INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN ACCOUNTING EDUCATION CURRICULUM FOR GLOBAL COMPETITIVENESS

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Abstract

The study examined the integration of Information and Communication Technology (ICT) in Accounting Education (with emphasis on accounting software packages) for global competitiveness. Two research questions were raised. The study adopted the survey design. The population for the study comprised 25 lecturers the two tertiary institutions in Cross River State. (Federal College of Education, Obudu and College of Education, Akamkpa). All the Twenty-five (25) accounting lecturers were used for the study. The instrument for data collection was a 13-item structured questionnaire (IICTA) designed on a 4-point scale. Simple percentage, mean and standard deviation were used to analyse the research questions using Statistical Package for Social Sciences (SPSS). The result of the findings revealed that only one software package (Excel) is in used in both schools. It was also revealed that integration of accounting software packages in accounting education curriculum will bring the accounting graduates and employers into alignment thereby adding value to the graduates of accounting education. Based on the findings the researcher recommended an inclusive curriculum that takes cognisance of problem - solving, analytical thinking and application and use of accounting packages (software).

Key Words: Information, Communication, Technology, Accounting, Education, Software, Curriculum, Tertiary Institutions.

Introduction

As a developing country, Nigeria has to reposition her educational system to be such that aim at providing learners with a curriculum that is designed to develop reasoning, problem solving and learning strategies. Integration of information and communication technology (ICT) into teaching and learning is essential for meaningful interaction between learners and educators in accounting education. Accounting educators are defined here to comprise tertiary institution lecturers who facilitate learning in accounting courses (Salome & Chukwunwendu, 2014).

ICT can be used to advance cognitive skills such as comprehension, reasoning, problem-solving and creative thinking. ICT is expected to improve educational outcomes and enhance the quality and effectiveness of teaching and learning. Before the introduction ICT, accountants in organizations employed socially acceptable behavioural method of reporting accounting transactions and events in order to generate books such as

profit and loss account, balance sheet, income and expenditure account amongst others. Technological advancement and globalization is said to have created a new global economy having information and communication technology (ICT) occupying a complex position in relation to globalization. Today, as a result of this said globalization which has led to the introduction of ICT, the application of ICT on accounting practice in most organizations in Nigeria has become of utmost importance to business entities (Jaffer, Ng'ambi & Czerniewicz, 2007).

The shift from the traditional curriculum to the new curriculum will bring with it innovations not only in teaching, but more fundamentally in knowledge: what to be taught and how to learn in schools. Accounting educators are expected to use technological principles to achieve the desired educational goals. Technology is thinking tool that teachers are expected to integrate into teaching and learning strategies (Assan and Raju, 2012). ICT can serve as a vital catalyst for social change and economic development, especially in developing countries.

Accounting as one of the subjects in business education is equipped with the function of developing in students certain skills, knowledge, attitudes and values towards solving problems and towards satisfaction of real life needs. Unfortunately, accounting education seems to be lacking in the inculcation of ICT knowledge and skills in accounting students (Rhodes, 2013). This is evidenced in a research study carried out by Wessels (2007) where he found out that students have limited exposure to the use of ICT with particular emphasis on the use of accounting packages and that is why according to Rhodes (2013), accounting education has not gotten to the level expected of it by the industry itself. This is because, employers of labour or industries expect the turning out of accounting graduates who must have acquired reasonable levels of accounting skills to enable them add value to the industries they would find themselves in someday.

In the words of Standley and Edward (2005), ICT and computer technology would bring significant improvement to students' experiential learning. According to Hurt (2007), given the current situation where the business environment is rapidly changing which requires information to be prepared and speedily disseminated, the accounting education should no longer emphasize on the technical development. It should rather emphasize on developing the fundamental skills as demanded by the profession.

Oyebisi, Ayodotun and Olugbenga (2015) opined that using ICT provides better opportunities for accounting students in higher institutions for the acquisition of valuable ICT knowledge and skills which are fundamental for gaining employment in the present day job market. This is

therefore to say that ICT increases student's preparation for most future careers.

