

Attitude and Behavioral Intention as Mediators in Adoption of E-Tax Services in Ura, Uganda

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Abstract

The purpose of this study was to identify mediators of specific factors influencing adoption of e-tax system on URA, Uganda and design a customized model for its successful adoption. The research was conducted based on empirical data collected from the field.

A cross-sectional survey and quantitative research approach were used to collect primary data from a sample of 350 respondents. In addition, 279 questionnaires were received and analyzed using multiple linear regression and medgraph by Jose to test for mediation of variables.

Research findings revealed that attitude and behavioral intention mediated performance expectancy, effort expectancy, social influence, trust and perceived security in influencing user behavior of the system. Facilitating conditions, unlike other determinants,

directly influence on user behavior. Trust, perceived security and attitude are new constructs that were included in the model.

This research will help the government to discover specific factors that influence Ugandans to adopt e-government systems. Discovery of specific factors will help the government to come up with a practical and long lasting solution to adoption barriers.

Originality of the study came as a result of identifying Uganda based factors affecting e-government adoption. It was achieved through listing a number of adoption factors by respondents based on choice of specific factors that influence on e-government adoption in Uganda. Therefore, selected factors were based on design of customized UTAUT model for adoption of e-government systems in Uganda.

Keywords: *UTAUT, E-tax system, Performance Expectancy, Effort expectancy, Social influence, Facilitating conditions, Trust, Perceived security and Attitude.*

1. Background to the Study

E-Government is use of information and communication technologies to deliver public services in a convenient, efficient, customer-oriented and cost effective way (The NITA-U Act, 2009). The Ugandan Government has embraced use of Information Technology in offering services to its citizens given benefits associated to it like reducing operational costs, improving on quality of services and saving citizens' time of lining up in queues, among others. This is evidenced by creation of a fully-fledged

ministry to support it further in its endeavors, (Waiswa and Okello, 2014). However, regardless of all government resources and energies invested in Information Technology, e-government services, in particular, like e-tax system in URA, its adoption levels are still low (Waiswa and Okello, 2014; Nikam *et. al.*, 2004). This is partly due to huge gaps between designers and adopters of e-government services in developing countries whereby Uganda is inclusive (Heeks and Santos, 2009).

Other scholars attribute low adoption levels to low level of IT literacy, limited power supply, inadequate IT equipment to service providers as well as service consumers (users) and limited together with unstable internet connectivity, among other factors (Azianzu and Maiga, 2012). Carter and Belanger (2005) as well as Schaupp and Carter (2005) identified lack of trust as one of factors affecting adoption of e-government services by citizens. Bélanger and Carter (2008) in their further research analyzed the impact of trust and risk perceptions on one's willingness to use e-Government services and discovered that trust positively affect adoption of e-government services. In addition, Warkentin *as well as* colleagues (2002 quoted from Bwalya and Healy, 2010) identify trust as one of the most influential factor for people to take part in e-Government applications more so when it comes to dealing with sensitive information.

A list of other scholars like Al Awadhi and Morris (2009) as well as Deakins and Dillon (2004) still pointed to trust factor as being influential to citizens' adoption of e-government services with the reasoning that people fear from using the technology since they do

not have direct control over it rather than using traditional services where they have control over such services confidentiality and are highly familiar to them. Deakins and Dillon (2004) went ahead and emphasized that users' trust of e-government is connected with security and privacy assurances provided to them.

Asianzu and Maiga (2012) also identified lack of a suitable model designed in line with developing country conditions on the ground as the main hindrance to adoption of IT related projects and e-tax system. This is because those models were developed to meet specific needs of developed countries that are highly developed and advanced in IT than developing countries. Based on the presented observations, e-government adoption models were critically analyzed in order to come up with clear factors influencing on adoption of e-government services in developing countries like Uganda.

The study was guided by the following research question: i) what mediates factors that influence adoption of e-government services in a developing country like Uganda? ii) What model best suits the Ugandan situation in adoption of e-government services?

2. Theoretical Review

E-government Adoption Models

Different scholars have come up with adoption models to help implementers understand better factors that affect adoption of e-government services (for example, Korpelainen, 2011). Such models include *Theory of Reasoned Action (TRA)* by Ajzen and Fishbein (1980), which predicts and explains user behavior across

a wide variety of fields. TRA focuses on the role of attitudinal, social influence and intention variables to predict behavior. It is hypothesized by the TRA that an individual's behavior is a function of his or her intentions such that attitudes and subjective norms are mediated through behavioral intention and that behavioral as well as normative beliefs are mediated through their attitude together with subjective norm. Demographic factors like personality characteristics, beliefs concerning objects, attitudes towards objects, task characteristics and situational variables were identified as external variables (Ajzen, and Fishbein, 1980 quoted from Ami-Narh and Williams, 2012).

