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# EXTENDING THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT) MODEL: THE ROLE OF TECHNOLOGY CULTURATION

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## Abstract

The Unified Theory of Acceptance and Use of Technology (UTAUT) model has been widely used in explaining and assessing technology adoption in diverse contexts. However, it does not have Technology Culturation as one of the constructs. This variable constitutes a prevailing challenge in the developing world that could affect the adoption of technology in higher institutions of learning. The concept of Technology Culturation which is a critical factor for the adoption of e-learning tools and facilities in higher institutions of learning will be analytically examined in this study. The concept of Technology Culturation says that individuals who had prior exposure to relative technologies like cable satellites, television, video games, etc. are already tuned in their minds or acculturated to the use of technology; this concept assumes that this can affect an individual's acceptance of other ICTs or other advanced technologies subsequently. This paper would therefore attempt to explore the extension of UTAUT by integrating Technology Culturation construct into the model that can be used in explaining or/and assessing the adoption of e-learning tools in higher institutions of learning in Nigeria. To this end, secondary sources of data such as Text Books, Journals, Magazines and the Internet will be used for this study. The conceptual framework should be of interest to both researchers and education administrators/stakeholders in developing nations in terms of planning and policy making.

Keywords: Technology Culturation, Nigeria, e-learning, adoption, UTAUT.

## 1 INTRODUCTION

One major focus of information systems research is the need to study individual acceptance and use of technology. This need has been widely addressed by using some theories from disciplines such as sociology and psychology to develop models that are used to explain technology acceptance and use [1]. Consequently, the combination of eight of the theories / model which emerged over time of the use technology gave rise to the Unified Theory of Acceptance and Use of Technology (UTAUT) by [2] as depicted in Fig. 1.

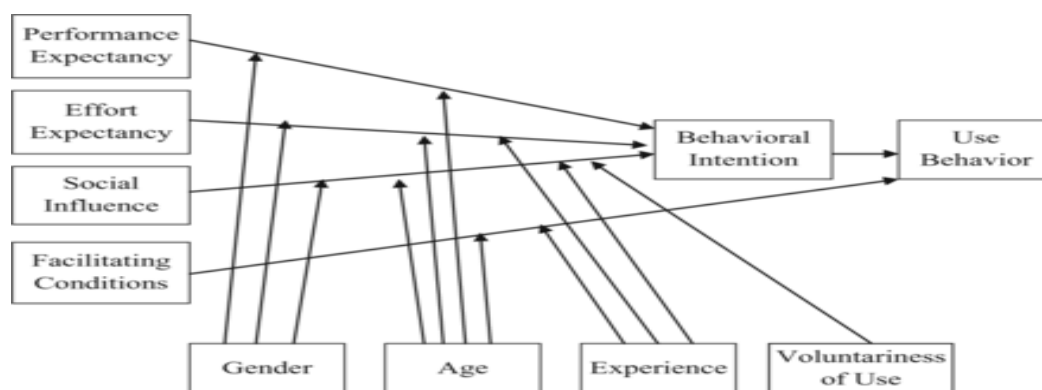


Fig. 1: Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, and Davis, 2003).

The eight combined theories/models of technology use (i.e. user acceptance and motivation models and theories) used by [1] to propose the Unified Theory of Acceptance and Use of Technology are: the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behaviour (TPB), a combined theory of Planned Behaviour/Technology

Acceptance Model (C-TPB-TAM), the Model of Personal Computer Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). As a result, UTAUT holds that four key constructs are direct determinants of technology acceptance (behavioral intention) and use (behavior): *Performance Expectancy*, *Effort Expectancy*, *Social Influence*, and *Facilitating Conditions*. This theory also submits that the effect of these four key constructs is been moderated by other four variables namely: gender, age, experience and voluntariness of use. Performance Expectancy (PE) is the extent to which an individual trusts that using a technology will help to attain gains in task performance while Effort Expectancy (EE) is the extent of ease associated with the use of technology. Social Influence (SI) is the extent to which an individual recognizes that important others believe he or she should use a particular technology while Facilitating Conditions (FC) is the extent to which a person believes that an organizational (in terms of financial support, availability of and access to technology, etc.). Technical infrastructure is in existence to support the use of technology. Furthermore, *Performance expectancy*, *Effort expectancy*, and *Social influence* are posited to influence behavioral intention to use a technology, while *behavioral intention* and *facilitating conditions* determine technology use. Whereas the variables of individual differences of *gender*, *age*, *experience* and *Voluntariness of use* are posited to moderate the different UTAUT relationships [1].

