# INTERACTIVE TECHNOLOGY COMPETENCIES REQUIRED BY TEACHERS OF OFFICE TECHNOLOGY AND MANAGEMENT FOR IMPROVED SECRETARIAL OUTCOMES IN POLYTECHNICS IN NORTH-CENTRAL NIGERIA

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## Abstract

*Adaptation to new methodologies in education demands that teachers adequately possess relevant new technology competencies for teaching. It is against this backdrop that this study determined the interactive technology competencies required by teachers of office technology and management for teaching in Polytechnics in North central Nigeria. One research question guided the study and the hypothesis of no significant difference was tested using the independent t-test at 0.05 level of significance. Descriptive survey design was adopted. The population of the study which was also adopted as the sample consisted of 85 teachers of office technology and management (OTM) drawn from Polytechnics in North central Nigeria. The main instrument for data collection was a four point rating scale questionnaire with 15 items. The data collected were analysed using mean and standard deviation to answer the research questions and determine the homogeneity or otherwise of the respondents while the independent t-test was used to test the hypothesis. The findings revealed that OTM teachers required competencies in the use of interactive multimedia and presentation application and web 2.0 tools for teaching in Polytechnics. The study further revealed that there was no significant difference between the mean response of experienced and less experienced teachers of OTM on the interactive technology competencies needed for teaching in Polytechnics ($t^{80} = 0.251, P>0.05$). It was concluded that the possession of interactive technology competencies by OTM teacher will make for greater efficiency and effectiveness in their performance. Based on the findings and conclusion of the study, it was recommended among others that Polytechnic authorities should take the issue of teacher development and re-training with all the seriousness it deserves by organizing workshops, seminars, conference and in-service training for teachers.*

***Key words:*** *Interactive technology; Competency; Secretarial outcomes.*

## Introduction

Attention is being shifted globally to the new trends in teaching and learning with the advent of new technologies. This has added additional responsibilities on the part of teachers and students of OTM, particularly in the acquisition of relevant competencies for teaching and learning in order to make OTM graduates acquire saleable and marketable skills needed for the world of work.



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Interactivity is the most perceived advantage of new technologies in terms of their support for teaching (Kennewell, 2015). Beauchamp and Kennewell (2010) define interactivity as the ability to respond contingently to learner's actions. In order to enhance the interactivity of classroom activities, technology needs to provide interactive affordances, which can be implemented to support interactive teaching strategies and to create pedagogical opportunities. Interactive technology therefore is any technology that digitally facilitates interaction between people and allows for user content creation and manipulation (Vaterlaus, 2018). It is any form of technology that allows the users to interact with it and/or other users by opening up a whole new realm of possibilities in communications, manipulation of images and exploration. Hobbs (2010) opines that teacher-students' interaction can be facilitated by interactive digital media. Interactive media refers to products and services on digital-computer based systems which respond to the user's actions by presenting content such as text, moving image, animation, video, audio and video games. Borup and Graham (2013) view interactive media as the integration of digital media including combination of electronic text, graphics, moving images, and sound into a structured digital computerized environment that allows people to interact with the data for appropriate purposes. The digital environment can include the internet, telecoms and interactive digital television.

Agbatogun (2016) in Adeola (2017) observes that the last two decades have witnessed a proliferation of interactive technology tools in the education landscape, especially in developed countries. The use of tools such as the interactive white board, web 2.0 technologies, individual response pads, interactive multimedia, interactive forms, on-line survey tools, collaborative editing software, Instant messaging/chat room, multimedia projectors etc. are becoming popular. As a matter of fact, the rapid change that interactive digital technology is bringing to teaching and learning is almost un- believable because the learning scenario is imperceptible like never before. Beyond the 21st century, the tendency to stop the avalanche of change seems invisible.

The traditional methods of teaching (lecture, explanation, exercise, etc.) are certainly important for professional development. However, *Bada, and Adekomi (2014)* observe that their limitations are felt even more acutely at present when a complex phenomenon such as competence is formed. This therefore informs the need for modern methods which should focus on the student's independent activity. Interactive technology encourages interest in the profession; promote the efficient acquisition of training materials; form patterns of conduct; provide high motivation, strength, knowledge, team spirit and freedom of expression; and most importantly, contribute to the complex competences of future specialists (Dick &Burrill, 2016).




