

**TRAINING ACCOUNTANTS IN DEVELOPING COUNTRIES:  
THE RELEVANCE OF INFORMATION AND  
COMMUNICATION TECHNOLOGY**

**GODSON OKWUCHUKWU OKAFOR**

Department of Mass Communication  
Nnamdi Azikiwe University, Awka, Nigeria

&

**OKENWA CY OGBODO**

Department of Accountancy  
Nnamdi Azikiwe University, Awka, Nigeria

***Abstract***

*This study examines the relevance of Information and Communication Technology (ICT) in accounting education in Nigeria and how this has impacted on the overall performance of the accounting profession in the Country. The paper adopted the Survey method. Data generated were analyzed using Means, Standard Deviation and Weighted Value and the three hypotheses formulated were tested using the Pearson Product Movement Correlation Co-efficient and Z-test statistical techniques. Findings reveal a positive relationship between application of ICT in accounting education and performance of accounting students in Nigerian Universities; a positive relationship between acquisition of ICT knowledge and performance of accountants in Nigeria. The study therefore recommends that Nigerian professional accounting organizations should compulsorily include ICT knowledge as major criteria for the registration, certification and re-certification of accounting professionals, as well as mandate the compulsory integration of requisite ICT in the training of accountants in Nigeria.*

**Keywords:** *Information and Communication Technology (ICT) Education, Accounting Practices, Accounting Professionals, Professional Skills, ICT knowledge.*

## **INTRODUCTION**

There are emerging concerns in Nigeria as to how the accounting profession should evolve in order to better satisfy the need for professional development and the demands of society in general. It has become fundamentally necessary for accounting educators to pursue and assess the nature, extent and direction of accounting research, as well as the current quality of teaching and practice in the accounting profession. Ruche (2007) explains that despite recent advances in the study and knowledge of the accounting profession, there has been very little research along these lines in developing countries. This is in part because of the relative young age of the accounting profession in these countries. However, if accounting research in Nigeria has lagged behind western practices, this paper seeks to identify what Nigerian accountants, educators, researchers, accounting regulatory bodies and the governments can do to develop an accounting education system that can contribute maximally to Nigeria's quest for economic breakthrough. (Muhammed & Suleiman 2010).

Information and Communication Technology (ICT) is seen as a key tool in acquiring, processing and disseminating knowledge (Adedoyin, Akinnuwesi & Adegoke 2008). It offers increasing possibilities for codification of knowledge about teaching activities through being able to deliver learning cognitive activities anywhere, anytime (Larsen & Vincent-

Lancrin 2005). Yusuf (2005a) notes that ICT has impacted on the quality and quantity of teaching, learning and research in traditional and distance education institutions through provision of dynamic, interactive and engaging content and providing real opportunities for individualized instruction. It has the potential to accelerate, enrich and deepen skills, motivate and engage students in learning; help to relate school experiences to work practices, contribute to radical changes in schools and provide opportunities for connection between the school and the real world (Davis & Tearle 1999, Lemke & Coughlin 1998).

Other studies have also argued that ICT have the potential to transform the learning environments and improve the quality of learning (Siemens 2005), by making learning more situated (Bransford et al. 1999), providing access to richer environment (Caplan 2005), increasing opportunities for active learning, interconnectivity and feedback (Launllard 2002, Jonassen et al 2003), enhancing motivation to learn (Abrami,2001), offering varieties of new possibilities to learners (Breuleux et al. 2002) and having a positive effect on students' achievement in different subject areas (Chambers 2003). ICT can therefore make the school more efficient and productive thereby engendering a variety of tools to enhance and facilitate professional activities (Kirschner & Woperies 2003).

