	0.48	1.96	0.05	Accepted
Female	6	3.50	0.66						

**Source: Field Study 2022**

The data presented on the t-test statistics in Table 4 above revealed that the t-calculated (t-cal) value of 0.48 is greater than the t-critical (t-tab) value of 1.96 at 34 degrees of freedom. This indicated that there was no significant ( $p < 0.05$ ) difference in the mean ratings of Business education male and female lecturers on the ICTs manipulative competencies required in OTM for effective instructional delivery in public tertiary institutions in Niger State. The null hypothesis of no significant ( $p < 0.05$ ) difference in the mean ratings of the responses of male and female lecturers is therefore accepted on hypothesis. From the analyses of the research questions, it was discovered that manipulative competencies include connecting all computer system hardware; enhancing the delivery of lectures and presentations by utilizing a variety of projectors and digital cameras; For effective teaching in public tertiary institutions in Niger States, Nigeria, OTM lecturers are required to install and use anti-virus and security guards software, among other things, to secure and protect documents. The gender differences in the mean responses of male and female OTM lecturers regarding the ICTs manipulative competencies required in OTM in the 21st century for effective instructional delivery in public tertiary institutions in Niger States, Nigeria, were also not significant, according to the one-way analysis of variance on mean ratings for ICTs manipulative competencies, therefore, the null hypothesis was accepted.

### **Discussion**

It is possible to deduce from the study's findings that OTM lecturers, regardless of gender or type of institution they work for, must possess a number of ICT manipulative competencies in order to effectively deliver instructions to (Ugwoke's, 2018). Therefore, OTM instructors must be able to effectively connect all types of computer hardware, including UPS, loudspeakers, mice, scanners, and printers, as well as input data using a variety of input devices, including keyboards, joysticks, scanners, and so on. Additionally, they should be able to use a variety of application software to navigate the computer systems (MS Word, Excel, Corel Draw, etc.). To create and process data in any form, including words, worksheets, and graphics, according to Mumuni and Sam (2018).

OTM lecturers need to be able to use desktop publishing software to create lecture materials and store those materials on secondary storage devices like CDs and flash drives. In support of this, Perron et al. (2017), they must be able to install and use anti-virus and security guard software to safeguard their documents and files. Coyle (2009) concurred with the findings that, in order to improve lecture delivery and presentations, OTM lecturers need to be able to operate a variety of projectors and digital cameras in order to produce videos, electronic slides, and overheads. Perron et al. (2017) argue that students should be able to use search engines and website browsers to browse, download, and upload information for educational research, which would make teaching more interesting and effective.

### **Conclusion**

The study has shed light on the significance of ICT in education, which cannot be overstated. It is imperative that ICT be fully integrated into all facets of our educational system, particularly the teaching and learning process. This would significantly raise the quality of education by producing increasingly positive output. As a result, lecturers in office technology management (OTM), who focus more on office technology and management, require the highest level of proficiency in ICT (information and communication technology) manipulation. As a result, it is essential for them to continuously upgrade their knowledge and abilities in this area in order to ensure that their instruction is effective. This effectiveness can only be measured by how well their students use ICT tools while they are still in school and when they enter the workforce.

### **Recommendations**

This study's findings are supported by the following recommendations:

- i. OTM lecturers should receive ongoing on-the-job training, particularly on how to operate information and communication technologies and how to use them for effective classroom instruction in the 21st century.
- ii. The OTM instructors ought to constantly engage in ICT-based instruction, which would make it easier to produce graduates who are ICT-baked and relevant for today's ICT-compliant 21st century workplace.