The Theory of Planned Behavior (TPB) by Ajzen (1991) was an extension of TRA with the aim of enabling better understanding of an individual's behavior in exact situations. TPB assumes that an individual's behavior is determined by a joint function of intention and perceived behavioral control. Behavioral intention, in turn, is determined by a function of attitude toward behavior, subjective norms and perceived behavioral control.

Innovation Diffusion Theory (IDT) by Rogers was derived from sociology and explains events of the innovation decision process as (1) innovation, (2) communication channels, (3) time and (4) the social system. The theory suggests that individuals can be classified according to their rate of adoption of innovations: innovators, early adopters, early majority, late majority and laggards. An individual's attitude towards the innovation and ultimately, its adoption is influenced by; relative advantage,

compatibility, complexity, trial ability, and observability (Rogers, 1995).

Technology Acceptance Model (TAM) by Davis (1986) was developed to explain user behavior across a wide range of end-user computing technologies and user populations, while at the same time being both ungenerous and theoretically justified. TAM was developed from TRA and it focuses on attitudinal explanation of intention to use a specific technology or service.

TAM suggests that an individual's attitude toward use of a technology is determined by perception of usefulness and ease of use of that technology. Such attitude influences on their intention to use the technology. Davis explained perceived usefulness as the degree to which an individual believes that using a particular system will enhance his or her job performance, while perceived ease of use is the degree to which an individual believes that using a particular system is free from physical and mental effort (Davis, 1989).

Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh and colleagues (2003) presents an integrated view of user acceptance and usage of new technology. The models reviewed and synthesized the eight models of TRA, TPB, TAM, TAM2, IDT, Motivational Model, Model of PC Utilization (MPCU) and Social Cognitive Theory (SCT) into one model, UTAUT. The UTAUT model came up with four core determinants of intention and usage, namely, performance expectancy, effort expectancy, social influence and facilitating conditions as well as

four moderators of four core determinants as gender, age, voluntariness and internet experience (Venkatesh *et. al.*, 2003).

Other models that explain adoption of user behaviors include Model of the IT Implementation Process by Cooper and Zmud (1990), Information Systems Success Model by De Lone and Mclean (1992) and Motivational Model, a model combining Model of PC Utilization and Social Cognitive (Barua, 2012).

This research adopted the UTAUT model by Venkatesh and colleagues (2003) because of strength of synthesizing concepts of the most of the available eight models of adoption and strong support obtained from other scholars who tested it and found it to be highly realistic (Rana *et. al.*, 2011). According to Venkatesh and co-workers (2003), the two direct determinants of usage behavior are intention to use and facilitating conditions. Intention to use is influenced by performance expectancy, effort expectancy and social influence. Gender, age, experience and voluntariness of use act as moderators to the four independent constructs of performance expectancy, effort expectancy, social influence and facilitating conditions.

Performance expectancy is the degree to which an individual believes that using a new system will enhance his/her performance (Venkatesh *et. al.*, 2003). Performance expectancy is a strong influence of behavioral intention (Al Awadhi and Morris, 2009). *Effort expectancy* is the degree of ease associated with using a new system (Venkatesh *et. al.*, 2003). *Social influence* is where individual users take on use of the system on perception that

important others expect them to use the system. Users expect to gain prestige and esteem after using it (Venkatesh *et. al.*, 2003). *Facilitating conditions* are when organizational and technical infrastructure exist and support use of the available system (Khalil and Nasrallah, 2014). Facilitating conditions influence user behavior directly, unlike the other constructs such as PE, EE, SI, Trust and PS (Venkatesh *et. al.*, 2003).

Trust is the degree to which an individual believes in the e-service provider's reliability and integrity (Khalil and Nasrallah, 2014). According to research findings by Kalil and Nasrallah (2004), trust significantly influences attitude. *Perceived security* is safety of confidential information revealed to the system from being accessed by other unintended users. It goes hand-in-hand with privacy (Deakins and Dillon, 2004).

Attitude refers to an individual's overall affective reaction to using a system. In this study attitude, has a mediating effect on performance expectancy, effort expectancy, trust, perceived security and social influence with behavioral intention (Akbar, 2013). *Behavioral intention* is the person's intention to perform or not to perform the identified behavior like using the e-tax system for online payment or to use the manual system (Khalil and Nasrallah, 2014). *User Behavior* is the decision of the intended user to either make use of the system or refuse to do so based on a number of factors like facilitating conditions and behavioral intentions (Venkatesh *et. al.*, 2003).

Research by Asianzu and Maiga (2012) identified attitude as an important factor in mediating the relationship between perceived usefulness and perceived ease of use with behavioral intention while extending the TAM model by Davis and colleagues (1989). This research considered other constructs like trust and perceived security because they have been identified important in influencing attitude by several scholars like Colesca (2009), Khalil and Nasrallah (2014) together with Deakins and Dillon (2004) as well as performance expectancy, effort expectancy and social influence, which have also been emphasized by Venkatesh and colleagues (2003) as important constructs. Therefore, this research sought to find out the mediating role of attitude in the relationship between performance expectancy, effort expectancy, social influence, perceived security and trust with behavioral intentions. It is hypothesized as follows:

Ho1: Attitude mediates the relationship between performance expectancy, effort expectancy, social influence, trust and perceived security with users' behavioral intentions towards use of e-tax system in URA, Uganda.