On the other hand, various studies conducted with the accounting system in Nigeria have shown clearly that there is low academic achievement among pupils in such basic skills

as literacy, numeracy and life skills (Lawal, 1995; Aderinoye 2002, AFE, 2006). However, there are proposals on how ICT can be deployed for effective acquisition of these skills (Haddad, 2002; Salawu, 2008). Historically, there has been weak interaction between the academic group and professional group within the accounting profession. Everett (2002) notes that the two sets of players occupy a field where they “attempt to usurp, exclude and establish monopoly over the field’s reproduction and type of power effective in it. The professional group uses a series of strategies to ensure “the reproduction of social inequality” (Bourdieu & Passeron, 1990) in spite of the academic group’s adherence to meritocracy and equity. This however, has contributed negatively to the development of the accounting profession worldwide. It becomes necessary, not only to trace the development of our own accounting education system, but also to verify whether we are developing and evaluating methods that test accounting concepts, practices and theories. In addition, it is important to look at obtaining knowledge for practical purposes that can solve accounting problems and how these can contribute maximally to effective performance and development of accounting skills among emerging accounting professionals in Nigeria.

Furthermore, there is also the need to determine why many accounting organizations have failed to integrate information and communication technology into their operations, as well as why most Nigerian accountants do not use information and communication technology facilities in their professional practice regardless of the fact that there is no evidence that

the use of manual or traditional work system has improved their efficiency and effectiveness. This study hopes to provide insights into these concerns. The broad objective of this paper therefore is to assess the benefits of the inclusion of requisite ICT skills in the training of accountants in developing countries, specifically Nigeria; and how this will impact on the performance of accounting professionals and practices in general.

The study therefore intends to achieve the following specifics;

- 1. Determine the relationship between the application of ICT knowledge in accounting practices and performance of accountants in Nigeria.*
- 2. Ascertain the contribution of ICT in facilitating accounting practices among accounting professionals in Nigeria.*

### **Theoretical Issues on Accounting Profession**

ICT is an important tool for educational reform and can be utilized as a knob for organizational change, as a vehicle to introduce new teaching and learning practices and/or as an enabler of restructuring of the educational system. ICT can also help in anti-corruption efforts in the education sector. It has enabled learning through multiple intelligence as it has introduced learning using simulation games, which enables active learning through all the senses (Anonymous, 2011). The purchase of computers, for example, provides a useful tangible symbol of a commitment to invest in change which can potentially provide important vehicle to help bring about desired reforms.

Blurton (2002) defines ICT as a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information. These technologies include computers, the Internet, broadcasting technologies (radio and television) and telephony. ICTs in education deal with the use of Information and Communication Technologies (ICTs) within educational technology. This includes e-learning, blended-learning and open and distance learning.

E-learning, according to Tinio (2002), encompasses learning at all levels, both formal and informal, that uses an information network – the Internet, an intranet (LAN) or extranet (WAN) – whether wholly or in part, for course delivery, interaction and/or facilitation. It is also referred to as online learning. Web-based learning is a sub-set of e-learning. It refers to learning using an Internet browser (such as Netscape or Internet Explorer). Tinio (2002) defines blended learning as learning models that combine traditional classroom practice with e-learning solutions. It considers the subject matter, the learning objectives and outcomes, the characteristics of the learners and the learning context in order to arrive at the optimum mix of instructional and delivery models. For instance, students in a traditional class can be assigned both print-based and online materials; have online mentoring sessions with their teacher through chat and are subscribed to a class e-mail list. Or a Web-based training course that can be enhanced by periodic face-to-face instruction.

There exist different theories that explain the concept of professional development. For instance, functionalist theorists argue that professions can only emerge when a group of people are found to be practicing a definite technique based on specialized training (Greenwood, 1957). They are seen as coming together as a group in order to mutually guarantee their competence and maintain a high standard of professional character and honorable practice (Carr-Saunders, 1928).

Functionalists see the profession as an occupation, which is pursued largely for others and not merely for oneself (Barber, 1963). They emphasize the belief that professionals acquire the recognition of the society because of the specialized skills they possess and the close solidarity of its members (Halmos, 1970). These professions are not self-centered bodies and are seen to act in the interests of the general community (Marshall, 1939). Although some functionalists are aware of the complexity of social organizations and the possibility that the acquisition of skills may not be the only determining factor in deciding members of any given profession, they do not consider it an important factor (Ruche, 2007).