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Certain factors play a major role on how interactive technologies are used in educational settings. Nwokocha and Onwuchekwa (2014) opine that the most common factors that impact on the use of interactive technologies for teaching include: school culture, teacher training, time to practice and prepare materials, teacher confidence and technical support. Others include classroom setup and quality of equipment. The overall objective of having interactive technology in the classroom is to make learning process more encompassing. Umoru (2012) observes that the use of ICTs in teaching-learning process allows the student as well as the teacher to overcome the time and space constraints which are present in traditional teaching.

The design of the office technology and management (OTM) programme components according to Baba and Akarahu (2012) appears to be in response to global initiative with an objective that portends new direction in favour of new technologies for teaching OTM. According to Ezeahurukwe and Ameh (2017), OTM is an efficient, effective, productive and functional education which lends itself to self-employment, self-reliance, paid employment and consequently self-actualization. It focuses on combining office information technical skills with adequate and relevant business knowledge in solving organisation wide problems.

This brings to the fore the issue of secretarial outcomes. Chibuike (2013) reports that due to certain impediments and inadequacies that have plagued the process of skill acquisition in the secretarial profession, the level of practical skills acquired by the students, compared with the demands of the labour market and technological development is nothing to boast about. This therefore informs the need for the acquisition of relevant competencies in new technology by OTM teachers which will help engender the much cherished skill-related outcomes in the graduates.

Arikwandu, Okoro and Ozoemenam (2016) view competency as the capability of applying or using knowledge, skills, abilities, personal characteristics to successfully perform critical work task, specific functions or operate in a given role or position. Effective teaching of OTM in any learning environment requires demonstration of various competencies which invariably enable students to learn by improving their knowledge, skills, attitudes and values. Office technology and management teachers in Polytechnics have it as their obligation to be knowledgeable and confident of their ability to use interactive technologies for effective and efficient instructional delivery. However, Okoli and Wagbara (2016) report that many of the teachers lack knowledge and skills to use new technologies and in addition are not enthusiastic about the changes due to inadequate training to meet up with technological flux.

There is also the fear of the unknown which leads to resistant




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behavior (Chukwumerije, 2012). Umoru (2015) opines that in Nigeria, many business education teachers lack competence in new technology application as a result of which they face their work with fear and trepidation. Similarly, Omeje (2009) observes that although business teachers have been sensitized especially to acquire skills in new technologies, the skills acquired by most of them fall short of what is required to be able to utilize new technologies in teaching. This explains why, in some Polytechnics, ICT based courses with OTM course codes which require office styles of production and application are being taught by computer science lecturers with no real office experience. This situation has been attributed to inadequate curriculum content for the training of business teachers in new technologies, irregular training and retraining of business teachers on the use of new technologies (especially those who were trained with obsolete equipment) and resistance to change by some business teachers (Adegbanjo, 2014). Similarly, Nwosu and Mbaezue (2016) confirm that there is dearth of OTM teachers with adequate skills in new technologies with
the result that non-specialists are often called upon to teach OTM courses.

The issue now is how many of the teachers of OTM are competent enough to use the available new technologies and become receptive to change by knowing the strengths and limitations of these technologies? How many of these teachers understand what can and cannot be achieved with new technologies to allow the realization of its maximum potentials?

The problem of this study therefore is to examine the interactive technology competencies required by OTM teachers for improved secretarial outcomes in Polytechnics in North-central Nigeria. This is in view of the seeming ineffectiveness of OTM teachers in teaching using interactive technologies with the inevitable consequences of professional obsolesce on the part of the teachers, increase graduate unemployment, poverty and youth restiveness.

## Research Question

What are the interactive technology competencies required by teachers of office technology and management for improved secretarial outcomes in Polytechnics in North-central Nigeria?

## Research Hypothesis

There is no significant difference in the mean response of experienced and less experienced teachers on the interactive technology competencies required by teachers of Office Technology and Management for teaching in Polytechnics in North-central Nigeria.