In the framework designed by Tan and Teo (2000), findings revealed that attitude influences behavioral intention and actual use of the system. This was supported by other researchers like Asianzu and Maiga (2012) as well as Colesca (2009). Therefore, it is further hypothesized that,

Ho2: Attitude positively influences behavioral intention of users of e-tax system.

Research done by Venkatesh and co-workers (2003) revealed that behavioral intentions and facilitating conditions influence user's decisions to make use of the system. This was researched and confirmed by other researchers like Asianzu and Maiga (2012) as well as Tan and Teo (2000). In due regard, it is hypothesized that,

Ho3: Behavioral intentions and facilitating conditions positively influence users' behavior to make use of the e-tax system.

The UTAUT model by Venkatesh and co-workers (2003) revealed that attitude does not influence behavioral intention. However, the model of Acceptance by Gupta and Sahoo (2009) identified attitude as an important construct that influences on behavioral intentions and user's behavior of actual usage of the system. This research also tested significance of attitude in influencing the users' behavioral intentions and it is hypothesized that,

Ho4: Attitude mediates relationship between Performance expectancy, effort expectancy, social influence, trust and perceived security with behavioral intention.

According to the model of e-government acceptance by Gupta and Sahoo (2004), it was discovered that attitude and behavioral intentions are important factors in influencing actual usage of the system. This research aimed at collecting data to confirm whether or not behavioral intention mediates the relationship between attitude and actual usage of the system as hypothesized below,

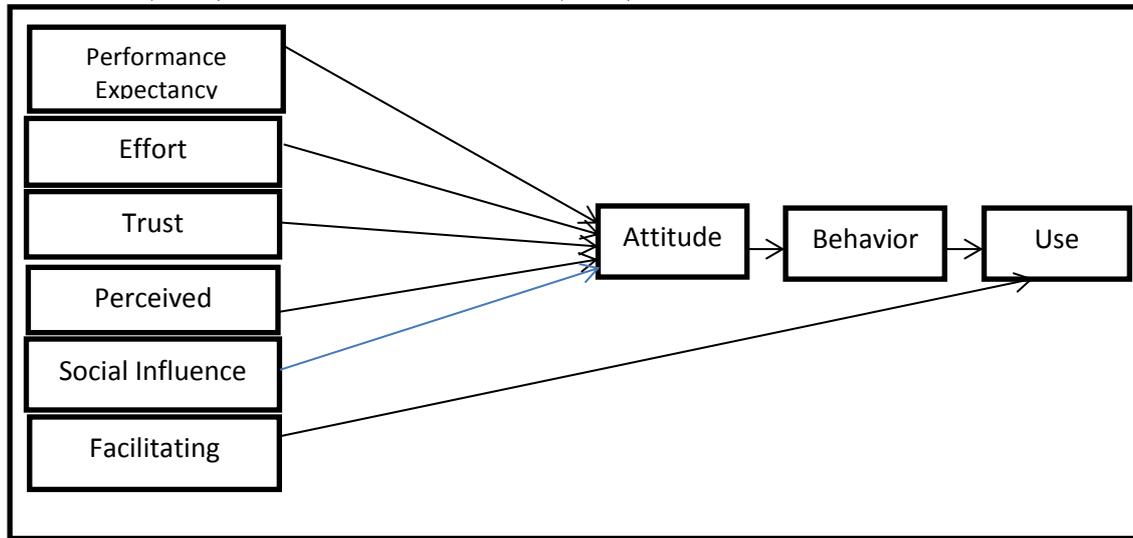
Ho5: Behavioral intention mediates relationship between attitude and user behavior of e-tax system.

3. Research Model

The research model is depicted in Figure I where the original UTAUT model was modified to fit the Ugandan situation. The modified model contains all original constructs of UTAUT and extends it by adding trust, perceived security and attitude in order to suit the Ugandan situation.

Figure 1: A modified Model of UTAUT where Trust, Perceived Security and Attitude were incorporated

Source: Modification from Venkatesh and colleagues (2003); Davis and co-workers (1989); Khalil and Nasrallah (2014) and Deakins and Dillon (2004).



4. Research Design

The study design was cross-sectional and correlational, which involved collecting quantitative data from purposively selected six districts of Manafwa, Busia, Jinja, Kampala city, Entebbe and Mpigi as traditionally major boarder as well as major revenue collection towns or centers using questionnaires. The mentioned districts were chosen because of being near the border where items from and to other countries pass and others are near the URA headquarters. During data analysis, Statistical Package for Social Sciences (SPSS) was used to run regression analysis and medgraph by Jose was used to determine the mediation effect of dependent and independent variables. Results obtained from the analysis were used to modify the UTAUT model by Venkatesh and colleagues (2003). A representative sample of 279 respondents was used. The target population included business people who deal in selling vehicles and paying URA taxes using the e-tax system. Purposive sampling procedure was used such that only people who have business and pay taxes to URA were selected. Reliability and Validity of the study were also done to measure accuracy and consistency of the questionnaire. Reliability coefficients were above 0.70 and content validity index for all variables was above 0.70. The acquired results were then used to design a modified UTAUT model suitable for e-tax system in URA, Uganda.