Information and communication technology refers to the application of various software and hardware that supports all of those activities involving information (Ezeani, 2014). According to OECD (1987), Information technology is a term used to cover technologies used in the collection, processing and transmission of information. Ukpebor (2006) opined that information and communication technologies are vast web of high speed digital communication networks involving delivering of information, education and entertainment services to schools, offices, homes amongst others.

According to Ama (2000), accounting is a set of theories, concepts (or ideas), and techniques by which financial data are processed into meaningful information for reporting, planning, controlling, and decision making purpose. In the words of Ezeani (2011), Accounting Education is seen as an area of study that is presumed needed to equip accounting students with required knowledge, skills and attitudes necessary for them to perform efficient financial calculation required for occupational competence and economic self-reliance.

In lieu of complexities of business units, mounting taxes, increasing regulations of business by law and by governmental agencies, there is need for accounting students to acquire high degree of accounting competencies for effective job performance in areas such as: Auditing, Cost Accounting Services, Management Accounting, Budgetary Accounting, Tax Accounting, Governmental Accounting, Accounting Instruction, Record keeping (Ama, 2000; Oyebisi, et al, (2015); Salome and Chukwunwendu, 2014). As a result of this, accounting education must provide students with this required skills and knowledge needed to become competent professionals in a changing business world.

In tandem with the rapid advancement of ICT and computer technology, it is posited that the application software may provide an impetus for educators to employ it as a pedagogical instrument for more effective approach in facilitating the students' understanding of the theoretical basis and the technical parts of accounting. Using relevant computer software and technology, a form of learning environment is created and it offers an alternative platform in teaching and learning in many areas of accounting.

Accounting software packages refers to intangible products. They can be described as a type of application software that records and processes accounting transactions within functional modules such as accounts payable, accounts receivable, payroll, and trial

balance. They include Excel, sage pastel, Peachtree, QuickBooks, etc (Machera and Machera, 2017).

QuickBooks is accounting software that makes your accounting tasks easier, simple and effective. It is designed to eliminate the complex and difficult process of managing your cash flow and make decision making faster and better. According to Schiff, Lubrich and Giordano (2009), QuickBooks contains a unique feature called the Register that enables certain transactions to be entered more efficiently. Any account may be updated using the Register, however, one of the limitations of the Register is that it cannot record every element of certain transactions. For example, there is no box in the Register to select the specific invoice from a customer, or bill from a vendor to which a payment should be applied.

Peachtree Accounting is business accounting and management software that is direct competitor of QuickBooks. In 2013, the accounting software is being rebranded as Sage 50, which is parent company's name. Peachtree is a robust accounting software solution that allows you to track many facets of your business. You can do everything from managing your accounts to sending out invoices to paying employees. Sage's Peachtree is one of the two major competing brand names in accounting software today. One of the most striking differences between Peachtree and Quickbooks is the feature of solid – or "fixed" – asset management. What this means for the accounting software program is a comprehensive index of a small businesses' or large company's entire level of capital (i.e. supplies, machines, building space for offices, and account holdings) (Ebijuwa, 2005).

By maintaining this powerful accounting feature, businesses are then able to take stock of their worth as it relates to profitability. Peachtree features an excellent version of this feature, while QuickBooks provides a slightly less effective solid assets component. It is important to remember, however, that while this feature can be useful for certain types of organizations, many business owners may end up not using it. For example, in the Manufacturing sector, Peachtree can include work ticket technology, quantity price breaking and in-depth and customized inventory-making tools. Their specific distribution package adds flexible price management and advanced drop-shipping to the mix to meet the needs of those customers (Ebijuwa, 2005).

A typical spreadsheet is simply a software package in the form of an electronic analysis sheet containing rows and columns. Spreadsheet packages according to Croll (2013) are application packages that have worksheets that are designed with rows and columns, where data can

be entered, process, calculated, analyzed and manipulated. Spreadsheet packages can be used to arrange and process both financial and non financial data because of the logical way it organizes data.

A study by Wessels (2007) of the information and communication technology (ICT) education offered to accounting students at South African universities revealed that students had limited exposure to the use of accounting software packages thereby affecting their ability to add value to organizations they find themselves.

