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ICT Acceptance and Usage: A Proposed Model for ICT Teacher Training

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ABSTRACT

ICT is crucial to educational development of any nation, as it improves the quality of teaching, learning and research in the university. ICT training is basically an integrative learning process to achieve a one point agenda of making a staff able to deliver lectures and carryout academic and administrative duties using available computing resources. Given that the academicians are the key to effective use of information technologies in the university education system, it is important to understand their behavioral intention towards IT. Teachers are widely believed to be the key agents of any educational change. This paper focuses on a proposed model for ICT teacher training. It suggests that ICT experts should be engaged in training and re-training of teachers, within a time frame. The paper suggests that, careful attention should be given to both levels of skills sought by the teachers, both ICT-related skills and the pedagogical use of ICT. The proposed model for ICT teacher training will assist the experts to be focused.

Keywords: *Training; ICT; Acceptance; Usage; Model; Teacher*

1. INTRODUCTION

Using ICT facilities in teaching and learning has brought transformation to the way teachers teach and the way the students learn (Ajayi, 2008). ICT infrastructure is lacking in most of the Nigerian universities, therefore the students have no option than to go to the cyber cafes around the campus (Olaniyi, 2006). Due to the usefulness, of ICT, it has been discovered that the knowledge of ICT usage improves human capacity in every field of human endeavor. Based on this, workshops, seminars, and conferences are conducted to improve the level of awareness of stakeholders (Gesci, 2007).

The world is in the global era; therefore so much is expected from the universities in terms of researches, innovation, knowledge dissemination, creative teaching and translation of research product to human needs. The knowledge of ICT usage improves human capacity in every field of human endeavor such as business transactions, industrial operations, educational programmes and activities and in all aspects of life in general. ICT is an umbrella term that includes any communication devices or application encompassing: radio, cellular phones, hardware and software, computer and network, satellite etc. These can be use to enhance and support distance learning (Johnson, 2007). Therefore in education, ICT is considered to be the application of digital equipments to all aspects of teaching and learning. The use of ICT has brought about rapid transformation which involves the use of computers, internet and other information technologies (Jimoh, 2007). However others viewed ICT as electronic or computerized devices which enabled us to process and share information (Ofodu, 2007). E-learning is considered as the use of ICT to enhance and support teaching learning process (Yusuf, 2005). Therefore ICT is a teaching tool, that aid education of student both on and off campus by means of teaching online offered via web-based system (Pulkkinen, 2007; Wood, 1995).

2. TECHNOLOGY ACCEPTANCE THEORIES AND MODELS

According to (Louho, Kallioja, & Oittinen, 2006)P.15), "technology acceptance is about how people accept and adopt some technology to use."The primary target of many technology acceptance studies is to examine how to encourage usage and also analyze what interrupts acceptance and usage of technologies (Kripanont, 2007). This is related to our study with the objective to find the most influential UTAUT construct affecting the behavioral intentions of academicians to accept and use ICT in Nigerian public Universities. Therefore it is important to study the existing technology acceptance models/theories. This will enable the researcher to gather theoretical concept for the study. A number of acceptance and use of technologies have been reported (Barati & Mohammadi, 2009; Ghobakhloo, Zulkifli, & Aziz, 2010; Kripanont, 2007; Venkatesh, Davis, Morris, & Davis, 2003). TRA, MM, TPB, DTPB (Decomposed Theory of Planned Behavior), TAM, TAM2, C- TAM- TPB, MPCU.

These models and theories have been examined and evaluated by several studies (AI- Qeisi, 2009; Barati & Mohammadi, 2009; Clarke, 1999; Gengatharen & Standing, 2004; Ghobakhloo et al., 2010; Jayasingh & Eze, 2010; Kripanont, 2007; Legris, Ingham, & Collerette, 2003; Minishi-Majanja & Kiplang'ati, 2005; Perez, Sanchez, Carnicer, & Jimenez, 2004; Stacy & Sally, 1999; Szajna, 1996; Van Biljon & Renaud, 2009; Venkatesh et al., 2003). The scope of a theory/model in predicting and explaining behavior is measured by the

amount to which the predictors in the theory could account for a reasonable proportion of the variance in behavioral intention and usage behavior.

3. THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

Technology is of little value, unless it is accepted and used. The understanding of technology acceptance and usage is vital and cannot be over emphasized. Unified Theory of Acceptance and Use of Technology (UTAUT), is an important model for studying IT acceptance and usage. The UTAUT model was produced by Venkatesh and his team basing it upon the conceptual and empirical similarities among eight competing technology acceptance models: TRA, TAM, MM, TPB, C-TAM-TPB, MPCU, IDT, and SCT (Birth & Irvine, 2009; Schaper & P., 2007; Van Biljon & Renaud, 2009; Venkatesh et al., 2003). The UTAUT model effectively merge key elements from among the initial set of 32 main effects and four moderators from eight different models (Kripanont, 2007; Venkatesh et al., 2003). According to Venkatesh and his team, the theoretical perspective of UTAUT model provides a refined view of how the determinants of intention and behavior evolve over time. Therefore the model postulates three indirect determinant of new technology usage (Performance expectancy, Effort expectancy, and Social influence), and two direct determinants of usage behavior (Intention and Facilitating conditions). The model shows that four moderator, gender, age, voluntariness, and experience were identified to play specific moderating roles to the indirect and direct determinants of technology use behavior.

4. HOW ICT IS USED IN THE CLASSROOM

ICT applications depend on the teachers' successfully adapting them to specific teaching and learning context (Davis, Preston, & Sahin, 2009). According to (UNESCO, 2004), the three main approaches taken by teachers are:

(i) An integrated approach: planning the use of ICT within the subject to enhance particular concept and skills and improve students' attainment.
(ii) An enhancement approach: planning the use of an ICT resource which will enhance the existing topic through some aspect of the lessons and tasks.
(iii) A complementation approach: using an ICT resource to empower the students' learning. All the three approaches can enhance attainment, but the effects may be different.

5. A MODEL OF ICT TRAINING FOR NIGERIAN UNIVERSITY ACADEMICIANS

Attitudinally lecturers are not confident in supporting student computer use until they have mastered it for their own personal and professional purposes. ICT training is basically an integrative learning process to achieve a one point agenda of making a staff able to deliver lectures and carryout academic and administrative duties using available computing resources.
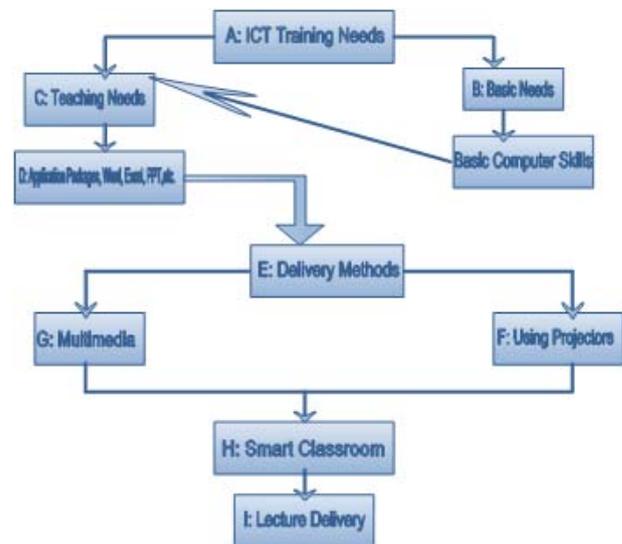

Fig 1: A Model of ICT Training for Teachers (Oye, 2012)

6. A MODEL OF ICT TRAINING FOR TEACHERS

This model was proposed to assist the expert in training the university teacher on the job with a specific time frame in Nigeria. The ICT training will help teachers to improve their ICT-related skills and knowledge; this will improve their perception of ICT in their profession. In addition, careful attention would be given to both levels of skills sought by the teachers, both ICT-related skills and the pedagogical use of ICT. Numerous factors, including timing and mode of training, teachers' belief, workload, and motivation, appear to have impact on the effectiveness of the

