



Factors Affecting the Adoption of ICT by Administrators in the University for Development Studies Tamale: Empirical Evidence from the UTAUT Model

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Abstract: The study of technology acceptance is a constantly developing field, perhaps, resulting from the ever evolvement of new technologies. Models and theories have been developed to address and determine technology user acceptance behaviour. The study adopted the UTAUT model, which is considered parsimonious and comprehensive because of its eclectic nature. The study thus examined the critical predictors of behavioural intentions and the relationships that exist among the predictor variables in the ICT adoption context in the University for Development Studies, Tamale in Ghana. The study surveyed 100 respondents using self-administered questionnaire. The findings of the study indicate that the adopted model for the study explains 67.3% of the variation in behavioural intention to adopt ICT. It also found that facilitating conditions exert the strongest influence on behavioural intention than the rest of the predictor variables in the research context. Whereas performance expectancy was the least influential, social influence and effort expectancy were second and third respectively. Theoretically, the study fills the dearth of application of technology acceptance models in understanding the critical determinants of behavioural intention in Universities' staff ICT adoption context. It also provides valuable implications for management of Higher Institutions of Learning.

Keywords: ICT Adoption, UTAUT, UDS, Administrators, Tamale

1. Introduction

Information and Communication Technology (ICT) is playing a significant role in shaping 21st-century education and making an impact on higher education. ICT, within the last two decades, have been seen to be influencing the way in which administrators in Higher Institutions of Learning (HIL) performed their daily schedules. As pointed out by [1] ICT is intensely affecting school administrators' operations. [2] asserts that ICT plays a key role in all aspects of a person's life, such as political, economic, social and cultural. ICT is quickly transforming the manner in which businesses operate, access information and services, communicate with one another and even entertain themselves. The potential of ICT enhancing human abilities and ameliorate the administration of education

was first realized in business and military according to [3].

It is globally acknowledged that school environments are overly conservative in the way they operate [4, 5]. [6] found that administrators serve a crucial role in influencing the manner in which things are done in schools, and thus their attitude and knowledge base with regards to ICT is of enormous significance when it comes to the integration of ICT into the administrative function of higher education. Also, [7] intimated, after conducting a study on Iran school administrators, that the ICT knowledge level of heads of institutions impacted their decision to integrate ICT in their leadership positions.

Developing economies such as Ghana are beginning to appreciate the benefits of ICT in education, and it is anticipated that governments will facilitate this initiative [8].

The ICT literacy level of school administrators directly affects their decision to utilize ICT in administration functions. [9] study revealed that the adoption of ICT in teaching and administrative duties in Sub-Saharan Africa is hugely affected by ICT knowledge level of institution administrators.

Moreover, the administration of HIL in Africa has witnessed remarkable change due to the evolution of ICT that has been experienced over the past 30 years. The speed at which ICT is developing and its impact on socio-economic activities cannot be overemphasized. It could be argued that the use of ICT has been integrated into virtually every facet of human life – commerce, education, governance, etc.; and thus has become a critical factor in managing HIL in Ghana and other parts of the world.

Furthermore, technology acceptance research is a continually developing field, perhaps, resulting from the ever evolvement of new technologies. Models and theories have been developed to address and determine technology user acceptance behaviour. A significant amount of technology acceptance studies has their foundation in the Technology Acceptance Model (TAM), originally conceived by [10]. Though TAM is an intention-based model derived from the Theory of Reasoned Action (TRA), it is often tailored to meet the broad needs of information technology research [11].

Of all the technology acceptance theories and/or models, TAM has enjoyed wide acceptance and has proven to be a rationally precise predictor of both users' intentions to use an information technology and of their actual system used before the birth of the Unified Theory of Acceptance and Use of Technology (UTAUT). The birth of UTAUT is therefore as a result of several years of research effort by Information Technology (IT) researchers in formulating and testing different models in the ICT adoption studies.