A study was carried out on more accounting theory or more information technology by Ghavifekr and Mohammed (2015). Survey method was used to analyze the technology skills of undergraduate accounting students to determine their technological strengths and weaknesses. The findings of the research revealed that a large fraction of students are not proficient in requisite technologies even after completing the majority of their undergraduate accounting course work, thereby supporting the argument that the accounting curriculum would benefit from an increase in technology training with particular emphasis on tax software, audit software and spreadsheets.

The result of another study carried out by Rhodes (2013) on the future of accounting education with the integration of ICT (with particular interest on accounting software packages) in the reform of accounting education that flowed from a process followed to align accounting education to accounting practice in higher education revealed that the alignment of accounting education and accounting practice through the integration of ICT could bring the accounting graduate and employer into alignment thereby adding value to the graduates of accounting.

Mckee (2004)'s study is one of the experimental evidence in relation to the application of customized multimedia software in teaching cost and managerial accounting subjects. The anecdotal evidence in his study suggests that by using such software, it effectively increases students' understanding of the basic components of a cost system. Besides, it offers a multisensory experience and serves as an interactive avenue for the students to better see the connections between array of account components.

The research of Boulianne (2014) presents one of the most current empirical evidence on the impact of accounting software on students' knowledge acquisition. He noted that the accounting software can be employed in many areas of accounting, due to its flexibility and the embedded special features, the delivery methods in computer-assisted

technology settings are more attractive and effective.

Armitage and Boritz (1986) suggest integration should be aimed at developing computing skills across the range of accounting subjects, literally linking all subjects within an accounting degree. Ravel (1989) proposed a curriculum-wide approach to integrating computer usage in the accounting discipline and highlighted a wide spectrum of roles and constraints pertaining to users and teachers.

Al-khadash and Al-Beshtawi (2009) carried out a research on Attitudes toward learning accounting with computers: the impact on perceived skills. The aim of the study was to determine the effectiveness of teaching undergraduate accounting students courses in using computer in accounting. Four hundred and sixty-three (463) accounting students were examined and a multiple choice question survey was performed after concluding a course offered to teach students certain computer skills. The result of the study showed that the course had an impact on attitudes towards the perceived skills from using computers for accounting purposes. That is, the course taken by the students that is meant to develop their Information Technology (IT) knowledge and skills had a significant impact on the accounting students examined.

Zureigat (2015) embarked on a research study on Accounting graduates skills and employers' needs: The Saudi case. The result of the findings of the research study revealed that IT knowledge and skills are essential for accounting graduates based on the employers view point in one of the biggest emerging market namely KSA in Saudi Arabia. As a result, accounting education programs were restructured to equip accounting graduates with the relevant IT knowledge and skills needed for the labour markets.

Similarly, another study conducted by Muda, Che-Hassan and Abdul-Samad (2009) on employers' reaction to the quality of accounting graduates produced by Universities Technology Mara (UiTM) revealed that there is a gap between the employers' perception on the determinants of quality of the graduates and the University's curriculum apparatus for ensuring quality of the graduates. The findings of the study suggests that it is important to ensure that accounting graduates are equipped with the required knowledge and skills to facilitate them in securing relevant employment and adding value to organizations in the future. The study also revealed that educators and university administrators play important roles in ensuring that accounting graduates obtain the necessary skills and knowledge for them to be marketable in the industry and in the public sector.

Though there are many research studies on accounting education and technology, there are very few empirical research studies that considered the integration of

ICT with particular emphasis on accounting software packages and IT knowledge and skill acquisition in accounting education curriculum in tertiary institutions. It is in a bid to close the identified gap in literature that this study sought to examine the ICT integration in accounting education curriculum for global competitiveness.

Statement of the problem

Accounting as one of the subjects in business education is saddled with the function of developing in students certain knowledge, skills, attitudes and values towards solving problems and the satisfaction of real life needs. The application of ICT in accounting practice in most organizations in Nigeria has become of utmost importance to business entities. Unfortunately, accounting education curriculum seems to be lacking in terms of inculcating of ICT knowledge and skills in accounting students. Hence, there has been an outcry in commerce and industry that the graduates of accounting are failing to perform and this cost them a lot of money and time through induction and training. Most of the reasons gathered from commerce and industry are that the accounting students lack the skills and knowledge that are expected of them especially the use of accounting package. It is therefore perceived that the accounting students understand the theory aspects but lack in the following practical areas: problem solving, analytical thinking and application and use of accounting packages (software). It is from this background that the researchers is motivated to investigate whether the integration of accounting software in accounting education curriculum will enhance students' practical technical skills, problem - solving skills and analytical thinking skills that are expected of by commerce and industry. In a bid to close the identified gap in the skills and knowledge of accounting students, there is the need to integrate ICT (with emphasis on accounting software) in the accounting education curriculum in Nigeria.