- iii. As nearly all of them acknowledged, ICT manipulative skills are essential for effective instructional delivery and the development of appropriate modern office technological skills and attitudes in students at that level. Therefore, OTM lecturers should ensure that ICT manipulative skills are used throughout the teaching and learning process.
- iv. In order to properly prepare students for active roles in the office of the 21st century, the relevant regulatory bodies—NCCE, NBTE, and NUC—should add more ICT manipulative activities to the OTM curriculum.
- v. In order to enable the efficient ICT-based interpretation of OTM courses in the twenty-first century, the government ought to maintain its investment in education by providing the ICT facilities and tools required.
- vi. By providing dependable power sources to guarantee an uninterrupted power supply, the government should also create a technologically advanced environment for the utilization of the available ICT facilities and equipment.

### References

- Amoor, S. S. (2018): Analysis of the exposure of secretarial students in Nigerian universities to modern office technology and information systems. *Journal of Business Educational Research and Development*, 1(2), 82-90.
- Amoor S. S., & Magaji Z. B. (2015). The place of secretarial education in tertiary institutions in Kaduna State, Nigeria, for future office 2020. *Global Journal of Science Frontier Research*, 15 (Issue No 2). Global Journals Inc. USA: Print ISSN: 0975-5896
- Azemikhah, H. (2018). *The 21st century, the competency era and competency theory*. Open Learning Institute of TAFE. <http://www.avetra.org.au/ABSTRACTS2006/PA%200058.pdf>.
- Batagarawah, A. I. & Lope Pihie, Z. (2017). Relationship between office competence and job satisfaction among administrative support personnel. *International Journal of Research, Humanities, Arts and Literature*, 2(12), 17-24.
- Coyle, H. (2009) Availability and utilization of instructional materials for effective teaching of fish production to students in senior secondary schools in Benue State, Nigeria. *African Journal of Agricultural Research*, 8(49), 660-667.
- Commission on Information and Communication Technology (2011). *National ICT competency standard for teachers in Nigeria*. [www.ncc.gov.ph/nics/files/Nics-Teachers](http://www.ncc.gov.ph/nics/files/Nics-Teachers)
- Ezenwafor, J. I. (2017). *Adequacy of exposure to information and communication technology by graduating business education students of tertiary institutions in Anambra State*. A paper presented at the 23rd National and 2<sup>nd</sup> International Conference of Association of Business Educators of Nigeria held at the University of Lagos on the 11th – 15th October, 2011.
- Federal Republic of Nigeria (2014). *National policy on education* (6th ed.). Lagos: NERDC Press.



- Green, H. (2016). Academic dissatisfaction, managerial change and neo-liberalism. *Higher Education*, 64(1), 41-58.
- Mumuni I. A. & Sam A. H. (2014). Modern office technology and the performance of the professional secretary in contemporary organizations Ghana. *Journal of Information and Knowledge Management*, 3(4), 56-59, ISSN 2224-5758
- National Board for Technical Education (2011). *Directory of accredited programmes in polytechnics, similar tertiary institutions, technical colleges and vocational enterprise institutions in Nigeria*. Kaduna: Federal Government Press
- Ndubuisi, I. S (2021). Adequacy of educational resources for enhancing skill acquisition among business education students for job creation in tertiary institutions in Anambra State. *Nigerian Journal of Business Education (NIGJBED)* Volume 8 No.1 40-50
- Nwabuona, E. (2017). Office technology and management: Some issues and solutions. *The Scribe*. Federal Polytechnic, Oko.
- Ololube, N. P. (2017). The impact of professional and non-professional teachers' ICT competencies in secondary schools in Nigeria. *Journal of Information and Technology Impact*, 6(2), 101-118
- Perron, Taylor, Glass, Margerum-Leys (2017). Information and communications technologies. *Journal of Advances in Social Work*, 1 (1), 67-81
- Ugwoke, E. O. (2018). Effective utilization of ICT for repositioning business education programme in tertiary institutions in Nigeria for national development. *International Journal of Educational Research*, 11 (1), 20-214.
- Utoware, D. A., & Amiaya, A. O. (2016). Impact of new technologies on tertiary business education curricula. *Educational Research International*, 3(1) 44-48, ISSN: 2307-3721