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LECTURERS' KNOWLEDGE AND SKILL IN THE INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY INTO BUSINESS EDUCATION INSTRUCTION IN NIGERIAN COLLEGES OF EDUCATION

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Abstract

The lecturers' roles are to facilitate learning and help students to develop into autonomous learners who can continue to learn by themselves, especially with the assistance of new ICT. There is however, definite deficit in the knowledge and skill needed for the use of ICT as an effective teaching learning tool among lecturers. Lecturers need to understand how to incorporate ICT into their lessons; hence they may need to develop pedagogies to achieve this competency. This paper aimed at surveying lecturers' knowledge and skill in the integration of ICT pedagogy into Business Education instruction in Nigerian colleges of education. The study also aimed at determining the level of ICT knowledge of Business Education lecturers in their ICT integration pedagogy in colleges of education. It also, ascertained whether the lecturers' skill of ICT tools influence ICT integrated pedagogy in the colleges of education. The population comprises all Business Education lecturers in the colleges of education in South West geo political zone of Nigeria. A census of lecturers in four purposively selected colleges of education was taken because there is availability of ICT unit in the colleges. A total of 37 lecturers (23 males and 14 females) across four colleges of education were taken as research sample and questionnaire were administered to the sample respondents across the colleges simultaneously. The study was guided by two research questions and two hypotheses were formulated. Data collected on the study were analysed using simple percentage, t-test and ANOVA statistical tools. The paper recommends that Business Education lecturers should be encouraged to improve on their pedagogical practices; modelling the use of ICT they teach in their pedagogical practices; and shift away from lecture to activity oriented teaching learning approach.

Keywords: *Technological Pedagogical Content Knowledge (TPACK), Information and Communication Technologies (ICT), business education lecturers, knowledge and skill.*

Introduction

Teaching is one of the most challenging professions in our society where knowledge is expanding rapidly and much of it is available to students as well as teachers at the same time.

The fundamental role of the teachers is to facilitate learning and help to develop autonomous learners who can continue to learn by themselves, especially with the assistance of new ICT. There is however, a deficit in the knowledge and skills needed to use ICT as an effective teaching-learning tool. Donoghue (2006) opined that well- trained lecturers using ICT are few and there are some who regard technology as a threat to their position as the main source of knowledge. In addition, students often have better computer skill than their lecturers, thus further undermining lecturers' authority. Lecturers need to understand how to incorporate the use of ICT into their lessons; hence, they may need to develop pedagogy to achieve this competency to enhance maximum level of change. Therefore, modem development of innovative technologies have provided new possibilities to the teaching profession as a whole but at the same time have placed more demand on lecturers to learn how to use these new technologies in their job. Although the original gender gap in computer and Internet use appears to have narrowed to the point of non-existence (DiMaggio, Hargittai, 2004; Hargittai, 2008; Feller, 2006) studies suggest that men and women use these technologies in different ways (Lenhart and Madden, 2005; Odell, 2000; Sherman, Nelson & Steele, 2000). For example, adolescent girls (aged 15-17) are slightly more likely than boys to use home computers for e-mail, word processing, and completing school assignments as opposed to connecting to the Internet, creating spreadsheets or databases, using graphics and design software, managing household records or finances, or playing games.

Robinson & Latohem, 2003 asserted that these challenges require the teacher to continuously retrain themselves and acquire new knowledge and skills while maintaining their jobs.

Perraton, Robinson & Greed (2001) opined that new concept of learning has evolved, lecturers are expected to facilitate learning and make it meaningful to the individual learner rather than to provide knowledge and skills as envisaged in the goals and objectives of business education.

Business Education can be described as a 'vocational course' which equips its recipient with the necessary knowledge, skills and attitude to succeed in whatever business endeavours they may engage in. Therefore, Business Education lecturers' competency matters a lot in enhancing maximum level of change; this therefore requires lecturers to advance in knowledge in the global age of technology.