Though there are many research studies on accounting education and technology, there are very few empirical research studies that considered the impact of integration of ICT with particular emphasis on accounting software packages and IT knowledge and skill acquisition in accounting curriculum . It is in a bid to close the identified gap in literature that this study sought to examine the integration of ICT in accounting education curriculum for global competitiveness.

Purpose of the study

The main purpose of the study was to determine the integration of ICT in accounting education curriculum in selected tertiary institutions in Nigeria. Specifically, the study sought to:

1. Find out accounting packages in use in delivery of accounting education programme.
2. Determine the extent to which accounting software packages improve the teaching of accounting courses.

Research Questions

The following research questions were posed to guide the study:

1. What are accounting packages in use for teaching and learning of accounting courses in tertiary institutions?
2. To what extent does accounting software improve the teaching and learning of accounting courses in tertiary institutions?

Methodology

The study adopted descriptive survey design which according to Mugenda and Mugenda (2003) is the collection of numerical data to answer questions or test hypotheses concerning current status which is then conducted either through self structured questionnaire or interviews or through observations. The study was conducted in tertiary institutions in Cross River State which comprised Federal College of Education, Obudu and College of Education, Akamkpa. The population of the study comprised 25 lecturers from the two institutions. The researcher made use of the entire population for the study. A 13-item structured four-point scale questionnaire titled Integration of ICT in Accounting Curriculum Questionnaire "IIAQ" with reliability coefficient of 0.76 was used for data collection. The instrument for data collection was designed on four-point rating scale with a response mode of Very Large Extent (VLE) = 4, Large Extent (LE) = 3, Small Extent (SE) = 2 and Very Small Extent (VSE) = 1. The instrument was validated by three experts, two in Business Education, FCE, Obudu and one in Measurement and Evaluation, College of Education, Akamkpa. The research questions were answered by calculating both mean (X) and standard deviation (SD). Any of the items in the questionnaire with the mean equal to or greater than 2.5 was regarded as "Large extent", while any item with mean (X) less than 2.5 was regarded as " Small Extent".

Results and Discussion

This section presents results and discussion of findings. Two research questions were answered using simple percentage (%), mean and standard deviation.

Research Question One

What are the accounting packages in use for teaching and learning of accounting courses in tertiary institutions? In order to answer this research question, four accounting software packages were mentioned for respondents to identify the accounting packages in use in their institution. The simple percentage (%)

was used to answer this research question. the result of the analysis is presented on table 1 below

Table 1: Simple percentage measuring the accounting packages in use for teaching and learning of accounting courses in tertiary institutions.

(N = 25)

	Accounting	N	Percentage	Remarks
1.	Excel	25	100%	In use
2.	Quick Books	Nil	0	Not in use
3.	Peachtree	Nil	0	Not in use
4.	Sage pastel	Nil	0	Not in use
	Cluster Score	**25**	**100%**	

From Table 1, it showed that out of the four accounting software packages, Excel package is the only software package in used in the teaching and learning of accounting courses in both institutions, with the frequency of responses of 25 lecturers representing (100%). The result also showed that Quick Books and Peachtree packages are not in used by the lecturers for the teaching and learning of accounting courses in the study area.

Research Question Two: To what extent does accounting software improve the teaching and learning of accounting courses in tertiary institutions?

To answer this research question, items (1-9) from the study instrument were used. The mean and standard deviation were used to answer the research question with the critical mean point of 2.5. The result of the computed mean and standard deviation obtained from all the items in the instrument are presented on table 2 below.