With time however, this view began to change and more scholars started assigning more weight to the complexity of social organizations and the possibility that competence and community service may not be the only explanatory variables for the emergence of professions. This is the origin of the “integrationist” theory of professions. People began to pay more attention to the process, rather than the product of professionalizing (Timperley and Osbaldeston, 1975). It is characteristic of the growth of specialties that early in their

development they carve out for themselves and proclaim unique missions. Uche (2007) explains that they issue a statement of the contribution that the specialty, and it alone, can make in a total scheme of values and, frequently, with it an argument to show why it is peculiarly fitted for this task. The statement of mission tends to take a rhetorical form, probably because it arises in the context of a battle for recognition and institutional status.

Based on such assertions, more scholars started to move from a normative view of professions, i.e. what a profession should be, to a positive view of the professions i.e. what a profession actually is (Roth, 1974). Integrationists thus argue that professions mainly strive to protect their group interests, which sometimes conflict with the interest of the wider society. The only way such groups could gain legitimacy is by convincing the wider society that they could offer some kind of special skill[s] (Boreham, 1983).

Some Integrationists have also challenged the claim of homogeneity within professions (Smith, 1958). Along these lines, it has been suggested by (Bucher and Strauss, 1961): that the assumption of relative homogeneity within the profession is not entirely useful: there are many identities, many values, and many interests...they tend to become patterned and shared; coalitions develop and flourish-and in opposition to some others.

Integrationists have, however, been criticized on the grounds that they are indifferent to evidence and proofs. Although their claims are usually plausible, it is not always that they are backed by empirical evidence (Saks, 1983). Furthermore, although interactions scholars acknowledge the entwinement

of politics in the professionalization process, they generally fail to explore the structural conditions under which various professional groups are liable to be successful (Willmott, 1986). In an attempt to enhance the understanding of the process and functioning of professions, some scholars have devised a more critical approach rooted in neo-weberian principles. Scholars of the neo-weberian mode attempt to apply the weberian concept of social closure to the development of professions. This notion of social closure broadly defines a situation where an interest group seeks to regulate market conditions in its favour by restricting access to specific opportunities to group members. This is usually done in the face of actual or potential competition from outsiders (Parkin, 1979).

In other words, it is a process by which social collectivities attempt to maximize their reward by restricting access to certain economic and social opportunities to members (Johnson, 1977). These neo-weberian scholars mainly focus on the various barriers that professions have erected in order to ensure social closure. Such barriers include examination, apprenticeship and entry qualification rules. Many neo-weberians have, however, been accused of failing to empirically substantiate their claims. Their studies therefore offer few improvements over those of the interactions (Ruche, 2007).

The structural conditions under which professionalization occur clearly require more stringent examination. Proponents of this school also have not taken enough care in ensuring that their account of the current nature and role of professions in society are empirically sustainable. Far too

often, therefore, what amount to thinly veiled attacks on professions and professionals have been presented without adequate supporting evidence (Saks, 1983). The relationship of the state and the profession is usually dynamic and complex. In some cases, laws have been put in place to bring the profession under the control of the state (Wallace, 1992), as in the Nigerian case. Such professions, thus, ultimately depend on the power of the state to protect their domain of expertise. (Larson, 1977).

Structural-functionalist approach was dominant in the literature until recently (Wilensky, 1964; Carey, 1969; Buckley and Buckley, 1974). Traditionalist accounting historians assert that developments in accounting can be and need to be explained by reference to changes in the economic environment. During the last quarter of this century a new search for the evolution of accounting profession has started, the central component of this venture has been the wresting of accounting from the purely technical towards the behavioural, social and contextual (Willmott, (1986); Kedslie (1990); Manicas (1993); Arrington and Francis (1993)). Many practitioners of the "new accounting history" would claim that their approach is to regard accounting as predominantly a cultural phenomenon rather than a technique or tool whose characteristics are neutral if not benign (Carnegie and Napier, 1996).