Business Education programmes at the colleges of education are designed to achieve the following objectives:

1. To produce well qualified and competent NCE graduates in business subjects who will be able to teach business subjects in the secondary schools and other related educational institutions.
2. To produce NCE business teachers who will be able to inculcate the vocational aspects of business education into the society.
3. To produce NCE business teachers who will be involved in the much desired revolution of vocational development right from primary and secondary schools.
4. To equip students with necessary competencies so as to qualify them for a post -NCE degree programme in business education.

Considering the above objectives of the programme at the NCE level, there is need for lecturers to understand the relationship between a range of ICT resources and concepts, processes and skills in their subject and also use their subject expertise to choose appropriate ICT resources which will help them meet the specific learning objectives.

These include subject specific software as well as more generic resources and confidence in using a range of ICT resources via frequent practice and use of one or two familiar applications.

Statement of the Problem

The new technologies have affected the method of teaching and learning and it is observed that learners are moving faster in have integrating technology to their learning than lecturers especially in Business Education. Some lecturers

worked in settings where these ICT applications are available yet they were not able to use the applications. In some situations, it was observed that as a result of the lecturers' inability to integrate ICT in teaching as required of them, a lot of students are forced to enrol with private bodies with gadget but which do not have the pedagogy. This paper therefore investigated the level of ICT knowledge of Business Education lecturers in their ICT integration into pedagogy in colleges of education in Nigeria. It also ascertained whether the lecturers' skill of ICT tools influences ICT integration into pedagogy in the colleges of education in Nigeria.

Significance of the Study

Assessment of the current integration level of technology in institutions is important for educational administrators for making decision, assessing the integration of technology in the classrooms, determining the effectiveness of technology investment and professional development.

Purpose of the Study

This study is aimed at exploring lecturers' knowledge and skills in the integration of information and communication technology into Business Education instruction in Nigerian colleges of education. The study sought to determine:

- the levels of ICT knowledge of Business Education lecturers in their ICT integration pedagogy in colleges of education
- whether the lecturers' skill of ICT tools influence ICT integrated pedagogy in the colleges of education
- whether there is any significant difference between male and female Business Education lecturers in their technology knowledge and current instructional practice in the colleges of education
- whether there is any significant difference between Business Education lecturers' competency with technology application and teaching experience in the colleges of education.

To achieve this, two hypotheses were formulated.

Hypotheses

1. There is no significant difference between male and female Business

Education lecturers in their technology knowledge and current instructional practice in the colleges of education.

2. There is no significant difference between Business Education lecturers' competency in technology application and teaching experience in the colleges of education.

Conceptual Framework

For effective ICT integrated pedagogy in Business Education, the Technology, Pedagogy and Content Knowledge (TPACK) framework was adopted to describe the kinds of knowledge that a teacher needs in order to teach with technology, and the complex way in which these bodies of knowledge interact with one another.

The TPACK framework builds on Shulman's construct of Pedagogical, Content, Knowledge (PCK) to include technology as situated within content and pedagogical knowledge. The interaction of all three elements bring into play technology, pedagogy, and content knowledge (TPACK) model (Koehler & Mishra, 2008; Koehler & Mishra, 2006; Koehler & Mishra, 2010). The authors show that education is most effective when Content Knowledge (CK), Pedagogical Knowledge (PK) and Technological Knowledge (TK) are used and when they interact with each other.

Content (C) refers to the subject matter that is to be taught, Technology (T) encompasses modem technologies such as computer, Internet, digital video and common place technologies including overhead projectors, blackboards and books.

Pedagogy (P) describes the collected practices, processes, strategies, procedures and methods of teaching and learning. It also includes knowledge about the aims of instruction assessment and student learning. Technology integration entails the understanding and negotiating of the relationship among the three aforementioned components.