The motivation for conducting this study is multi-faceted. To begin with, modern technologies such as computers and telecommunications technologies have been the most remarkable and transformative of the technologies emerging over the past 30 years as indicated by [12]. The emergence and convergence of these technologies have been termed Information and Communication Technology [12]. Much has been discussed in the technology adoption literature. However, the existing literature on the adoption of ICT by Universities' staff are generally not much, and those that exist seem to be skewed towards teaching staff; but not administrative or non-teaching staff.

Again, research on the adoption of ICT by Universities' staff is limited in general, as there are few studies that have contributed knowledge on the subject matter. These include studies such as [12] in Cape Coast, Ghana and [13] in Kumasi, Ghana. Outside Ghana, but within Africa, studies such as [12] in Nigeria. [13] in Nigeria have focused on teaching and learning. Studies in ICT adoption outside Africa that have their lenses on teaching and learning and on teaching staff but not on administrators include [14] in Turkey, [15] [16] in USA, [17] in Taiwan, [18] in Saudi [19] in Canada, [20] and [21] in UK and information administration by [22] in India.

This study is an attempt to fill this void in the ICT adoption

literature by employing a more robust methodology to study ICT adoption factors within the context of UDS, Tamale with the research lens on administrators. Administrators are the focus because, as mentioned earlier, existing literature on the adoption of ICT by universities' staff in Ghana are general not much and those that are in existence appeared to be tilted away from administrators. Secondly, most administrative duties or jobs done by administrators require the application of ICT if they (the administrators) have to be effective and efficient in their work. It is obvious, from here, that, administrative duties are likely to suffer or slowdown, which will, in turn, lead to lower productivity, if ICT adoption is slow among university administrators. Given the above statement, there is the need, therefore, for more investigations to be conducted into ICT adoption factors in the HIL so as to determine what influences administrators to accept or reject technology. It is on the strength of this that this study was conducted.

The current study will thus attempt to answer questions on the influence of Performance Expectancy (PE); Effort Expectancy (EE); Social Influence (SI) and Facilitating Conditions (FC) on UDS administrators' adoption and usage of ICT. The ensuing hypothesis was formulated for the study H₁: Performance Expectancy (PE) positively Influences UDS administrators' adoption and usage of ICT; H₂: Effort Expectancy (EE) positively Influences UDS administrators' adoption and usage of ICT; H₃: Social Influence (SI) positively Influences UDS administrators' adoption and usage of ICT and H₄: Facilitating Conditions (FC) positively Influences UDS administrators' adoption and usage of ICT.

2. Literature Review

2.1. The Concept of ICT and School Administration

As specified by [23] ICT applications in the field of higher education are viewed as an effective facilitator to formulating, accessing, storing, manipulating and transmitting or sharing various forms of information, such as audio, visual, audio-visual and text formats. This is made possible by the proactive environment presented by ICT. In a school administration context, ICT applications can be utilized for various functions. Nevertheless, the use of ICT is prevalent in the administrative purposes. Administrators in higher education institutions apply ICT to ease their mundane administrative duties. They used ICT in the registration of students Identification Cards, Identification Numbers, preparing school reports, announcements and letters for meetings, employment and so on.

Similarly, [34] noted that ICT is used to provide on-the-job training or presentations to educators. Administrators of institutions also employed the use of ICT in managing financial work, record keeping, data collection, processing documents and maintaining communication across the school and with the external environment alike. ICT application tools relevant to school administration include internet-based tools, hardware and software applications. Internet-based tools have a direct effect in improving the effectiveness of administrative

functions of an institution. Hardware application tools, like computers and photocopy machines, make administrators' tasks easier and faster. Further, [25] asserted that software application tools such as Microsoft Office and Educational Management Information Systems (EMIS) assist administrators of institutions to manage information in an effective and efficient manner.