The accounting profession pre-Industrialization witnessed the use of double entry principle which origin was, though in doubt (Ballas, 1994; Previtas and Merino, 1998) but was specifically traced to accounting records in the ancient civilization of China, Greece and Egypt. The rulers of these

civilization used accounting to keep track of the cost of labour and materials used in building structures like great pyramids (Hongren and Horison; 1989). The development of the accounting profession continued on further information need of merchants in the city states of Italy during the 1400s where Luca Pacioli, a mathematician published the first known description of the double entry book-keeping in 1494. By the late seventeenth century double-entry book-keeping "seems to have become the centerpiece in the education of young men and women in the trading classes. A notion has been proposed that identifies the period roughly between 1500 and 1800 as one of little change from the methods found in Pacioli's treatise; that is, that it was a period of "accounting stagnation" (Winjun 1970). The issue of accounting stagnation needs to be separated from the importance of accounting during this time. Double-entry system had become important to the merchant and trader who had experienced the commercial expansion of the 1700s. Accounts were a useful adjunct to personal record-keeping and provided important information as commerce became more complex.

However, contemporary views of colonial accounting include the following: "accounting in 1760 was essentially what it was to Pacioli - a set of arithmetical techniques to assist the businessman to conduct his affairs in an orderly purposeful and well-informed fashion. There was no theory, and no deeply felt need for any; its only immediate use would have been to lighten the labour of mastering double entry in books or in school by substituting knowledge of principles for the hard grind of learning detailed rules by rote, and such

consideration for the student was a thing for the future" (Lee, 1995).

### **Empirical Studies**

Quite a number of studies have been carried out on the application of information and communication technology in accounting education in a developing nation like Nigeria. In a paper on "the prospects and challenges in accounting education" a case study of Nigerian tertiary institutions" by Babalola, 2012. The study examines the prospects and challenges in Accounting Education with the influence it requires to impact on the accounting profession. The survey method was employed to investigate the educational system at the higher institutions and professional levels in Nigeria. The paper concludes that the level of economic, social and political development of any country usually determines the accounting needs of that country.

In another study by Apulu and Latham, (2011) titled; "An Evaluation of the Impact of Information and Communication Technologies", the study emphasized that the implementation and effective use of ICT in organizations bring about competitive advantage. The study was however limited to only two case studies. Therefore, to further evaluate the impact of ICT implementation in organizations, studies involving more case studies would be useful. The case study revealed that investment in ICT needs only to be modest, as the availability of the internet and an accounts package greatly increases efficiency and aids competitive advantage. This study will be of benefit to entrepreneurs, policy makers, practitioners as well as researchers who are interested in ICT development

since the study attempted to identify the impact of ICT on organizations.

### RESEARCH DESIGN AND METHODOLOGY

This study was conducted using survey research design. The reason for this is that it involves investigation of opinion of large number of people and it involves inferences drawn from such investigation. The population for the study consists of selected accountants in Nigeria. The population of this study consist of 201.

### METHOD OF DATA ANALYSIS

Data collected for the study were analyzed using frequency counts and mean scores. The three research questions were answered hypothetically; the hypotheses were analyzed in the following order; Data relating to research question one, and two were analyzed to determine mean score ( $\bar{x}$ ). A mean score of three (3) and above was regarded as an accepted mean to test research questions. While a mean score of 2.99 and below was regarded as rejection to test the research questions. The first hypothesis was tested using the Pearson Product Movement Correlation Co-efficient and hypotheses two was tested with Z-test. The three null hypotheses were tested at 5% level of significance.

Using PPMC is represented below as:

$$r = \frac{\sqrt{n}\Sigma xy - \Sigma x \Sigma y}{\sqrt{n \Sigma x^2 - (\Sigma x)^2 (n \Sigma y^2 - (\Sigma y)^2)}}$$

To test for its significance we use:

$t = r \sqrt{\frac{n-2}{1-r^2}}$  Decision criteria, where  $t_c < t_x$ , accept  $H_0$ ,  
reject  $H_1$

Using z-test

$$z = \frac{\bar{x} - \mu}{\frac{\delta}{\sqrt{n}}}$$

Where  $\bar{x}$  = sample mean

$\mu$  = population mean

$\delta$  = standard deviation

$n$  = sample size.