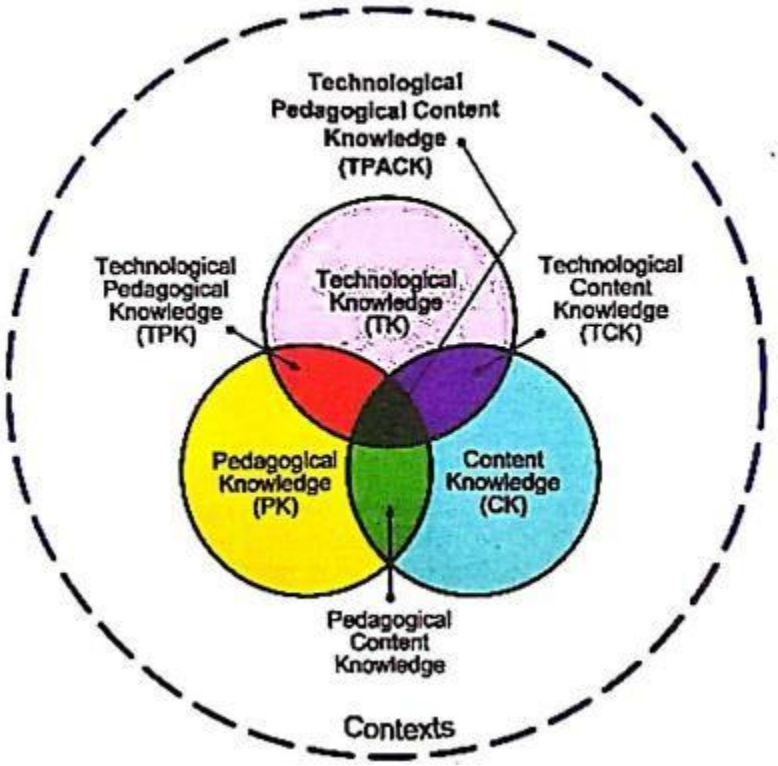

Fig. 1: TPACK Framework

Source: http//tpack.org *{Shulman 'sl986)*

TPACK is a framework that introduces the relationships and the complexities between all three basic components of knowledge (technology, pedagogy, and content) (Koehler & Mishra, 2008; Mishra & Koehler 2006). The intersection of these three knowledge types is an intuitive understanding of teaching content with appropriate pedagogical methods and technologies. Seven components as reflected in figure 1 are included in the TPACK framework. They are defined thus:

1. Technology Knowledge (TK): Technology knowledge refers to the

knowledge about various technologies, ranging from low-tech technologies such as pencil and paper to digital technologies such as the internet, digital video, interactive whiteboards, and software programmes.

2. *Content knowledge (CK):* Content knowledge is the "knowledge about actual subject matter that is to be learned or taught" (Mishra & Koehler, 2006, p. 1026). Teachers must know about the content they are going to teach and how the nature of knowledge is different for various content areas.
3. *Pedagogical knowledge (PK):* Pedagogical knowledge refers to the methods and processes of teaching and includes knowledge in classroom management, assessment, lesson plan development, and student learning.
4. *Pedagogical content knowledge (PCK):* Pedagogical content knowledge refers to the content knowledge that deals with the teaching process (Shulman, 1986).
5. *Technological content knowledge (TCK):* Technological content knowledge refers to the knowledge ofhow technology can create new representations for specific content. It suggests that teachers understand that, by using a specific technology, they can change the way learners practice and understand concepts in a specific content area.
6. *Technological pedagogical knowledge (TPK):* Technological pedagogical knowledge refers to the knowledge of how various technologies can be used in teaching, and to understanding that using technology may change the way teachers teach.
7. *Technological pedagogical content knowledge (TPACK):* Technological pedagogical content knowledge refers to the knowledge required by teachers for integrating technology into their teaching in any content area.

