

A Modified Unified Theory of Acceptance and Use of Technology (UTAUT) Model in E-Learning Adoption by Students in the Nigerian Higher Educational Institutions (HEIs): A Conceptual Paper

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Abstract

The world is changing today because of the impact of Information and Communications Technology (ICT) in all aspects of human endeavours including learning and education. In fact, Higher Education Institutions (HEIs) in developed countries believe that these developments offer rich opportunities to embed technological innovations within the learning environment (Al-Adwan et al, 2013). However, a lot of Higher Education Institutions (HEIs) in Nigeria are yet to implement e-Learning for various reasons even though there have been improvements in the use of the web for other opportunities and purposes like course registration and fee payments by the students. Furthermore, little or no research has been carried out to determine why the adoption of e-learning is still very low on the part of the students in the HEIs that have implemented it. Hence, in this paper we propose a conceptual framework of a modified Unified Theory of Acceptance and Use of Technology (UTAUT) model towards investigating the adoption of e-learning by students in the Nigerian HEIs.

Keywords: ICT, Adoption, E-learning, Nigeria, Unified Theory of Acceptance and Use of Technology (UTAUT) model, Higher Educational Institutions (HEIs)

Introduction

The advent of the Internet and the accompanying technologies has no doubt revolutionized the world and the impact is being felt in all sectors. This recent technology infusion has been discovered to promote participation and communication in traditional university classrooms in the delivery of learning and education (Masrom, 2007). The traditional methods of learning have been in use in education from many ages past but research has shown that electronic communication, information and imaging technologies offer methods of delivery of education, training and learning much more convenient than traditional methods (Fritz et al., 2002). The first general-purpose system for computer-assisted instruction that brought about the emergence of e-learning was the PLATO System at the University of Illinois at the Urbana-Campaign (Cullata,

2011). E-learning encompasses a whole new set of physical, emotional and psychological issues in conjunction with educational issues (Pallof and Pratt, 1999).

In this paper, e-learning is defined as a technology that supports learning and education by exploiting modern day information and communications technology (ICT) to address the growing and continuing education needs of students. Electronic learning or 'e-learning' and 'web-based learning' are some of the recent technologies in the developing countries that are transforming the way learning and education are delivered to all, especially in the Nigerian higher institutions of learning. E-learning, though not new to Nigeria as opined by Ajadi et al. (2008) and Nwabufo et al. (2012), is still not very well adopted and accepted by students. Many universities in Nigeria have since implemented it and most recently, Afe Babalola University (ABUAD), a private university implemented "Learning Management System (LMS)", but its adoption amongst students is still very low.

In Nigeria, many reasons have been given for the low and slow adoption of web-based learning or e-learning. The e-learning techniques mostly adopted by most of the Nigerian institutions are in form of prepared lectures on a CD-ROM that can be played as at when the need arises. This has limited advantage because of the number of students per computer system and also because of these facilities are not interactive enough, compared with when the lecture is being received in real-time over the internet (Salawudeen, 2006).

Other reasons range from poor ICT infrastructures, and other socio-economic reasons due to very high primary cost of infrastructural development and the need to increase public access to Internet and other ICTs (Nwabufo et al., 2012). Other reasons are inequality of access, technophobia, attitude of students and software and license costs (Salawudeen, 2010), technology awareness (Abubakar and Ahmad, 2013), poor investment and commitment to developing e-learning application and most that developed websites use them for advertisements (Kamba, 2009), problem of material devices (such as personal computers, tablets, smart phones, etc) in terms of availability and affordability (Nwana, 2012) and most notably, a dearth of trained teachers for e-learning (Mac-Ikemenjima, 2005).

The developed countries have advanced from e-learning to mobile learning or m-learning while most institutions in Nigeria are yet to fully implement electronic learning despite using the Internet and the web for other purposes like registration of courses, payment of necessary fees and provision of general information. Therefore, this paper proposes a conceptual framework based on a modified Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) to investigate students' adoption of e-learning in Nigeria Higher Educational Institutions (HEIs).

Theoretical Background

E-learning has been around in Nigeria and in use by some educational institutions like Obafemi Awolowo University (OAU CDL, OAU Online), Afe Babalola University (LMS), University of Ibadan (e-Learning), University of Lagos, (DLILMS) and Ahmadu Bello University (e-Learning) among a few others. Emenyonu (2015) reported in one of the Nigerian daily newspapers that the National Universities Commission (NUC) plan to introduce e-learning in all Federal Universities, Polytechnics, and Colleges of Education in the country. although the initiative started in the year

2014, with University of Benin (UNIBEN). However, it is still very low and is still being treated after a long time, as a new concept.