2.2. Administrators' ICT Literacy Level and the Integration of ICT

ICT literacy, according to [26] is a form of 21st-century literacy. Nevertheless, they specify that this literacy gives a degree of attention to the utilization of digital technology not to only communicate, but for research purposes as well. The weight given to digital technologies in the 21st century is akin to the emphasis placed on reading and writing in anterior centuries. ICT literates are able to communicate and research using ICT infrastructure whereas those who are not are encountering difficulties in carrying out such tasks.

[27] examined the level of the use of ICT by administrators of institutions and their perceived capabilities in utilizing various elements in Australia. The study revealed that their primary competence was in the basic packages, such as word processing, databases and sending and receiving emails. The study also discovered that it is from this ICT literacy among the administrators that they were influenced to use ICT in the administration of institutions.

[28] also conducted a study that focused on the impact of literacy among school administrators, from the United States on the integration of ICT in administration undertakings. The study confirmed that the competence of school administrators in the use of computers is crucial for the integration of ICT in their administrative tasks and thus sufficient training is necessary. [29] recommends that the use of ICT by administrators of institutions play a crucial role in influencing the performance of their administrative responsibilities.

2.3. The Unified Theory of Acceptance and Use of Technology (UTAT)

[30] reviewed and compared eight dominant models that have been used over during the pre-UTAUT epoch. These models are TRA, TAM, the Motivational Model (MM), the Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB), the Model of PC Utilization (MPCU), the theory of Diffusion of Innovation (DOI), and the Social Cognitive Theory (SCT).

Upon review, the UTAUT authors reported a number of limitations of prior model tests and comparisons, which include the following:

the technologies studied were individual-oriented and straightforward as opposed to complex and sophisticated organizational technology.

most participants in these studies were students except for a few studies.

the nature of measurement was, mostly, cross-sectional.

most of the studies were conducted in voluntary usage contexts making it rather difficult to generalize results to mandatory settings.

These limitations were addressed in their new unified view model – UTAUT. The authors then empirically compared the eight models in longitudinal field studies conducted in four different organizations among individuals that were introduced to a new technology in the workplace. The measurement was carried out at three different points in time: post-training, one month after implementation and three months after implementation; while actual usage behaviour was measured over the six-month post-training period. The data was divided into two samples for the eight models according to the mandatory and voluntary settings.

The authors also studied the effect of some moderating variables that have been reported in previous research to affect the usage decision. These were experience, voluntariness, age, and gender. Results showed that, with exception to MM and SCT, the predictive validity of the models increased after including the moderators. The authors then examined commonalities among models and found seven constructs to be significant direct determinants of intention or usage in one or more of the separate models.

They hypothesized that four (4) of them play a vital role as direct determinants of user approval and usage behaviour. Based on user approval, literature and outcomes of the models' computer self-efficacy, comparison, attitude, and anxiety were hypothesized not to have a direct impact on behavioural intention. The constructs that do have a direct impact on behavioural intentions and usage were: performance expectancy, effort expectancy, social influences, and facilitating conditions. The relationship between these constructs and the moderators are shown in Figure 1.

[30] defined the constructs of their new model and related it to similar variables in the eight (8) models as follows: performance Expectancy (PE) "*is the degree to which an individual believes that using the system will help him/her to attain gains in job performance.*" The constructs in the other models that pertain to performance expectancy are perceived usefulness (TAM, and combined TAM-TPB), extrinsic motivation (MM), job-fit (MPCU), relative advantage (DOI), and outcome expectancy (SCT). According to [30] this construct, within each individual model, was the strongest predictor of intention and remained significant at all points of measurement in both voluntary and mandatory settings. In ICT adoption literature, the influence of performance expectancy on behavioural intention is hypothesized to be moderated by gender and age.