Reliability test

Variables	Cronbach's Alpha Coefficient	Content Validity Index (CVI)
Performance Expectancy	0.853	0.723
Effort Expectancy	0.767	0.742
Trust	0.785	0.873
Perceived Security	0.817	0.774
Social Influence	0.761	0.896
Facilitating Condition	0.789	0.759
Attitude	0.825	0.879
Behavioral Intention	0.756	0.777
Use Behavior	0.791	0.765

Presentation of Results

Multiple Linear Regression Coefficient Results for the E-tax Adoption Model

Linear regression analysis method was used to determine the relationship between independent and dependent variables. Results are presented in Tables 1, 2 and 3.

Table 2: Coefficients for dependent variable attitude and multiple independent variables

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-2.139	.089		-23.976	.000
Performance Expectancy	1.209	.019	.855	62.508	.000
Effort Expectancy	.089	.012	.087	7.278	.000
Social Influence	.142	.011	.190	13.143	.000
Perceived Security	.095	.017	.089	5.741	.000
Trust	.213	.028	.109	7.667	.000
Durbin Watson=2.459					

Results in Table 1 indicate that there is a significant positive relationship between attitude and performance expectancy (Beta=0.855, P=0.000), effort expectancy (Beta=0.087, P=0.000), social influence (Beta=0.190, P=0.000), trust (Beta=0.109, P=0.000) and perceived security (Beta =0.089, P=0.000).

Table 3: Coefficients for dependent variable User Behavior and independent variable Attitude

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.391	.099		34.193	.000
Attitude	.317	.022	.660	14.614	.000
Durbin Watson=2.647					

Results in Table 2 show that there is a significant positive relationship between the Behavioral Intention and attitude (Beta = 0.660, P=0.000). Behavioral intention significantly depends on attitude.

Table 4: Coefficients for dependent variable User Behavior and multiple independent variables

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.108	.455		2.432	.016
Behavioral Intention	.581	.081	.402	7.144	.000
Facilitating conditions	.287	.041	.393	6.984	.000
Durbin Watson=2.526					

Results in Table 3 show that there is a significant positive relationship between user behavior and behavioral intention (Beta =0.402, P=0.000) as well as facilitating conditions (Beta = 0.393, P=0.000). Behavioral intention (T=7.144) compared to facilitating conditions (T=6.984) predicts more of user behavior.

Table 5: Model Summary for Dependent variables Attitude, Behavioral Intention and User Behavior

Dependent variable	R	R Square	Adjusted R Square	Std. Error of the Estimate	F Change	Sig. F Change
Attitude	.983	.967	.966	.08977	58.787	.000
Behavioral intention	.660	.435	.433	.17664	213.560	.000
User Behavior	.464	.216	.210	.30203	48.776	.000

The multiple correlation coefficients R, which is square root of R² show how strong the multiple independent variables relate to the dependent variable. R varies from 0 to 1. Table 4 shows that R for attitude is 0.983, R for behavioral intention is 0.660 and R for user behavior is 0.464. All Rs for three dependent variables are near 1, a pattern, which implies that there is a strong relationship between the dependent variables attitude, behavioral intention and user behavior with multiple independent variables depicted in Tables 1, 2 and 3.

R^2 is the amount of variance in the dependent variables (attitude, behavioral intention and user behavior) explained by independent variables (Behavioral Intention, Facilitating conditions, Trust, Security and social influence). R^2 values vary from 0 to 1; 0 indicates no relationship and 1 indicates a perfect relationship. R^2 for attitude is 0.967, for behavioral intention 0.435 and for user behavior it is 0.210. This implies that dependent variables attitude, behavioral intention and user behavior explain 96.7 percent, 43.3 percent and 21.0 percent, respectively, on usage of the e-tax system of URA, Uganda.

Significance value (P value) gives the impact of each independent variable on the dependent variable. Table 4 shows that the p value for attitude is 0.000, for behavioral intention it is 0.000 and for user behavior it is 0.000. This indicates that the relationship between the dependent variables attitude, behavioral intention and user behavior with their independent variables is very significant since all P values are below 0.05.