The UTAUT model is unique and represents an improvement upon older theories like Technology Acceptance Model (TAM). The UTAUT model suggests that there are a number of determinants cum factors that may influence the decision to adopt a technology by users who happen to be students in this case. The UTAUT model by Venkatesh et al. (2003) incorporated eight constructs from models and theories of technology adoption or acceptance which informed the choice of the UTAUT. Despite the introduction of e-learning in some universities, the participation is very low including little or no willingness and urgency on the part of the students. The latter has been witnessed and experienced by the authors because of our interactions and firsthand research and experience on the implementation and use of e-learning.

Furthermore, the objective of this research is to investigate the students' adoption or acceptance of e-learning in the Nigerian HEIs.

The Unified Theory of Acceptance and Use of Technology (UTAUT) Model

The research into acceptance, adoption and diffusion of a technology has reached advanced stage and is yielding many competing models with differing sets of determinants (Venkatesh et al., 2003). Earlier models that existed for the same purpose to fulfil same are the Technology Acceptance Model (TAM) by Davis (1989), Information Systems Success Model (Delone and McLean, 2003), TAM 2 (Venkatesh and Davis, 2000) and TAM 3 (Venkatesh and Bala, 2008), etc. All of these theories try to explain use and user behaviours regarding end-user technologies.

However, the UTAUT incorporates eight theories that include: the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Social Cognitive Theory (Bandura, 1986), the Technology Acceptance Model (TAM) (Davis, 1989), the Motivational Model (MM) (Davis et al., 1992), the Theory of Planned Behaviour (TPB) (Ajzen, 1991), Model of PC Utilization (MPCU) (Thomson et al., 1991), Innovation Diffusion Theory (IDT) (Rogers, 1995), and the Combined TAM and TPB (Taylor and Todd, 1995).

The UTAUT model attempts to explain how individual differences influence the use or acceptance of a technology and the relationships between the determinants and moderators which has helped to enhance and enrich our understanding of technology acceptance (Marchewka and Liu, 2007). Furthermore, a lot of studies have used the UTAUT model and found that it accounts for 70 % of the variance in the intention to use a technology (Venkatesh et al., 2003). All the above further proves the effectiveness and robustness of the UTAUT model for use in the acceptance of a technology.

Factors of Unified Theory of Acceptance and Use of Technology (UTAUT)

Performance Expectancy

Performance expectancy is defined as the "degree to which a student believes that using e-learning will help him or her attain gains in academic performance" (Venkatesh et al., 2003). Venkatesh et al. (2003) adjudged that perceived expectation is the strongest predictor of intention to use and accept a technology.

Effort Expectancy

Effort expectancy is defined as the “degree of ease associated with the use of e-learning”. This is the effort that the student needs to put towards learning how to use e-learning. (Venkatesh et al., 2003). This is to find out if the student will be able to use the e-learning much easily with little or no assistance.

Social Influence

Social influence is defined as the “degree to which a student perceives that important others (such as university management, teachers, parents, peers and colleagues, etc) believe that he or she should use e-learning (Venkatesh et al., 2003).

Facilitating Conditions

Facilitating conditions are defined as the “degree to which a student believes that an institutional and technical infrastructure exists to support the use of e-learning” (Venkatesh et al., 2003). The infrastructures range from adequate bandwidth for Internet or intranet connectivity, e-Learning servers, supporting servers, technical assistance and help desks, data centre, Wireless Fidelity Access, etc

Other Factors Used (Proposed) to Modify the UTAUT Model**Perceived Quality of Service (PQoS)**

This is defined as the degree to which a student thinks he or she will be satisfied with the services to be offered on e-learning (Abu-Al-Aish and Love, 2013). This covers all the aspects of quality of content, and also expectations about satisfaction concerning what information and other services are (to be) offered or provided by the e-learning. This is also a provision of support for students in terms of computer hardware and software necessary to work on e-learning and e-learning compatibility with the other systems like university webmail, websites and the other students who are using e-learning.

Cost

Cost is used to describe rate of charge for authorization and authentication of the use of the e-learning to eventual access. It also covers the cost incurred due to accessibility, use and continued use. Cost had been used in the Innovation Diffusion Theory which forms one of the models used in the evolved UTAUT model. (Chiemeké and Ewwiekpaefe, 2011)

Perceived HEIs e-Readiness

This refers to the degree to which a student perceives a higher institution’s e-readiness, to the assessment of presence, development, and implementation, service level and cost structure of support such as telecommunications, data centre, devices and the existence of adequate IT infrastructure (Molla and Licker, 2005). This factor is used to replace facilitating conditions in the original UTAUT model and to cover other aspects of availability of technical help and support. Wireless Fidelity Access, Internet and Internet Facilities and many more.

The Moderating Variables

Moderating variables are used to reduce or strengthen the relationships between the determinants and can either be qualitative or quantitative (Baron and Kenny, 1986).