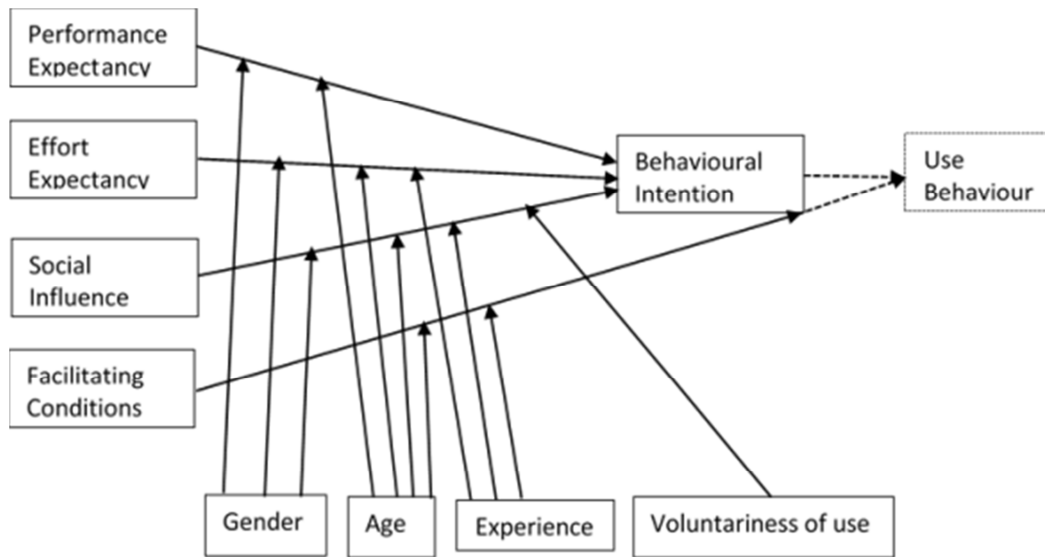


Figure 1. The relationship between UTAUT constructs and the moderators (Source; [30]).

Effort Expectancy (EE) “*is the degree of ease associated with the use of the new system.*” The constructs in the other models that capture the same concept are perceived ease of use (TAM), and complexity (DOI and MPCU). The construct in each individual model was significant in both voluntary and mandatory settings. Based on the literature, the influence of effort expectancy on behavioural intentions is hypothesized to be moderated by gender, age, and experience.

Social Influence (SI) “*is the degree to which an individual perceives that important others believe he or she should use the new system.*” Similar constructs are represented in existing models: subjective norms (TRA, TAM2, TPB/DTPB, and combined TAM-TPB), social factors (MPCU), and image (DOI). The comparison between models determined that this constructs behaved similarly; it is insignificant in voluntary contexts and becomes significant when use is mandatory. The literature emphasized that in mandatory contexts the effect is attributed to compliance and appears to be substantial only in the early stages of individual experience and when rewards/punishment are applicable; in contrast, social influence involuntary contexts operates by influencing perceptions about the technology (what is known as internalization and identification).

Equally, based on the literature, the influence of social influence on behavioural intentions is hypothesized to be moderated by gender, age, voluntariness and experience; such an effect would be stronger for women, particularly in mandatory settings in the early stages of experience.

Facilitating Conditions (FC) is *the degree to which an individual believes that an organizational and technical infrastructure exist to support the use of the new system.* This definition captures three different constructs in existing models: perceived behavioural control (TPB/DTPB and combined TAM-TPB), facilitating conditions (MPCU), and compatibility (DOI). The comparison between models revealed that the relationship between intention and this construct in each model is similar in both voluntary and mandatory settings in the first training period but such

influence disappears in the second period (one month after implementation). Based on the literature, when both performance expectancy and effort expectancy constructs are present, facilitating conditions become insignificant; and consistent with TPB/DTPB facilitating conditions are also direct antecedents of usage (an attribute also found in MPUC). This effect is expected to increase with experience as users find multiple avenues for help and support. Hence, the influence of facilitating conditions on usage is hypothesized to be moderated by age and experience; such an effect would be stronger for older workers, particularly with increased experience [30].