TPACK is valuable framework for thinking about what knowledge teachers must have to integrate technology into teaching and how they develop this knowledge. Thus, using TPACK as a framework for measuring teaching knowledge could potentially have an impact on the type of training and professional development experiences that are designed for both teacher

educator and graduate students. A great deal of literature review describes the relationships between technology, content, and pedagogy, Pierson (1999, 2001), Keating and Evans (2001), and Zhao (2003) similarly describe the relationships between these three element. Other researchers have addressed similar ideas, though under different tag scheme, including integration literacy (Gunter & Bumbach, 2004); information and communication technologies (ICT) - related pedagogy, content, knowledge (e.g., Angeli & Valanides, 2005); technological content knowledge (Slough & Connell, 2006); and electronic PCK or e-PCK (e.g., Franklin, 2004; Irying, 2006). Other who have demonstrated sensitivity to the relationships between content, pedagogy, and technology include Hughes (2004); McCrory (2004); Margerum - Leys and Marx (2002); Niess (2005); Niess (2005); and Slough & Connell (2006).

Modem development of innovative technologies have provided new-possibilities to teaching profession as a whole but at the same time have placed more demand on teachers to learn how to use these new technologies in their teaching (Robinson & Latohem, 2003). These challenges ask teacher to continuously retrain themselves and acquire new knowledge and skills while maintaining their jobs (Carlon & Gadio, 2002). Hence, there is need for lecturers to understand the relationship between a range of ICT resources and concepts, processes and skills in their subject, and use their subject expertise to choose appropriate ICT resources which will help them meet the specific learning objectives. Therefore, embracing and adopting TPACK framework in measuring teaching knowledge could potentially have an influence on the type of training and continuous development of lecturers.

Relevance of the Model to the Study

- Integrating TPACK in the classroom by lecturers is student-centered.
- TPACK does attempt to identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of business teacher knowledge
- It can help to understand how the Business Education lecturers are making content more accessible to students.
- It allows us to identify the affordance of pairing the appropriate pedagogies with the content.

Methodology

The study used the descriptive survey design.

Population and Sample

The population of the study comprises all Business Education lecturers in the colleges of education in South West geo political zone of Nigeria. A census of lecturers in four purposefully selected colleges of education was taken because there was availability of ICT unit in the colleges. A total of 37 lecturers across the four colleges of education were selected.

Instrument for Data Collection

An adapted modified questionnaire entitled: "Teacher Educators Knowledge of Teaching and Competency with ICT Application" was used to gather information. This questionnaire consisted of two sections, namely: Section A and Section B. Section A elicited information on the personal data of the respondents while Section B consists of two clusters comprising 19 items on a Likert type rating which addressed the research questions that guide the study. The respondents were requested to tick the option that best match then-option on each item.

Validation

The instrument was subjected to validation using peer and expert review. The corrected draft was then administered to 20 lecturers in colleges of education not part of the sample for the study. It was subjected to reliability analysis using Cronbach method and Alpha value of.87 was obtained.

Data Analysis

Data collected on the study were analysed using simple percentage, t-test and ANO VA statistical tools.

Result and Discussion

Gender	**No**	%
Male	23	62.2
Female	14	37.8
Total	**37**	**100**
Teaching Experience	**No**	%
2 -5Years	5	13.5
6 - 10Years	20	54.1
10Years and Above	12	32.4
Total	**37**	**100**
Age of Lecturer	**No**	%
25 — 29Years	1	2.7
30 — 3 9Years	5	13.5
40 — 49Years	23	62.2
50 Years and Above	8	21.6
Total	**37**	**100**

From table 1, the result indicated that there were 62.2% male lecturers equivalent to 23 respondents and 37.8% female lecturers equivalent to 14 respondents that participated in the study.

The age bracket of the lecturers that participated in the study with highest percentage was 62.2% range from 49 - 49 years equivalent 23 respondents,

while age 25-29years and age 30-39years as well as 50 years and above had 27% equivalent 1 respondent, 13.5% equivalent to 5 respondents and 21.6% equivalent to 8 respondents respectively. Hypothesis 1: There is no significant difference between male and female business education lecturers in their technology knowledge and current instructional practice in the colleges of education.