7. ICT TRAINING

(A) shows that ICT needs of each staff should be identified. It could be either for teaching or basic needs that is (B) or (C). If B the staff is given the required basic computer operation training courses and skill to get use to switch on the computer, input, process and output (print) information. Here the academic staff

will be able to identify hardware, software and fix simple faults. Get familiar with the keyboard to perform instructions like copy, cut and paste, text, pictures using the functional keys. Otherwise if (C) the staff is tutored on instructional technology, that is learning, thinking and the effective use of instructional technologies in the classroom. The understanding of and ability to use appropriate technologies; to facilitate learning; administrative purposes and for academic interaction are covered. Then the staff is ushered into learning the basic application packages in (D), such as word, Excel, Power point etc. After basic skill in B, the staff moves to (C) for teaching needs and then to (D) to learn how to use application packages.

Next is the training on delivery methods (E) here lecturers have the opportunity to master the basics of word-processing, email, internet search, uploading/downloading and similar skills. The next training will move them to either (F) using Projectors or (G) using Multimedia or both (F/G), depending on the departments and courses to be taught. Multimedia is a computer-based interactive communications process that incorporates text, graphics etc. One of the most important uses of technology is that it makes it easy for instructors to incorporate multimedia into their teaching. After this training the staff is then introduced to smart classroom concept (H) to enable them deliver their lectures more effectively (I).

Smart classrooms are technology enhanced classrooms that foster opportunities for teaching and learning integrating learning technology such as computers, specialized software etc.

8. ICT TRAINING TIME FRAME

a. Assumptions

For the workability of the model of ICT training for teachers, the researcher has the following assumptions:

- That the training is sponsored by the University authority.
- That the stakeholders gave full support for the programme to be runned.
- That experts are brought to do the training.
- That the training will be within the University environment.
- That some ICT facilities are available in the University.
- That the intensive training will be done during semester-breaks.

The researcher is a lecturer in one of the public University in Nigeria for over ten years. From experience, there is about four weeks break per semester,

if there is no strike by the academic staff. In Nigeria lecturers are not totally free during the semester break except they are on their annual leave. They have exams scripts to mark and students' results to be submitted to the HOD. In addition, they have student projects to read (depending on their status) and the planning for the next semester teaching.

According to (Downes et al., 2001), enough time should be allocated for teachers to participate in ICT training, and also sufficient time should be allowed for teachers to practice their newly developed ICT skills. To get good result, the timing of training should be suitable for teachers not to exploit their non-working time (Galanouli et al., 2004; Gilmore, 1995; Mathew et al., 2003). Therefore within the semester break, we proposed four hours training per week. Based on this the experts should plan their schedules of training. Again we proposed that, the time frame for the training should not exceed six (6) semesters. The primary objective of the training is that before the end of six semesters: The trainee is expected to use ICT while teaching, depending on the University ICT infrastructure.