The empirical test of the original data (collected from four organizations) and the cross-validation using new data (collected from two additional organizations) provided strong support for UTAUT. The new model was able to account for 70 percent of the variance in usage intention, which is considered a steady improvement over any of the original models where the maximum was around 40%. The authors acknowledged a limitation of content validity due to measurement procedures and recommended that future research should be targeted at more fully developing and validating appropriate scales for each of the constructs with emphasis on content validity and revalidating or extending UTAUT with new measures.

2.4. Overview of UDS’ Administrative Work and ICT

ICT has been around for a long time; basically, as long as people have been around. ICT presence was not felt decades gone by because each technological breakthrough was limited by the existing industrial, social and economic sophistication at the time. ICT sophistication levels unfold from pre-mechanical, mechanical, through to electromechanical to the digital age. The universe is currently experiencing the latter stage - digital age – and only ALLAH knows what the next technological generation will come along with.

ICT has been applied to almost all the sectors of the world’s

economy as enabler and driver of commerce, education and so on. As a result of this, HIL in Africa have been seen, recently, to be integrating ICT in the management of their institutions. The increasing complexities of higher education governance and the challenges posed to the managers in Africa make the application of Hi-Tech information and ICT indispensable for quality assurance and goal attainment [13]. This has allowed for the various units of a typical university in Africa, and for that matter, Ghana, to have no option than to embrace ICT in the discharge of related administrative duties.

ICT plays a vital role in supporting the efficient management and administration of HIL. For example, in the University for Development Studies (UDS), ICT is seen to be assisting administrative staff in administrative jobs such as payroll and financial administration, administration of students' admission and data, personnel record management, inventory management and library system administration.

Other ways by which ICT is seen to be playing a major role is in sending electronic - mails and agendas to staff, rather than printing and distributing them by hard copy; admission through web-enabled services and all day – to – day activities of the institution [31]. On the strength of the above, almost all HIL have now placed ICT at the centre of their operations; perhaps, this has resulted in ICT becoming the pivot through which administrative work revolves.

In UDS, ICT is the driver of four major components of administration: student administration or student data management, staff administration, general administration and information administration.

ICT – enabled administration in this context refers to the use of electronic technologies and techniques to manage and manipulate data, information and knowledge for the proper understanding of events and happenings in an institution and for managerial decision-making. ICT plays a crucial role in information administration. Information Administration, here, refers to the processes that are involved in gathering, processing, managing and dissemination of information to relevant institutional stakeholders.

Student administration or student data management is a core activity of HIL, and it involves an array of activities ranging from announcing academic programmes, selling of programme forms, sorting qualified applicants and offering admissions. Other activities in student administration include processing of students results, analysing performance and certification. In other words, students' administration involves various activities commencing from the admission process through to learning activities till processing of result and certification. The integration of ICT into these processes enhances the overall admission activities of higher educational institutions by making it more available to many [22]. In UDS, ICT supports in enhancing activities in student administration by automating the admission process in a web-based fashion. For example, admission enquiry and application for admission are all done electronically.

Staff administration refers to a range of activities commencing from recruitment, employee job allotment, staff attendance, leave management and other employee-related

administrative jobs. Staff administration is done through the use of ICT and this is seen in the processing of voluminous staff records in a quick, accurate, and impeccable manner thereby making data retrieval easier [22].

In UDS much of the administrative work done in this respect is through the application of ICT. For example, staff data management, staff payroll records, online assessment of courses and lecturers and other such similar duties are all done with the support of ICT. An essential aspect of an institution's administration is general Administration. General administration has to do with the various duties that co-ordinate the above-mentioned administrative activities. In other words, general administration includes the various day – to – day activities of the entire administrative system [22].

The most obvious areas of application of ICT in the public universities are student personnel record management; student academic records; staff personnel records; teaching, research and publication; financial records management; and service management [13]. This is also true when it is viewed from the experience of UDS, Tamale.