Table 2: T -Test: Mean Score of Business Education Lecturers' Knowledge of Technology Application

Gender	N	Mean	Std. Deviation	Std. Error Mean	T	df.	P
Male	23	63.83	3.256	.679	1.399	35	.171
Female	14	61.93	5.015	1.340			

From table 2, it was revealed that there was no significant difference between male and female mean scores of lecturers' and their technology knowledge and current instructional practice in the colleges of education. Since the mean score of male lecturers was 63.83 and that of female lecturers was 61.93, it therefore means that male lecturers had higher knowledge of technology application in their mode of instruction than their female counterpart. It also revealed from the table that the difference in technology knowledge application by male and female lecturers was significant since T- value was 1.399 at df of 35 with a p value of .171 which is greater than 0.05 level of significant. Therefore, there is no significant difference between male and female business education lecturers in their technology knowledge and current instructional practice in the colleges of education.

The result shows that the lecturers agreed that technology contributes to the learning outcome. This was demonstrated in their level of confidence which they demonstrated in relation to the use of ICT with college students for teaching and learning. Lecturers demonstrate that learner is achieved more efficiently with the use of ICT, so also the use of technology has improved

their effectiveness of teaching in the classroom and finally, teaching demand use of ICT. It can be added that irrespective of gender, lecturers have the same mind-set that ICT contribute immensely to students' performance, it can thus be concluded that, ICT integration in mode of instruction of Business Education programme need urgent attention in preparing and improve the capabilities of the future lecturers.

Hypothesis 2: There is no significant difference between Business Education lecturers' competency with technology application and teaching experience in the colleges of education

Table 3: One-way ANOVA Test between Lecturers' Competency with Technology Application and Teaching Experience

	Sum of Square	**Df**	**Mean Score**	**F**	**Sig**
Between Group	10.568	2	5.284	309	.736
Within Group	581.000	34	17.088		
Total	**591.569**	36			

A one-way ANOVA was conducted to explore the impact of teaching experience on competency with technology application of lecturers. In table 3, the results of one- way ANOVA test can be seen. It was found that there is no significant difference between lecturers' competency with technology application and current instructional practice in the colleges of education based on teaching experience.

Table 4: Scheffe Multiple Comparisons for Teaching Experience

Dependent Variable	(l)Teaching Experience	(J)Teaching Experience	Mean Difference (I-J)	Std. Error	Sig.
	2-5 Years	6- 10 Years	1.000	2.067	.890
		10Years and above	1.000	2.200	.744

Table 4 indicates that lecturers with teaching experience of "2-5 years" have higher mean competency with technology application value than lecturers with teaching experience of "6-10 years" and also "10 years and above". This result points out that younger lecturers have more technological applicability value than older ones, because they have received some form of training in ICT use and attended workshop outside to support their teaching and learning. Therefore, there is no significance difference between Business Education lecturers' competency with technology application and teaching experience in the colleges of education It also revealed that lecturers skills and confidence in ICT integration had a positive influence in the teaching and learning process.

Recommendations

- Pedagogical practice needs to be centered toward the development of skills, in addition to content knowledge.
- Business Education lecturers should improve on their pedagogical practices; modelling the use of ICT in their pedagogical practices; and shift away from the lecture approach to activity oriented teaching-learning approach.

Conclusion

ICT pedagogical tools are important and useful in the field of education. It is vital for the lecturers in colleges of education in Nigeria to encourage and guide the students to use ICT tools and provide them with some suggestions of websites available which are useful for enhancing students' learning. The key implication which has emerged from this study is that institutions need to urgently develop a greater understanding and strengthen the use of TPACK as a shared tool among Business Education lecturers in colleges of education. Business Education lecturers also need to encourage the implementation of strategies to better prepare future Business Education lecturers towards improving on their mode of instruction. The findings of this study revealed that ICT has the potential to influence lecturers' methods of instruction and the methods of assessment based on TPACK capabilities throughout their programme of study.

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