Out of two hundred and one questionnaires distributed, one hundred and forty seven were completed and returned. This represents 73%.

### Presentation and Analysis Data

S/NO	Statements	SA	A	UN	SD	D	TOTA
1	There is a relationship between the application of ICT in accounting education and performance of accountants in Nigerian.	47 (235)	66 (264)	8 (24)	4 (8)	22 (22)	147 (558)
2	The application of ICT in	43 (215)	64 (256)	11 (33)	0 (0)	29 (29)	147 (533)

	accounting system helps accounting students in applying accounting techniques.						
3.	ICT will improve the academic performance of accounting professionals.	53 (265)	71 (284)	9 (27)	0 (0)	14 (14)	147 (590)
4.	Application of ICT in accounting education is a way to ensure effective learning process in/for accounting system in Nigeria.	61 (305)	79 (316)	2 (6)	0 (0)	5 (5)	147 (632)
5.	The application of ICT will provide a conducive environment for both in	50 (250)	68 (272)	9 (27)	9 (18)	11 (11)	147 (578)

	teaching and learning for accounting student.						
6.	More qualified accounting students can be produced from Nigerian Universities who adopt the use of ICT in accounting education.	49 (245)	74 (296)	0 (0)	4 (8)	20 (20)	147 (569)
7	The application of computerized accounting system will enable Professional accounting practices to grow significantly in Nigeria.	61 (305)	71 (284)	3 (9)	0 (0)	12 (12)	147 (610)
8	Computer skills of accountants, leads to	57 (285)	68 (272)	4 (12)	0 (0)	18 (18)	147 (587)

	development of computerized accounting information systems.						
9	ICTs have helped expand access to basic terminologies in accounting education.	46 (230)	80 (320)	0 (0)	1 (2)	20 (20)	147 (572)
10	The use of ICT in training accountants makes it easier, quicker and more secured way of tracking accounting packages for learners.	48 (240)	66 (264)	7 (21)	3 (6)	23 (23)	147 (554)
11	ICT can be used to trace omission, error or suspense accounts easily than manual method.	53 (265)	73 (292)	6 (18)	0 (0)	15 (15)	147 (590)

12	ICT has leads to Technological developments lead to changes in work which has necessitated changes in the organization of work and required competencies.	49 (225)	74 (192)	0 (0)	6 (12)	18 (18)	147 (571)
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Source: Field survey, 2014

**N/B:** Strongly Agree (SA); Agree (A); Undecided (UN); Strongly Disagree (SD); Disagree (D)

### **Test of Hypotheses**

#### **Hypothesis One**

Ho: There is no relationship between the application of ICT in accounting system and performance of accountants in Nigeria.

S/N	Questions	X	Y	xy	x <sup>2</sup>	y <sup>2</sup>
1	There is a relationship between the application of ICT in accounting education and performance of	113	26	2938	12769	676

	accounting students in Nigerian Universities.					
2	The application of ICT in accounting education helps accounting students in applying accounting techniques.	107	29	2782	11449	841
3	ICT will improve the academic performance of accounting students in universities.	124	14	1736	15376	196
4	Application of ICT in accounting education is a way to ensure effective learning process in/for accounting students in Nigerian Universities.	140	5	700	19600	25
5	The application of ICT will provide a conducive environment for the teaching and learning of accounting student.	118	20	2360	13924	400
6	More qualified accounting students can be produced from Nigerian universities who	123	24	2952	15129	576

	adopt the use of ICT in accounting education.					
Total		725	118	13468	88247	2714