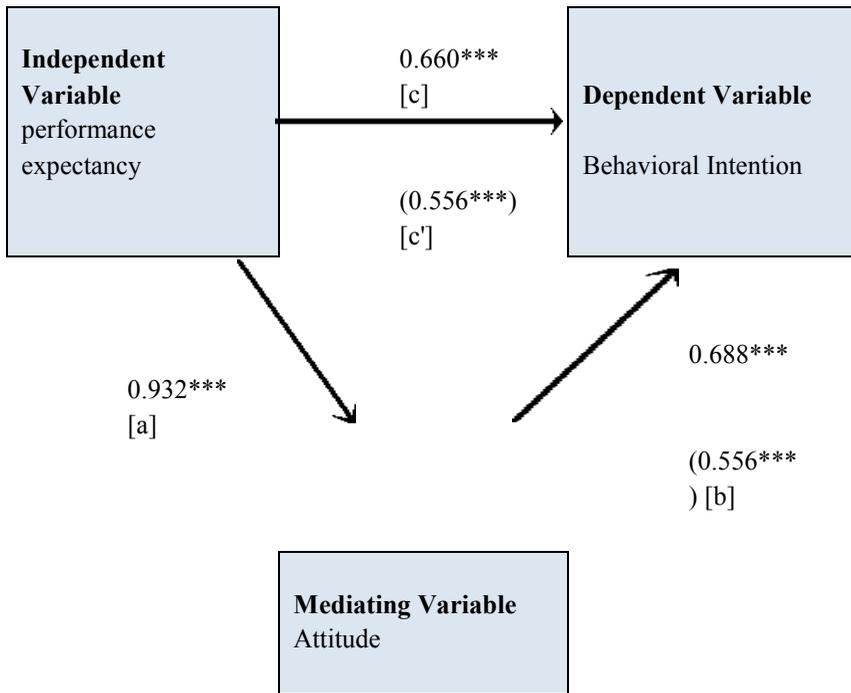
In summary, performance expectancy, effort expectancy, social influence, perceived security and trust influence attitude of users, while attitude influences behavioral intention and behavioral intention and facilitating condition influence user behavior.

5. Mediation Results

Medgraph by Jose (2013) was also used to determine the mediation effect of attitude on performance expectancy, effort expectancy, social influence, Trust and perceived security (H_04) and also to

determine mediation effect of behavioral intention on attitude and user behavior (Ho5). Results are presented in Figure 2.

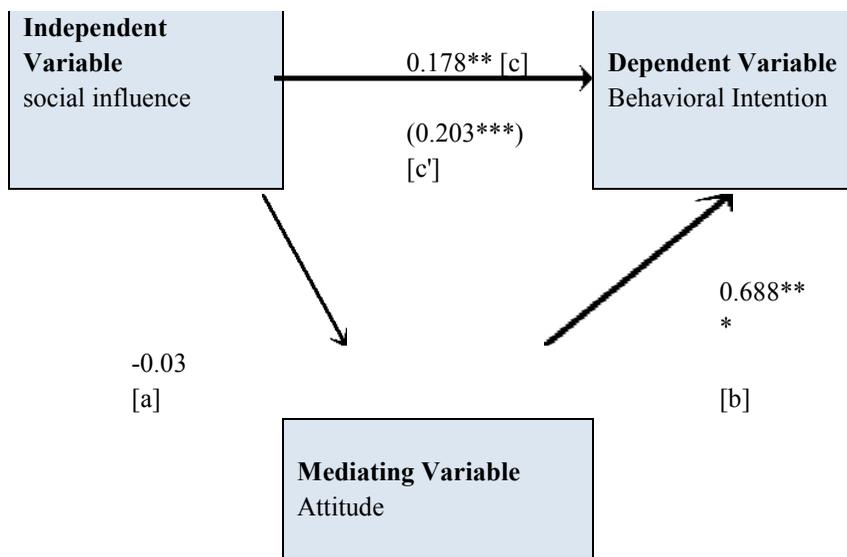
Figure 2: Medgraph illustrating Mediation of Attitude on Performance Expectancy and Behavioral Intention.



The results of Sobel’s Z value as indicated in Figure 2 point to significant type of mediation in view of the fact that the supreme effect of performance expectancy on Behavioral Intention reduced to a considerable significant level (B=0.660*** to B=0.324***). These results demonstrate a significant mediation of attitude in the association between performance expectancy and behavioral

intention. This type of mediation is partial and significant, Sobel z -value =4.62842, $p=0.00000495$ percent, Symmetrical Confidence interval is Lower (0.14324), Higher (0.35365, Unstandardized indirect effect $a*b$ (0.24844) and Se (0.05368), Effective Size measures Standardized Coefficients Total (0.66), Direct (0.556), Indirect (0.518), Indirect to Total ratio (-0.785).