3. Methodology

Based on the purpose of this paper, the researchers used the survey technique. The survey technique allows you to collect quantitative data, which you can analyse, quantitatively using descriptive and inferential statistics [32]. In addition, the data collected using a survey strategy can be used to suggest possible reasons for particular relationships between variables and produce models of these relationships. The target population consisted of three hundred and seventy-one (371) administrators of the Central Administration of the University for Development Studies, Tamale. The central administration consists of five departments – Registry, Works and Physical Development, Office of the Vice Chancellor, Finance department and the Audit Directorate.

A convenient sample size of 100 administrators was sampled from the total population of 371 administrators from the five departments– twenty (20) from each department. The selection of the administrators from the departments was 60%, 20%, and 20% representing Senior Staff (SS), Junior Staff (JS) and Senior Members (SMs) respectively. The use of these percentages was informed by the fact that the SS category handles most of the core work with SMs and JS respectively overseeing and handling clerical jobs. The cumulative sample size represents approximately 27% ($\text{Sample Size/Population} \times 100 = 100/371 \times 100$) of the total population. Data were gathered using a self-administered questionnaire to the 100 administrators at the central administration of the University, Tamale.

Cronbach alpha analysis was performed on all the five variables to ensure the reliability of items of the research instruments. A satisfactory general reliability value of 0.927 was obtained. Values that have been used in the literature as acceptable Cronbach's alpha range from 0.6 and above [33, 34] and general reliability numbers greater than 0.6 are considered acceptable in technology acceptance literature [35].

4. Findings and Discussions

Out of the 100 questionnaires administered, a response rate of 90% percent was achieved. Prior to the analysis of the data, the questionnaire items were inspected for accuracy of data entry into SPSS. The traditional pre-analysis screening procedures for examining multivariate assumptions (e.g., outliers, normality, linearity, and multicollinearity) were carried out using multiple regression and residual analysis. Almost all the assumptions were met; details of the findings are discussed below. It is vital to indicate here that the study uses alpha value of 0.5 throughout the statistical test.

On checking for outliers, two multivariate outliers were detected on the Mahalanobis distance measure and were checked on Cook distance to assess their influence. The resulting Cook distance value (of 0.310) indicated that the outliers have slight consequences on the rest of the independent variables [10]. Therefore, there was no danger in retaining the outliers; this was also confirmed in the tolerance reading when all the tolerance values were above 0.7. In the ICT adoption literature, a tolerance value of 0.7 and above is considered acceptable.

To check for the normality, the normal probability plot was used; the normal P-P plot of the regression standardised residual looked normal, though not perfect, as there were slight deviations from the straight line. The bottom-line is that there was a straight-line relationship as showed in figure 2.

Linearity is diagnosed when residuals have a straight-line relationship with predicted DV scores. If nonlinearity is present, the overall shape of the scatter plot would be curved instead of being linear. On the strength of the above, therefore,

the data passed the test of normality. The assumption of multicollinearity was also checked. Multicollinearity is the undesirable situation when one independent variable is a linear function of other independent variables. According to [10], multicollinearity relates to correlation matrix, and it occurs when predicted variables are highly correlated (0.9 and above).