Source: Field survey, 2014

$$r = \frac{6(13468) - (725)(118)}{\sqrt{[6(88247) - (725)^2][6(2714) - (118)^2]}}$$

$$= \frac{80808 - 85550}{\sqrt{(3857)(2360)}}$$

$$= \frac{-4742}{\sqrt{910252}}$$

$$r = -0.658$$

Test of Hypotheses using correlation coefficient r at level of significance.

$$t = \frac{-0.658}{\sqrt{\frac{6-2}{1+(-0.658)^2}}}$$

$$= \frac{-0.658}{\sqrt{\frac{4}{0.567036}}}$$

$$= \frac{-0.658}{\sqrt{7.05}}$$

$$t = -4.64$$

Decision: since the two calculated value is greater than the table (-4.64 > -2.132), we reject null hypotheses and uphold the alternative hypotheses which stated that there is a relationship between the application of ICT in accounting system and performance of accountants in Nigeria.

### Hypothesis Two

Ho: ICT does not contribute in facilitating accounting practice among accountants in Nigeria.

In testing this hypothesis, questions 7 to 12 in table 4.2.1 will be used.

$$\text{Population mean } (\mu) = \frac{3 \times 147 \times 6}{6} = 441$$

$$\text{Sample mean } (\bar{X}) = \frac{\sum x}{n} = \frac{3433}{6} = 572$$

$$\text{SD } (\delta) = \sqrt{\frac{\sum (x - \bar{x})^2}{n}} = \sqrt{\frac{5233}{6}} = \sqrt{872} = 29.53$$

$$z\text{-test} = \frac{\bar{x} - \mu}{\frac{\delta}{\sqrt{n}}} = \frac{572 - 441}{\frac{29.53}{\sqrt{6}}} = \frac{131}{12} = 10.92$$

**Decision Rule:** Since the table Z-value is less than the calculated Z-value ( $1.96 < 10.92$ ), we reject null hypothesis and uphold the alternative hypothesis which state that ICT contributes in facilitating accounting practice among accountants in Nigeria.

### Discussion of findings

- Based on the analysis and hypotheses tested, the study identified the followings; That there is a relationship between the application of ICT in accounting system and performance of accountants in Nigeria in the sense that it enhances the timely completion of accounting works. ICT contributes in facilitating accounting practice among accountants in Nigeria.

- The weaknesses in Nigerian accounting system can be explained by the quite low education level of teaching staff, if bachelor graduates can carry out teaching tasks due to the absence of enough postgraduate training. However, several universities have already established ICT in all level of accounting programmes. This situation is still low due to brain drain of high-level graduates or even of teaching staff to better paid sectors.
- Meanwhile it can be established that there is a relationship between the application of ICT in accounting system and performance of accountants in Nigeria, Applying computerization in accounting affects the development of accounting system in Nigeria, hence ICT contributes significantly in facilitating accounting practice among accountants in Nigeria.

### **Conclusion**

This study has attempted to assesses “the relevance of Information and Communication Technology (ICT) on accounting education in Nigeria and how this has impacted on the overall performance of the accounting profession in the Country. It can be seen that the level of economic, social and political development of any country usually determines the accounting needs of that country.

The weaknesses in Nigerian accounting education can be explained by the quite low education level of teaching staff, if bachelor graduates can carry out teaching tasks due to the absence of enough postgraduate training. However, several

universities have already established ICT in all level of accounting education programmes. This situation is still low by the brain drain of high-level graduates or even of teaching staff towards better paid sectors. Meanwhile there is a relationship between the application of ICT in accounting education and performance of accounting students in Nigeria, yet users and managers have higher marks in conscientiousness and openness, and lower marks in agreeableness that ICT should be used to increase the effectiveness of accounting information systems.

### **Recommendations**

Based on the findings of the study, the researchers made the following recommendations;

- There is need for the Nigerian indigenous accounting bodies to re-invent themselves in order to remain relevant by collaborating with the academia, encouraging ICT in training accounting experts.
- There is a very lengthy time involved in the design and installation of computerized accounting systems especially during the trial period and the best way to reduce such unnecessary time is to test the programme in phases rather than waiting until the whole installation system is finished before it is tested.

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