According to (Ng, Miao, & Lee, 2008), this is the emerging stage. Here teachers' focus is on the use of ICT and emphasis is on basic ICT literacy and skills. This approach has an emphasis on teacher training on how to use ICT in the classroom. Using ICT to promote learning activities. Developing new methods of facilitating learning and evaluating students' performance.
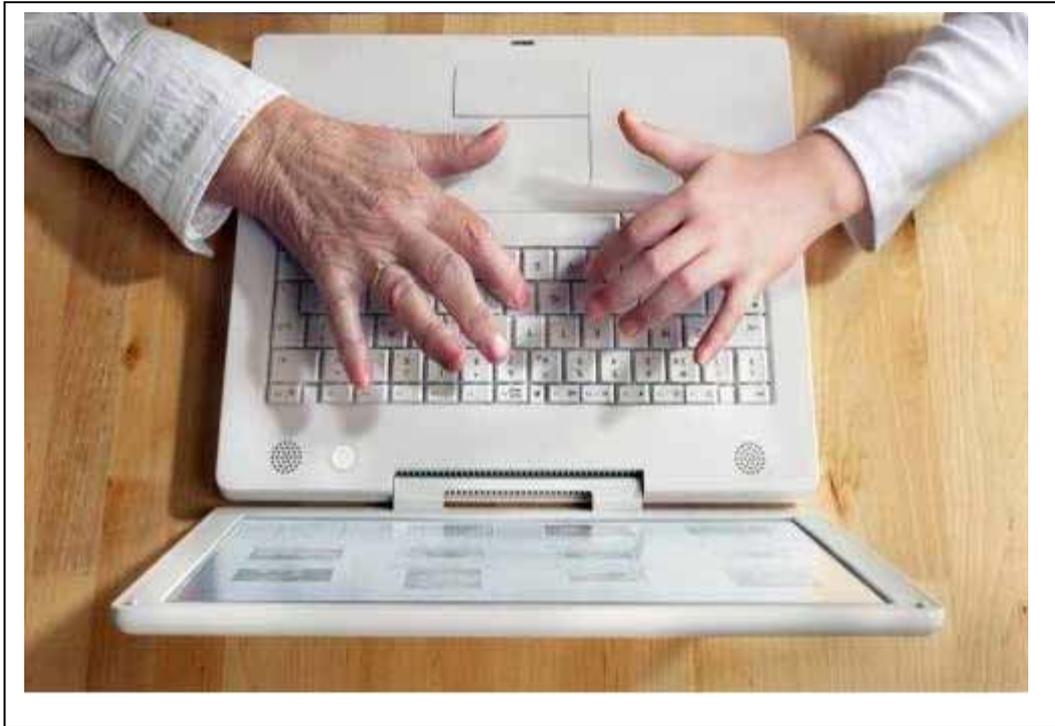

Fig 2: ICT Training (A)

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Fig 3: ICT Training (B)

b. Basic ICT-Skill Workshop (covers):

- Word processing
- Power point
- Internet literacy
- Other technical skills

c. Instructional Technology: (covers):

- Learning, thinking and the effective use of instructional technologies in the classroom
- Instructional planning models
- Integrating instructional technologies and resource materials
- Organizing and managing instructional activities with appropriate ICT resources in the classroom.

This approach of using ICT as the main content emphasis the development of teacher's basic ICT skills.

9. ICT AS PART OF TEACHING METHODS

This approach integrates ICT into teacher training to facilitate some aspects of training. It uses videotapes and CD-ROM to help teachers to see how technology can be integrated in their work. CD-ROM made up of stories about teachers who are making meaningful and creative uses of technology in their

instruction. Teachers learn how to use ICT in their classrooms by actually being engaged in the process of ICT-integrated training.

a. ICT as Core Technology for Delivering Teacher Training

The content of this approach covers a variety of ICT applications. The digital technology is frequently becoming the core technology of ICT teacher training. Packages that train teacher to teach existing online courses. The use of ICT as core technology for delivering training can be found in limited context.

b. ICT Used to Facilitate Professional Development and Networking

The use of the internet would enhance continuous professional development activities of teachers, connecting teachers to larger teaching communities and allowing for interaction with expert groups. Teachers can find a range of resources for professional development, such as the ICT support Network Directory which provides easy access to ICT provision and training. At the international level, the World Banks' World Links for Development (WorLD) program provides Internet connectivity and training for teachers, teacher trainer and students in developing countries in the use of ICT and other technologies in education. One of the best ways to develop teachers' ICT skill and promote ICT-pedagogy integration in their

teaching is the provision of ICT-based training environment where the experts can be engage in active discussion in relation to the technologies.

10. CONCLUSION

ICT training is basically an integrative learning process to achieve a one point agenda of making a staff able to deliver lectures and carryout academic and administrative duties using available computing resources. ICT is crucial to educational development of any nation, as it improves the quality of teaching, learning and research in the university. Teaching is becoming one of the most challenging professions in our society where knowledge is expanding rapidly because we are in the information age. The primary aim of integrating ICT into higher education institutions should be the transformation of the university into a knowledge and information influence, with the ability, capacity and necessary skills. The proposed model for ICT teacher training will assist the experts to be focused. In addition, careful attention would be given to both levels of skills sought by the teachers, both ICT-related skills and the pedagogical use of ICT. Numerous factors, including timing and mode of training, teachers' belief, workload, and motivation, appear to have impact on the effectiveness of the ICT training.

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