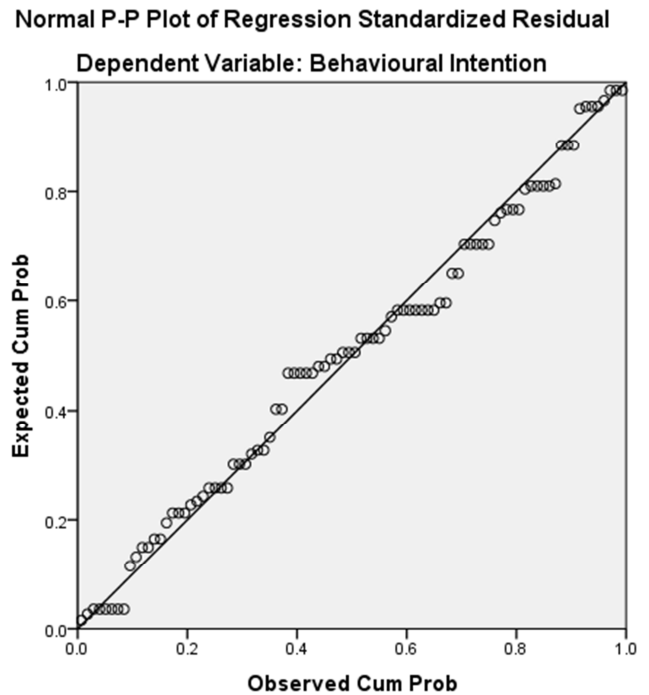


Figure 2. Normal P-P Plot of Regression Standardized Residual.

Table 1. Correlation Coefficients.

		Behavioural Intention	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Condition
Pearson Correlation	Behavioural Intention	1.000	.072	-.064	.184	.819
	Performance Expectancy	.072	1.000	-.013	.036	.117
	Effort Expectancy	-.064	-.013	1.000	-.015	-.044
	Social Influence	.184	.036	-.015	1.000	.205
	Facilitating Condition	.819	.117	-.044	.205	1.000
Sig. (1-tailed)	Behavioural Intention	.	.251	.275	.041	.000
	Performance Expectancy	.251	.	.453	.370	.136
	Effort Expectancy	.275	.453	.	.446	.339
	Social Influence	.041	.370	.446	.	.026
	Facilitating Condition	.000	.136	.339	.026	.
N	Behavioural Intention	90	90	90	90	90
	Performance Expectancy	90	90	90	90	90
	Effort Expectancy	90	90	90	90	90
	Social Influence	90	90	90	90	90
	Facilitating Condition	90	90	90	90	90

Both Bivariate and Multivariate correlations were examined. As can be seen from the table 1, no bivariate correlations above 0.2 were found between the IVs; which is far below the threshold of 0.9 as indicated by [10]. Therefore, there wasn't multicollinearity or data redundancy among the IVs. Multivariate correlation was assessed through the residual analysis and the coefficients output. From table 1, the tolerance readings are all above 0.1, and the Variance

Inflation Factor (VIF) has the maximum value of 1.1, which is far below 10.0. VIF of 10 and above indicate that there is multicollinearity. Since all the values were below 10.0, it means that the predictor variables are not correlated to the extent that it will warrant the exclusion of any one of the IVs in the analysis.

Multiple Linear Regression Analysis

A multiple regression analysis was run to test the model and

the hypothesis proposed in the study. Tables 4 & 5 provides an overview of the results. From Table 2, it could be seen that the model was statistically significant, and has accounted for approximately 67% of the variation in behavioural intention. Consequently, this study demonstrates the applicability of UTAUT to ICT adoption with respect to administrators in HIL context. Considering Table 2, the lesson learnt from the regression analysis is that BI can be obtained from the equation ($BI = 11.637 + PE-.056 + EE-.065 + SI.036 + FC.988$)

when the predictor variables are given.

Table 2.1 Model Summary of Multiple Regressions Analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.820 ^a	.673	.658	1.779

a. Predictors: (Constant), Facilitating Condition, Effort Expectancy, Performance Expectancy, Social Influence

b. Dependent Variable: Behavioural Intention

Table 3. Multiple Regressions Coefficient.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	11.637	3.450		73	.001	4.777	18.497					
1 PE	-.056	.141	-.025	-.398	.692	-.336	.224	.072	-.043	-.025	.986	1.014
EE	-.065	.145	-.028	-.447	.656	-.353	.223	-.064	-.048	-.028	.998	1.002
SI	.036	.134	.017	.271	.787	-.230	.302	.184	.029	.017	.958	1.044
FC	.988	.077	.817	12.807	.000	.835	1.142	.819	.812	.794	.944	1.059

a. Dependent Variable: Behavioural Intention.