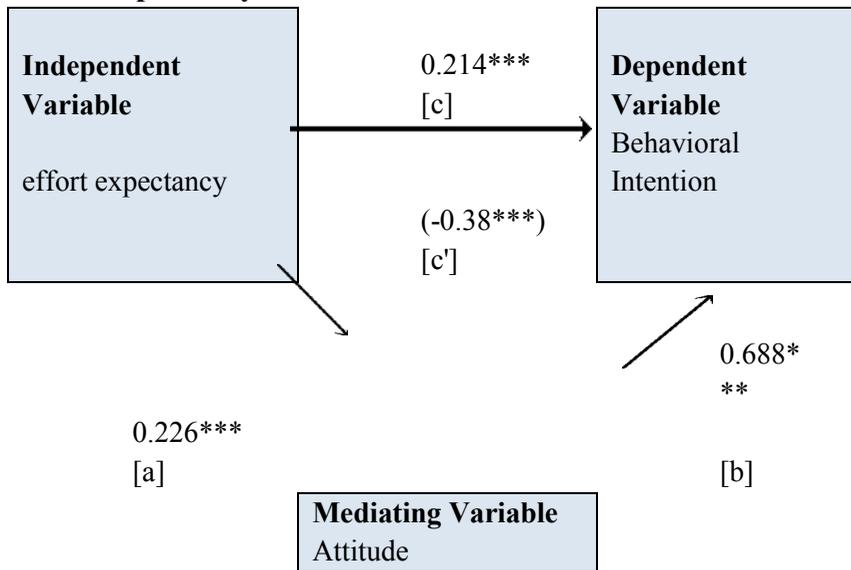
Figure 3: Medgraph illustrating Mediation of Attitude on Social Influence and Behavioral Intention.



The results of Sobel’s Z value as indicated in Figure 3 point to significant type of mediation in view of the fact that the supreme effect of Social Influence on Behavioral Intention reduced to a considerable significant level from 0.178** to $B= 0.203***$. These results demonstrate a significant mediation of attitude in the association between Social Influence and behavioral intention.

This type of mediation is significant, Sobel z-value (4.67571), p (0.00000395%) Symmetrical Confidence interval Lower (0.02001), Higher at 0.0489, Unstandardized indirect effect $a*b$ at 0.03446 and Se (0.00737), Effective Size measures Standardized Coefficients Total at 0.178, Direct (0.203), Indirect (-0.02) and Indirect to Total ratio (-0.14).

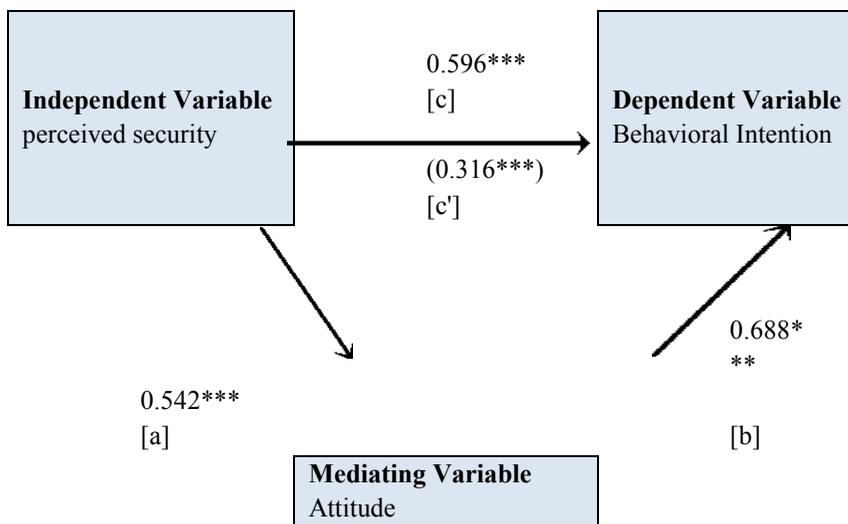
Figure 4: Med graph illustrating Mediation of Attitude on Effort Expectancy and Behavioral Intention.



The results of Sobel’s Z value as indicated in Figure 4 point to significant type of mediation in view of the fact that the supreme effect of effort expectancy on Behavioral Intention reduced to a considerable significant level from B equivalent to 0.214^{***} to B at -0.38^{***} . These results demonstrate a significant mediation of attitude in the association between effort expectancy and

behavioral intention. This type of mediation is significant, Sobel z-value (3.769995), p at 0.000163, 95 percent Symmetrical Confidence interval Lower (0.04167), High (0.13191), Unstandardized indirect effect $a*b$ (0.08679) and Se (0.02302), Effective Size measures Standardized Coefficients Total at 0.214, Direct (-0.38), Indirect (0.175) and Indirect to Total ratio (0.8191).

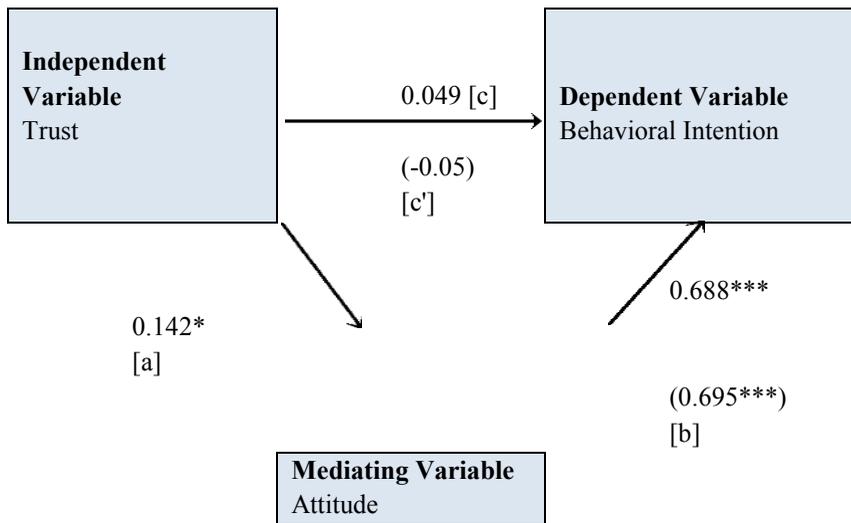
Figure 5: Med graph illustrating Mediation of Attitude on Perceived Security and Behavioral Intention