UTAUT is used as the consolidated model for analysing intention of using new technology and actual Use [3]. As a way of authenticating the model, when compared to the prior usage intention (acceptance) models and their extensions, [2] revealed that UTAUT explains 70 percent of individual differences in the usage intention and actual use of technology which is more than every of the prior models. According to [1], UTAUT has advanced the critical factors and likelihoods that could predict behavioral intention to use a technology as well as technology usage. [4] used the UTAUT model to analyze students' ICT adoption in Ghana; [5] used the UTAUT model to look at Nigerian factors in E-Commerce adoption while [3] have used UTAUT to examine the factors influencing the actual use of Mobile Learning.

Although the Unified Theory of Acceptance and Use of Technology model has been widely used to explain and examine technology usage, integration and adoption, however, Technology Culturation factor is not included among the variables of this model because people who grew up in developed nations are already acculturated to the use of technology (Technology Culturation). Therefore, this paper will extend the UTAUT model by integrating *Technology Culturation* into the existing variables. The model will therefore become appropriate for explaining technology adoption in developing nations. The remaining part of the paper is as follows: Technology Culturation is discussed in Section 2 while a conceptual framework is presented in Section 3. The paper is concluded in Section 4.

## 2 TECHNOLOGY CULTURATION

Technology culturation is hinged on the theory of anthropological literature as adopted in [6] and [7]. Technology Culturation is the influence of cultures that are technologically-advanced on the attitude of an individual to technology [8]. Recent research on Diffusion of ICTs maintains that the extent of technological culturation of a society has an influence on the extent of technology usage of that society [9]. This view emphasizes that technologically culturated societies, that is, societies in which technology is a normal part of daily living will be heavier users of technology than the societies that are less technology culturated [9,10,11]. Studies have established that accessibility based on *Technology Culturation* concept influences the usage of ICTs in developing nations [12,13]. From previous studies of ICT diffusion in Arab nations, it has been discovered that Technology Culturation did consistently provide a positive influence on ICT usage [10,14]. In the selected study of Meso and Musa [13], it was reported that Technology culturation influences the extent of usage of technology in Nigeria, Kenya, and Gambia.

Another simple way of relating the concept of technology culturation is that people who have prior exposure to or who have access to the use of technologies like video games, cable satellite, television, etc. particularly those who grew up in the city or who lived in developed countries are already tuned in their minds towards technology which enhances their interest and ability to use other higher technologies or ICTs unlike those who grew up in the village or in developing nations [15]. This implies that the opportunity to use or familiarize one's self with a technology subsequently enhances the potential and chances for being acculturated to ICT. [9] defines Technological culturation as the effect of on-going exposure to technology that in turn increases an individual becoming accustomed to technology. In other words, it is the cultural exposure as well as the experiences that individuals have with technology [13]. The phenomenon of technological culturation which was first defined by [10], and then used in the work of [9] have established its influence on ICTs usage. According to [16],

technology culturation as represents the exposure of a person to a relatively technology-concentrated culture. Similarly, [17] submitted that there is direct relationship between culture and/or Technology Culturation and Information Technology Transfer. For instance, they said that training could be far more effective when trainees have been technologically culturated, or have been previously exposed to related technologies [8]. In corroboration, [9] argues that the extent of technological culturation is viewed as influencing the level of ICTs usage in a particular society.

### 3 CONCEPTUAL FRAMEWORK

The conceptual framework is presented in Fig. 2.