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## Methods

The study used the descriptive survey design with 85 office technology and management teachers drawn from eight accredited public Polytechnics in the six states of the North-central Nigeria. These Polytechnics include: Benue State Polytechnic, Ugbokolo; Federal Polytechnic, Idah; Kogi State Polytechnic, Lokoja; Federal Polytechnic, Offa; Kwara State Polytechnic, Ilorin; Federal Polytechnic, Nassarawa; Federal Polytechnic, Bida; and Plateau State Polytechnic, BarkinLadi. The entire study population was used for the study since the population was not too large. There was therefore no sampling. The instrument used was the Interactive Technology Competencies Required by Office Technology and Management Teachers Questionnaire (ITCROTMTQ). The questionnaire consisted of 15 items based on the purpose of the study and the research question. The instrument was validated by one Senior lecturer in the Department of Business Education, Kwara State University Malete and one Chief lecturer in the Department of Office Technology and Management, Federal Polytechnic, Bauchi. A pilot study was conducted at the Federal Polytechnic, Bauchi, in order to establish the reliability of the instrument. Cronbach Alpha was used to determine the reliability of the instrument which yielded a reliability coefficient of 0.79. Each of the items was assigned four response options of Highly Required (HR-4 points), Moderately Required (MR-3 points), Slightly Required (SR-2 points) and Not Required (NR-1 point). The data collected were analysed using the mean and standard deviation. The mean was used to answer the research questions while the standard deviation was used to determine the closeness or otherwise of the responses from the mean. Positive decision rule for this study was established at a mean of 2.50 and above while any mean less than that was regarded as negative. The null hypothesis stated was tested using the t-test at 0.05 level of significance. Hypothesis of no significant difference was accepted when the observed probability value was greater than or equal to 0.05 level of significance. Where the calculated probability value was less than 0.05 level of significance, the null hypothesis was
rejected.

## Results

**Research Question :** What are the interactive technology competencies required by OTM teachers for teaching in Polytechnics in North-Central Nigeria?

**Table 1:** Mean and standard deviation of responses on the interactive technology competencies required by OTM teachers for teaching in Polytechnics




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| S/N | Item Statements | X | SD | Remark |
|---|---|---|---|---|
| 1. | Ability to use nteractive white boards or electronic board for teaching | 3.40 | .52 | oderately equired |
| 2. | Ability to use interactive forms on the web to create feedback or ask questions | 3.44 | .57 | oderately Required |
| 3. | Ability to organize videoconferencing r Internet phone chat (Skype, Team Speak, etc.) | 3.09 | .67 | oderately Required |
| 4. | Ability to use interactive on line survey tools (Survey Monkey, Zoomerang, etc.) | 3.21 | .58 | oderately equired |
| 5. | Ability to use tudent response systems (clickers, wireless learning calculator systems, etc.) | 3.16 | .46 | oderately Required |
| 6. | Ability to use instant messaging/chat room for content delivery | 3.07 | .44 | oderately equired |
| 7. | Ability to use nteractive multimedia and presentation application for teaching | 3.76 | .51 | ighly Required |
| 8. | Ability to use simulations, or virtual worlds (Ayiti, EleMental, Second Life, Civilization, etc.) | 3.28 | .85 | oderately equired |
| 9. | Ability to use interactive collaborative editing software (Wikis, Google Docs, etc.) | 3.29 | 0.56 | Moderately equired |
| 0. | Ability to use on line student video projects (using YouTube, Google Video, etc.) | 3.10 | .71 | oderately Required |
| 1. | Abil ity to use Web 2.0 tools to interact and collaborate for teaching and learning purposes. | 3.54 | .50 | ighly equired |
| 12. | Ability to use interactive E-book | 3.30 | 0.46 | Moderately equired |
| 3. | Ability to use educational cloud services to store, manage and process data | 3.32 | .59 | oderately equired |
| 14. | Ability to use audience response pads | 3.28 | 0.59 | Moderately equired |
| 5. | Ability to create online interactive audio and video instructions | 3.43 | .50 | oderately Required |
| | **Weighted average** | **3.31** | **.57** | **oderately Required** |

Table 1 above showed the responses of OTM teachers in Polytechnics in North- Central Nigeria on the interactive technology competencies required for teaching. The result revealed that all the competency items outline were required for teaching by OTM teachers with a weighted mean of 3.31. However, ability to use interactive multimedia and

presentation application for teaching and ability to use Web 2.0 tools to interact and collaborate for teaching and learning purposes were considered to be highly needed with mean ratings of 3.76 and 3.54 respectively. The close range of the standard deviations showed that the respondents were not very far from each other in their responses.

## Research Hypothesis

There is no significant difference in the mean response of experienced and less experienced teachers on the interactive technology competencies required by teachers of Office Technology and Management for teaching in Polytechnics in North-central Nigeria.