The results of Sobel’s Z value as indicated in figure 5 above point to significant type of mediation in view of the fact that the supreme effect of perceived security on Behavioral Intention reduced to a considerable significant level from $B=0.596***$ to $B= 0.316***$. These results demonstrate a significant mediation of attitude in the association between perceived security and behavioral intention. This type of mediation is significant, Sobel z-value = 7.556319, p

=0.000001, 95 percent Symmetrical Confidence interval Lower = 0.10606, High = 0.18035, Unstandardized indirect effect $a*b$ = 0.14321 and Se = 0.01895, Effective Size measures Standardized Coefficients Total = 0.596, Direct = -0.316, Indirect = 0.28, Indirect to Total ratio = 0.47.

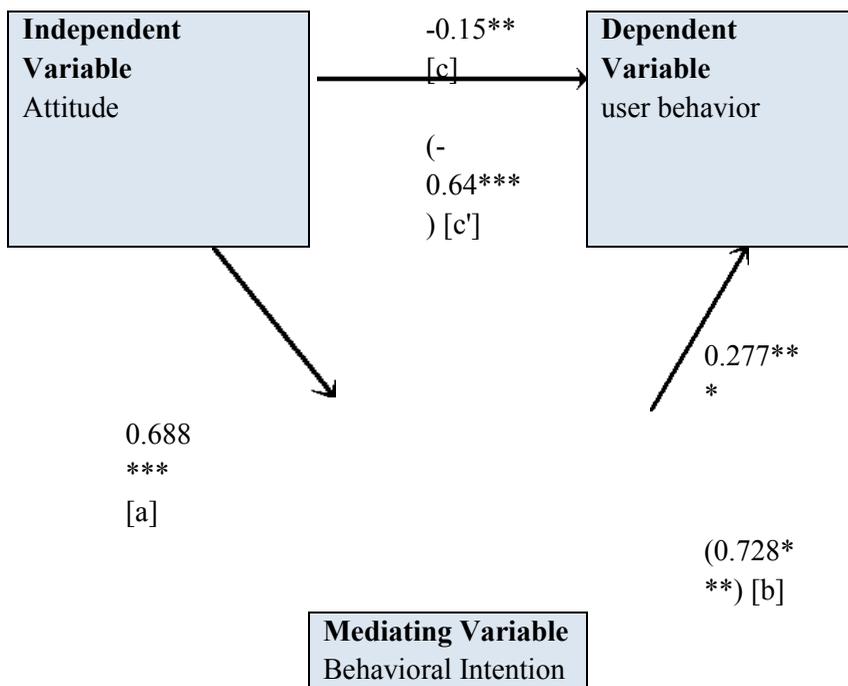
Figure 6: Med graph illustrating Mediation of Attitude on Trust and Behavioral Intention



The results of Sobel's Z value as indicated in figure 6 above point to significant type of mediation in view of the fact that the supreme effect of trust on Behavioral Intention reduced to a considerable significant level from (B=0.049 to B= - 0.05). These results demonstrate a significant mediation of attitude in the association between trust and behavioral intention. This type of mediation is significant, Sobel z-value = 2.363129, p =0.018121, 95% Symmetrical Confidence interval Lower = 0.01578, High = 0.16924, Unstandardized indirect effect $a*b$ = 0.09251 and Se =

0.03915, Effective Size measures Standardized Coefficients Total = 0.049, Direct = -0.05, Indirect = 0.098, Indirect to Total ratio = 2.014.

Figure 7: Med graph illustrating Mediation of Behavioral Intention on Attitude and User Behavior.



Results of Sobel's Z value as indicated in Figure 7 point to significant type of mediation in view of the fact that the supreme effect of Behavioral Intention on use behavior and attitude reduced to a considerable significant level from (B= - 0.15** to B= - 0.64***). These results demonstrate a significant mediation of behavioral intention in the association between trust and use

behavior. This type of mediation is significant, Sobel z-value = 8.727606, $p = <0.000001$, 95% Symmetrical Confidence interval Lower = **0.38168**, High = **0.60276**, Unstandardized indirect effect $a*b = 0.49222$ and Se = **0.0564**, Effective Size measures Standardized Coefficients Total = - 0.15, Direct = -0.64, Indirect = 0.05, Indirect to Total ratio = -3.25.