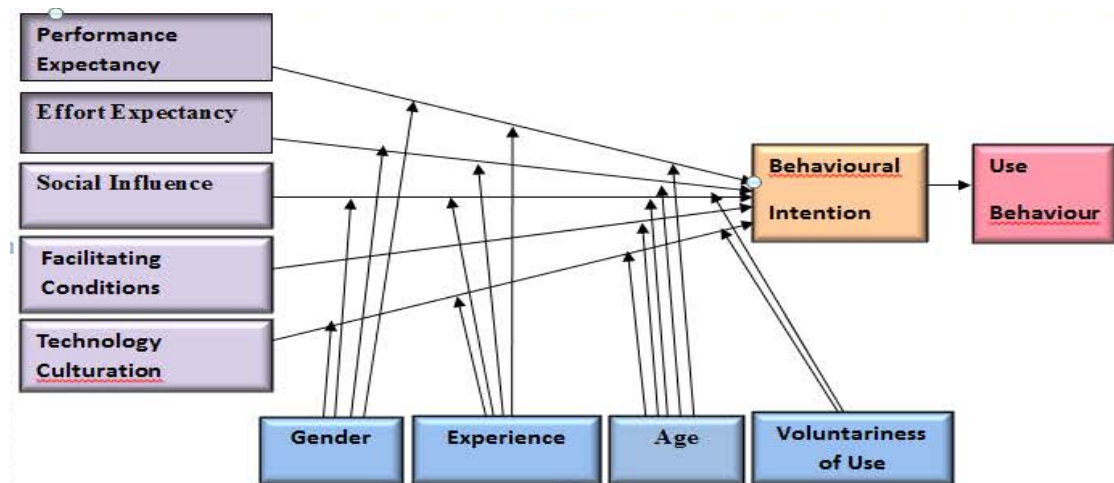


Fig. 2: Conceptual Framework for Explaining/Assessing Educational Technology Usage.

The conceptual framework (model) in fig. 2 suggests that five essential factors (*Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions and Technology Culturation*) are direct determinants of technology usage (behavioural intention) and (use behaviour). The framework also asserts that these five essential factors are moderated by four other Moderating variables (individual difference variables), i.e. age, gender, experience and voluntariness of use.

The five essential factors are the independent variables while the Use Behaviour is the Dependent or Outcome variable. The Behavioural Intention is the Intervening variable between the five essential factors (dependent variables) and the Use Behaviour (Dependent or Outcome variable). Age, Gender, Experience and Voluntariness of Use are the Moderating variables that moderate the essential factors that determine educational technology usage. With respect to fig 2 the meanings of the variables uses are as explained as follows: *Technology Culturation (TC)* is a concept that represents a person's prior exposure to relative technologies like video games, cable satellite, television, radio, etc. it assumes that this can affect an individual's acceptance of other ICTs or other advanced technologies subsequently. *Power* is the energy that is produced by mechanical, electrical, or other means and used to operate a device. *Power*, electricity and energy are often used interchangeably while *Age* is the amount of time tha a person has lived or existed. *Experience* is the process of getting skills, knowledge or proficiency in doing something while *Gender* is a socially created concept which ascribes diverse and recognized social roles as well as identities to men and women. *Voluntariness of Use* refers to the degree to which the use of technology is perceived as being of free will or choice while *Behavioural Intention* is the determination of an individual to act in a certain way. Finally, *Use Behaviour* is the actual usage act.

### 4 CONCLUSION

UTAUT as propounded by [2] has been used in diverse contexts for explaining and assessing the adoption, use and acceptance of technology. Continuing to examine it in new contexts will further support its validity. This paper has integrated *Technology Culturation* variable into the UTAUT model that can be used for explaining or assessing the adoption level of Technology. The conceptual framework is intended to help explain variation in individual educational technology acceptance, usage

and adoption in developing nations. In the future work, the researcher will empirically validate the inclusion of Technology Culturation variable into the UTAUT model for explaining or assessing e-Learning technology usage by collecting and analysing data from Nigerian context.

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