**Table 2:** Summary of t-test of the difference between the mean responses of experienced and less experienced teachers of OTM on the interactive technology competencies required for teaching in Polytechnics

| Group | N | Mean | SD | t-cal | Df | p-value | Decision |
|---|---|---|---|---|---|---|---|
| xperienced Teachers | 44 | 3.32 | 0.22 | | | | |
| | | | | 0.251 | 80 | 0.802 | Not Rejected |
| Less Experienced Teachers | 38 | 3.30 | 0.33 | | | | |

*P > 0.05*

The data in Table 2 revealed that there are 44 experienced OTM teachers and 38 less experienced OTM teachers. The experienced and less experienced teachers' responses showed that interactive technology competencies are required by OTM teachers for teaching in Polytechnics ( = 3.32; SD = 0.26) and ( = 3.30; SD = 0.33). Their responses are close to the mean as the standard deviations are very low. The table revealed that there was no significant difference between the mean response of experienced and less experienced teachers of OTM
on the interactive technology competencies needed for teaching in Polytechnics$^{80 = 0.251,}$ (t
P>0.05). Therefore, the null hypothesis was not rejected. This implied that experienced and less experienced OTM teachers did not differ in their responses regarding the interactive technology competencies needed for teaching in Polytechnics. Though there was a slight difference between their mean responses with experienced teachers having higher mean
responses, but the difference was not statistically significant (mean difference = 0.02).

## Discussion of Findings

The study revealed that OTM teachers highly required the ability to use interactive multimedia and presentation application in teaching and the ability to use Web 2.0 tools to interact and collaborate for teaching and learning purposes. The study revealed that OTM teachers required competencies in the use of interactive forms, electronic boards, interactive collaborative editing software, interactive survey tools and simulations. Also the study showed that ability to use student response systems, online student video, organize video conferencing and use instant messaging for content delivery were moderately required by OTM teachers for teaching in Polytechnics. The findings further revealed that there was no
significant difference between the mean response of experienced and less experienced



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teachers of OTM on the interactive technology competencies required for teaching in Polytechnics ($t_{80} = 0.251$, $P>0.05$).

This finding corroborates that of Adeola (2017) who opines that the last two decades witnessed a proliferation of interactive technology tools in the education landscape. The use of tools such as the interactive white board, web 2.0 technologies, individual response pads, interactive multimedia, interactive forms, on-line survey tools, collaborative editing software, Instant messaging/chat room, multimedi **a projectors** etc. are becoming popular (Borup & Graham, 2013). As a matter of fact, the rapid change that interactive digital technology is bringing to teaching and learning is almost un-believable because the learning scenario is imperceptible like never before and the acquisition of interactive technology competencies by teachers is inevitable.

**Conclusion**

Based on the findings of the study, it was concluded that the need for OTM teachers to acquire relevant competencies in the use of interactive technologies cannot be over emphasized. Since the responsibility of the teacher in any circumstance is the education of the student, then the teacher should possess the best type of competence necessary for the realization of the objectives of the programme. If in any case the teacher is lacking in the relevant competencies, then the ingenuity, agility, competence and skills of secretarial students that are crucial to their success and competitiveness would be compromised. This clearly indicates that the OTM programme would be producing graduates who would not be able to function effectively in the 21st century world of work and who cannot contribute anything meaningful to the development of an economy driven by technological innovativeness.

**Recommendations**

Based on the findings and conclusion of the study, the following recommendations were made:

1. Polytechnic authorities should take the issue of teacher development and re-training with all the seriousness it deserves by organizing workshops, seminars, conference and in-service training. The authorities should also ensure that the identified interactive technology competencies are integrated into the programme for effective use in the teaching and learning process. Teachers who are still deficient in the use of the identified interactive technology competencies should also make personal efforts to update themselves in order to be more effective and efficient in teaching using interactive technologies.
2. The National Board for Technical Education (NBTE) should ensure that the OTM curriculum is regularly reviewed, revised and adjusted with inputs from the academia and industry to reflect the identified new technology competencies. This




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is in view of the fact that the competencies keep changing. The curriculum for teacher training at all levels should also be reviewed to incorporate the identified new technology competencies.

3. Management of Polytechnics should ensure that the minimum standards prescribed by the NBTE in terms of equipment, infrastructure, personnel etc. are adequately provided for. OTM teachers and other stakeholder in the Polytechnic should not compromise but insist that the minimum standards are rigidly adhered to. NBTE on its part should come up with a strategy of having unscheduled and unannounced visits to Polytechnics to ensure that no Polytechnic operate below the minimum standard.

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