6. Discussion of Results

Findings from this study gave mixed support for UTAUT model. Whereas some relationships between the dependent and independent variables were supported, some were not supported. Results from this study revealed that performance expectancy, effort expectancy and social influence have a significant influence on user's attitude. This is contrary to findings by Venkatesh and colleagues (2003) whereby they revealed that performance expectancy, effort expectancy and social influence have a relationship with behavioral intention. Therefore, the hypothesis that performance expectancy, effort expectancy and social influence significantly influence attitude was supported. These findings are also in line with findings by Al Awadhi and Morris (2009), whose results also discovered that performance expectancy, effort expectancy and social influence affect user's attitude but not behavioral intention.

The findings also revealed that trust and perceived security have a significant relationship with attitude. Therefore, the hypothesis that perceived security and trust influence users' attitude towards use of the system was supported. These results are in line with findings by Bwalya and Heally (2010); Al Awadhi and Moris (2009); Carter and Belanger (2005); Schaupp and Carter (2005)

and Daakins and Dillon (2004), whose findings also revealed that trust and security significantly influence attitude of users towards adoption of e-government systems. The study findings, however, contradict with results by Venkatesh and colleagues (2003), whose findings disclosed that perceived security and trust insignificant and not influential on adoption of e-government systems. These results also contradict with those by Tang and Chi (2005) who found trust to be a consequence of perceived ease of use and an antecedent of attitude. Therefore, actual usage will depict whether there are higher levels of trust or not because higher levels are expected to positively relate to higher levels of actual use of e-government systems and lower levels would also negatively affect user behavior.

Dashti (2010) believes that trust and security issues are brought about by increasing cybercrimes and fraud. Since e-tax system deals with sensitive information on aspects like motor vehicle registration, license payments and others, users tend to doubt its ability to protect their confidential information and ensure accuracy as well as reliability of the system.

These results also revealed that attitude has a significant relationship with behavioral intention. This is contrary to UTAUT model by Venkatesh and co-workers (2003), whose findings revealed that attitude is insignificant but rather, behavior intention that relates with performance expectancy, effort expectancy and social influence. The finding that attitude toward using technology is a significant predictor of behavioral intention is consistent with

other studies that tested UTAUT model like that by El-Gayar and Moran (2006) as well as (Akbar, 2013).

Facilitating conditions and behavioral intention influence actual user behavior of users of the e-tax system. This is in line with Venkatesh and co-workers (2003) and it supports hypothesis three, which states that facilitating conditions and behavioral intentions influence user behavior.

The study also found out that attitude and behavioral intention are mediators in UTAUT model. This is in line with Venkatesh and colleagues (2003) and it supports hypotheses four and five.

The cause of variance in findings from the study could be due to differences in conditions of study areas whereby the UTAUT was done from more stable, well facilitated and somewhat developed country than the current study, which was done from a developing country, whose conditions are average but no so good and a lot is still demanding in terms of infrastructure including technical as well as non-technical expertise.

7. Conclusion and Recommendations

Conclusion

Results from this study show that according to the Ugandan perspective, performance expectancy, effort expectancy, social influence, trust and perceived security factors influence attitude of the user towards adoption of e-government services and that attitude influences behavioral intention and behavioral intention together with facilitating conditions lead to actual user behavior.

Recommendations

For e-tax system of URA, Uganda to be successfully adopted, management should institute proper security measures to ensure that confidential information of e-tax users employed in online transaction is not accessed by unauthorized users. That could be through use of trust worthy staff, ensuring accountability, audit trails and serious punishments to culprits who would misuse e-tax users' information. Such measures would help to build trust in users and change their attitude towards using the system.

Implications/Contributions of the Study

This study helps to design a highly customized e-tax system adoption model in line with conditions in the country. It will help the government to base on realistic factors to handle challenges and come up with concrete strategies to ensure that the implemented e-tax system is fully utilized to the benefit of both the government and users themselves who, in this case, are citizens of the country (Ugandans).

This research discovered further three constructs that are vital to e-tax adoption in Uganda. They include trust, perceived security and attitude. Inclusion of these constructs will help the government of Uganda to come up with a holistic solution to adoption barriers and fully enjoy benefits of implementing e-government systems.

Areas of Future Research

Future research should test the moderation effect of age, gender, voluntariness and internet experience on all six constructs of performance expectancy, effort expectancy, social influence, trust, perceived security and facilitating conditions with attitude to determine their level of moderation. This research while studying the effect of trust on e-government adoption did not go in detail to find out the specific kind of trust that strongly influences adoption. Thus, it is recommended that further research should be done on types of trust and their influence on e-government adoption in Uganda.

Limitations of the Study

The study did not test the moderation effect of age, gender, voluntariness and internet experience on the relationship between independent variables and dependent variable, attitude, due to time and financial constraints. Therefore, future research should test the effect of those moderation factors.

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