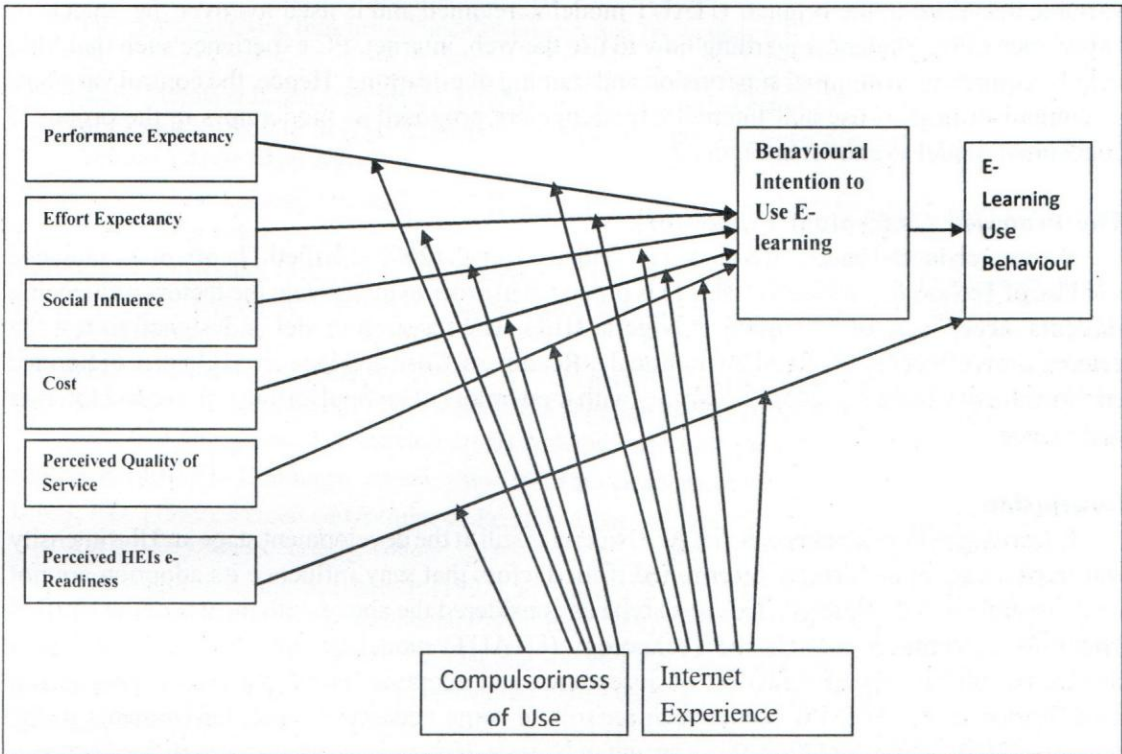


Figure 2. The Proposed Conceptual Model

The moderating factors proposed by the original UTAUT model which are age, gender, and voluntariness of use have little influence in intention to use, in the context of this research and will not be used. This is because the sample for this research is university students where, for example, age and gender between the students may not vary too much. However, compulsoriness of use and Internet experience are considered as moderators in the proposed conceptual model.

Compulsoriness of Use

The original UTAUT model proposed voluntariness of use as the moderating variable while in this research; we propose compulsory usage of the e-learning by the students. This is the situation whereby the management of HEIs makes it compulsory for students to use e-learning by the use and introduction of IT policy that covers the use of e-learning. Compulsory use is used as the opposite of voluntariness of use. This is to further consider if making the use of e-learning compulsory by the management will improve the adoption.

Internet Experience

Experience is the key and it is believed that the level of literacy also may inform acceptance and use of a system in this case e-learning. Nigerian as a developing country still has a challenge with literacy especially by the recent ranking of HEIs graduate in terms of quality. This moderating variable also used in the original UTAUT model is retained and is used to cover the aspects of experience of the students regarding how to use the web, internet, PC experience such that little help is required with minimal supervision and training of e-learning. Hence, the control variables of compulsoriness of use and Internet experience are proposed as moderators in the proposed conceptual model as shown in Figure 2.

The Proposed Conceptual Framework

A research model based on a modified Venkatesh et al. (2003) Unified Theory of Acceptance and Use of Technology Model (UTAUT) is proposed in order to investigate the factors influencing students' acceptance of e-learning in Nigeria HEIs. The research model is designed to test the determinants effect of Perceived Institutional e-Readiness, Cost, and Perceived Quality of Service on intention of students to adopt e-learning with moderators of compulsoriness of use and Internet experience.

Conclusion

E-learning in developing countries like Nigeria is still at the development stage and the intensity and impact cannot be directly determined if the factors that may influence its adoption are not well researched and validated. This research has considered the above with the use of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. In, this paper, research was conducted into the relevant models of acceptance and adoption, and furthermore, proposed a modification of the UTAUT model with regards to some additional three determinants in the context of HEIs implementation of e-learning in Nigeria. However, the research is limited because the proposed concept is only based on literature review. This paper proposes a conceptual framework for investigating students' adoption of e-learning in Nigerian HEIs. Consequently, further research would focus on empirical validation and reliability of the conceptual framework.

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