Again, from Table 3, on checking for the significance of the coefficients of the predictor variables, it can be seen that only facilitating conditions is significant at 5% significance level. Performance expectancy, effort expectancy and social influence are all not significance. As precisely as it is, the empirical evidence of the study indicates that facilitating conditions - with experience and age as moderating factors – is the most power factor influencing UDS administrators' intention to use ICT in the discharge of their administrative duties (main objective achieved); which is consistent with the findings of [17, 12]. The findings are also in harmony with the views of many studies [36, 37] that facilitating conditions affect technology acceptance and used either directly or through behavioural intention.

A possible reason for these findings could be that the norms, culture, values, training, technical support and the administrative structure of UDS dictate whether ICT would support staff in their daily duties or not. Facilitating conditions related to factors that are present in the environment that exert an influence over a person's desire to perform a task. Conditions and events that create a favourable environment for technology adoption such as training and education and an organization's technical support can be seen as elements of organizational facilitators [38] p.167, 14].

If the work culture and structures of the institution are configured as to support the use of ICT in administrative duties, certainly staff will be encouraged to use ICT in their work. Understanding the real effects of ICT on work requires an assessment of their use within a specific context and for a particular research environment [39]. For example, when Internet connectivity is not reliable, e – administration is likely to suffer. Staff may not also adopt technology when they do not have the know-how. Therefore, the findings are not surprising that work culture, norms, in-house training, workshops and seminars, availability of hard and software devices and so on (i.e., facilitating conditions) exerts the most

influential force in determining staff ICT adoption in UDS, Tamale.

A cursory glance at Table 3, shows that administrative staff adoption of ICT in the discharge of their duties was significantly influenced by facilitating conditions (0.817), social influence (0.017), performance expectancy (-0.025) and effort expectancy (-0.028) in their order of influencing strength. It is important to mention here that the researchers are using the absolute figures. Otherwise, performance expectancy and effort expectancy are even contribution negatively to the variation in behavioural intention. In otherwise, these two expectancies are negatively related to behavioural intention; which contradicts the findings of a number of past studies on technology acceptance.

Answers to research questions

What is the influence of Performance Expectancy (PE) on UDS administrators' adoption and usage of ICT?

Performance expectancy was one of the four UTAUT constructs, and it was defined as the degree to which using technology will provide benefits to administrators in performing specific activities. From Table 3, performance expectancy (sig = .692) has no influence on UDS administrators' adoption and usage of ICT in the discharge of their duties.

What is the influence of Effort Expectancy (EE) on UDS administrators' adoption and usage of ICT?

Effort expectancy was one of the four UTAUT constructs, and it was defined as the degree of ease associated with administrators' use of technology. From Table 3, effort expectancy (sig = .656) has no influence on UDS administrators' adoption and usage of ICT in the discharge of their duties.

What is the influence of Social Influence (SI) on UDS administrators' adoption and usage of ICT?

Social influence was one of the four UTAUT constructs, and it was defined as the extent to which administrators

perceive what is essential than others (e.g., family and friends) believe they should use a particular technology. From Table 3, social influence (sig =.787) *has no influence* on UDS administrators' adoption and usage of ICT in the discharge of their duties.

What is the influence of Facilitating Conditions (FC) on UDS administrators' adoption and usage of ICT?

Facilitating conditions was one of the four UTAUT constructs, and it refers to administrators' perceptions of the resources and support available to perform their duties using ICT. From Table 3, facilitating conditions (sig =.000) *has an influence* on UDS administrators' adoption and usage of ICT in the discharge of their duties.

5. Conclusions

This study has been able to demonstrate the applicability of the UTAUT model in HIL in the Ghanaian context. The current study is one of the studies in Africa that applies the UTAUT model in investigating technology acceptance in general. In particular, this work is also one of the studies that have investigated administrative staff (not teaching staff) adoption of ICT in the discharge of their duties. As such, this work has furthered the understanding of technology adoption within theories of technology acceptance research with emphasis on administrative staff.

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