Table 2: Mean and standard deviation of respondents on the extent to which accounting software improves the teaching and learning of accounting courses in tertiary institutions. **(N = 25)**

	Items	**Mean $\bar{X}$**	**STD**	**N**	**Decision**
1.	Students concentrate more in their learning with accounting packages.	3.92	.286	25	LE
2.	Students try harder in what they are learning when working accounting software.	3.80	.408	25	LE
3.	Students understand more easily what they learnt.	3.76	.436	25	LE
4.	Students feel more autonomous in their learning.	3.72	.458	25	LE
5.	It enhances the effectiveness of teaching and learning.	3.72	.458	25	LE
6.	It serves as an interactive avenue for the students.	3.56	.506	25	LE
7.	Students are equipped with broad accounting skills needed for labour on graduation.	3.64	.489	25	LE
8.	It enhances creative thinking skills.	3.72	.458	25	LE
9.	It enhances accounting graduate to add value to	3. 48	.509	25	LE

	organization they find themselves.		
	Grand mean	**3.70**	**3.50**

Table 2 above showed that accounting software packages, if used would improve the teaching and learning of accounting courses in a large extent. All the items in the cluster showed large extent with mean (X) and standard deviation as stated in table 2. However, the grand mean (X) of the items in the cluster was 3.70 with a standard deviation of 3.50 which therefore means that the accounting software packages if used would improve the teaching and learning process of accounting courses in tertiary institutions in a large extent.

Discussion of findings

The first finding of the study revealed that out of the four accounting software packages (Excel, Quick Books, Peachtree and Pastel), Excel is the only software package that is commonly used in the teaching and learning of accounting courses in the two institutions. Quick Books, Peachtree and Pastel packages are not in used by the two institutions for the teaching and learning of accounting courses. This supports the findings by Wessels (2007) who found out that students had limited exposure to the use of accounting software packages thereby affecting their ability to add value to organizations they find themselves.

The second finding of the study revealed that if ICT (accounting software packages) is integrated into accounting education curriculum, it would improve the teaching and learning of accounting courses in tertiary institutions. This finding is in line with the findings by Rhodes (2013) which revealed that the alignment of accounting education and accounting practice through the integration of ICT could bring the accounting graduate and employer into alignment thereby adding value to the graduates of accounting. The finding also supports the finding of Yisau and Tiamiyu, (2012) that a large fraction of students are not proficient in requisite technologies even after completing the majority of their undergraduate accounting course work, thereby supporting the argument that the accounting curriculum would benefit from an increase in technology training with particular emphasis on tax software, audit software and spreadsheets. The anecdotal evidence in the study of Mckee (2004) suggests that by using such software packages, it effectively increases students' understanding of the basic components of a cost system. His study also revealed that, it offers a multisensory experience and serves as an interactive avenue for the students to better use the connections between array of account components. The finding supports Zureigat (2015) whose findings of his research study revealed that IT knowledge and skills are essential for accounting graduates based on the

employers view point in one of the biggest emerging market namely KSA in Saudi Arabia. As a result, accounting education programs should be restructured to equip accounting graduates with the relevant IT knowledge and skills needed for the labour markets. The finding is also in line with Muda, Che-Hassan and Abdul-Samad (2009) who in their findings discovered that there is a gap between the employers' perception on the determinants of quality of the graduates and the University's curriculum apparatus for ensuring quality of the graduates and suggest that it is important to ensure that accounting graduates are equipped with the required knowledge and skills to facilitate them in securing relevant employment and adding value to organizations in the future.

Conclusion

From the reviews and findings of this study, there is substantial evidence that, if ICT (with particular interest on accounting software packages) is integrated into accounting education curriculum in tertiary institutions, accounting graduates will be equipped with the required knowledge and skills to facilitate them in securing relevant employment and adding value to organizations in the future. This is because the accounting software can be employed in many areas of accounting, due to its flexibility and the embedded special features; the delivery methods using computer-assisted technology settings are more attractive and effective.

Recommendations

Based on the findings of the study, the researcher made the following recommendations:

1. In reforming the accounting education curriculum, curriculum developers should adopt a curriculum-wide approach to integrate ICT usage in the accounting discipline with particular interest on accounting software packages as this will align accounting education to accounting practice.
2. Provision should be made in the new curriculum for the training and retraining of accounting lecturers on the use of accounting software packages.

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