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Adoption of Telecenters in South Wollo Zone of Amhara Regional State in Ethiopia: Special Emphasis on Internet Services

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ABSTRACT

Information Communication Technology (ICT) has become driving force in today's society strengthening national economies and supporting democratic processes worldwide. ICT has been a significant area of research, but its nature changed considerably with the emergence of the Internet. The Internet service is provided through different means including telecenters. New technologies should be adopted and accepted by the society to benefit from their potential advantage. Many researchers, in the field of ICT, have studied and proposed models of technology acceptance. One of those models is the Unified Theory of Acceptance and Use of Technology (UTAUT) which was proposed by Venkatesh et al (2003) and used in this research to find out direct determinant factors of telecenters for Internet services. In this research it is tried to find out the core constructs of telecenters' Internet services intention to use and use behavior. Literature review has been done with respect to models of technology acceptance, ICT, telecenters and technology adoption. Self-administered questionnaire was used to collect primary data from 200 users of telecenters for Internet services. All the 200 questionnaires were usable; and demographic and descriptive statistics and Partial Least Square (PLS) regression were used to analyze the data. The study has found that performance expectancy and effort expectancy have positive influence in behavioral intention and behavioral intention has positive influence in use behavior of telecenters' Internet services.

Keywords

Technology Adoption, Internet Service, Telecenter, Technology Acceptance, Technology Utilization, Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT)

INTRODUCTION

Information communication technologies (ICTs) have impacted almost all sectors of world economy, though it is accepted that the rate of development of new technologies has been lower in developing countries, especially those of sub-Saharan Africa (Olanforegun and Binuomote, 2007). ICT plays a vital role in strengthening national economies and democratic governance worldwide. There is, however, a social and technological gap called the digital divide that characterizes the ones who have enough opportunity to use the technology and those who do not have the opportunity to use same technology (Cardoso et al, 2007). Awareness of information communication technology and new advancements will help to minimize the digital divide.

In this regard individuals need to access and adopt new technologies. Technology adoption refers to the stage in which a technology is selected for use by an individual, a group of individuals or an organization and the individuals accept the innovation as valuable and use it (Carr, 1999; Kurtenbach and Thompson, 1999) so that the technology can be exploited and used for individual, community, organizational and country development.

Adoption of telecenters Internet services will help bridge the digital divide in this information age. Technology adoption researches, in Information Systems, need to clarify and identify the factors that affect adoption of information systems and technologies. The purpose of this study is to understand and observe the determinant factors of usage and intentions of behavior of people to adopt telecenters for Internet services by applying the UTAUT model.

LITERATURE REVIEW

Developing countries which have not reached the stage of sustainable economic development need to devise a mechanism to cope up with the developed countries. One such mechanism can be facilitating citizens' access to technology. ICT can facilitate the access if appropriately adopted in a nation. Telecenters with Internet services can be adopted to enhance the access of ICT services in a nation.

Technology adoption is studied by different researchers in different corners of the world. It is almost becoming a must to study the factors of new technology adoption for developing countries so as to determine the nations' behavior of using technologies. Different researchers studied telecenters from different angles. Proenza et al (2001) describe that telecenters can potentially help break down some of the major barriers to development. Proenza et al (2001) did their survey on telecenters in Peru over 1,752 respondents and found from their survey that a number of low income users are benefited from those centers. Parkinson (2005), in the study entitled "Telecenters, Access and Development", has conducted a research on telecenters taking case studies from Uganda and South Africa. In this research Parkinson (2005) used semi structured interview to investigate ICT services with relation to telecenters and the result showed that phone access has to be given more attention than the Internet services. But, the Internet should be given special attention and as a result this study at hand will investigate telecenters giving special emphasis on Internet services.

Technology adoption is studied using different technology acceptance theories such as Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Combined TAM and TPB (C-TAM-TPB), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Motivational Model (MM), Model of PC Utilization (MPCU) and The Unified Theory of Acceptance and Use of Technology (UTAUT). Seyal and Rahman (2007), for example, investigated determinants of adoption of technology features such as the Internet use using TAM and found that perceived ease of use, facilitated by computer attitude, as main determinant. By using the TAM as a conceptual model, Castañeda, Friás and Rodríguez (2008) tried to elucidate both actual and future behavior of tourists in using the Internet. And they conducted their survey using structured questionnaire, and reached at a result which shows that, by considering direct effects, perceived usefulness is main determinant of actual and future use of the Internet technology. Yang and Lee (2007) in their study of comparison of ICT adoption pattern in different countries used the UTAUT model and the result of their study illustrated that the critical factors of adoption differ from country to country. In their study, for example, performance expectancy and social influence are critical factors of adoption of ICT in Korea and these factors are not critical factors in another country, US. Another study conducted by Grandon, Alshare and Kwun (2005) showed that factors such as convenience and perceived ease of use are determinant factors of intention to adopt online classes by American students where as those factors are not the critical factors by the Korean students. From these results we can deduce that technology adoption researches using certain models should be done in different countries so as to determine the key determinant factors of adoption in different contexts as the factors are correlated to different cultures and norms of nations.

In this study, the UTAUT model is used as a conceptual framework. The model which has come into existence after long line of study and empirical analysis of the other eight models by Venkatesh and his colleagues is the unified theory of Acceptance and use of Technology UTAUT (Wills et al, 2008; Kripanont, 2007; Koivisto, 2009; Wu, et al, 2007; Sandberg and Wahlberg, 2006). The model aims to explain user intentions to use an information system and subsequent usage behavior.

UTAUT suggests four key constructs/direct determinants of usage intention and behavior. The constructs are (1) performance expectancy, (2) effort expectancy, (3) social influence, and (4) Facilitating conditions (Christina, 2005; Wu et al, 2007; Wills et al 2008; Koivisto, 2009). The theory considers gender, age, experience and voluntariness of use as mediators of the impact of the four key constructs on intention to use and usage behavior (Wills et al, 2008; Koivisto, 2009; Kripanont, 2007). See Figure 1 for the original UTAUT model.

The UTAUT has been found to explain 70% of technology acceptance behavior with a significant improvement on previous models which routinely explain 40% of acceptance (Sandberg and Wahlberg, 2006; Wills et al, 2008 citing Venkatesh et al, 2003). Since its emergence, UTAUT has been used in different researches to explore acceptance of technology (e.g. Wills et al, 2008; Wu et al, 2007; Kripanont, 2007 and others).

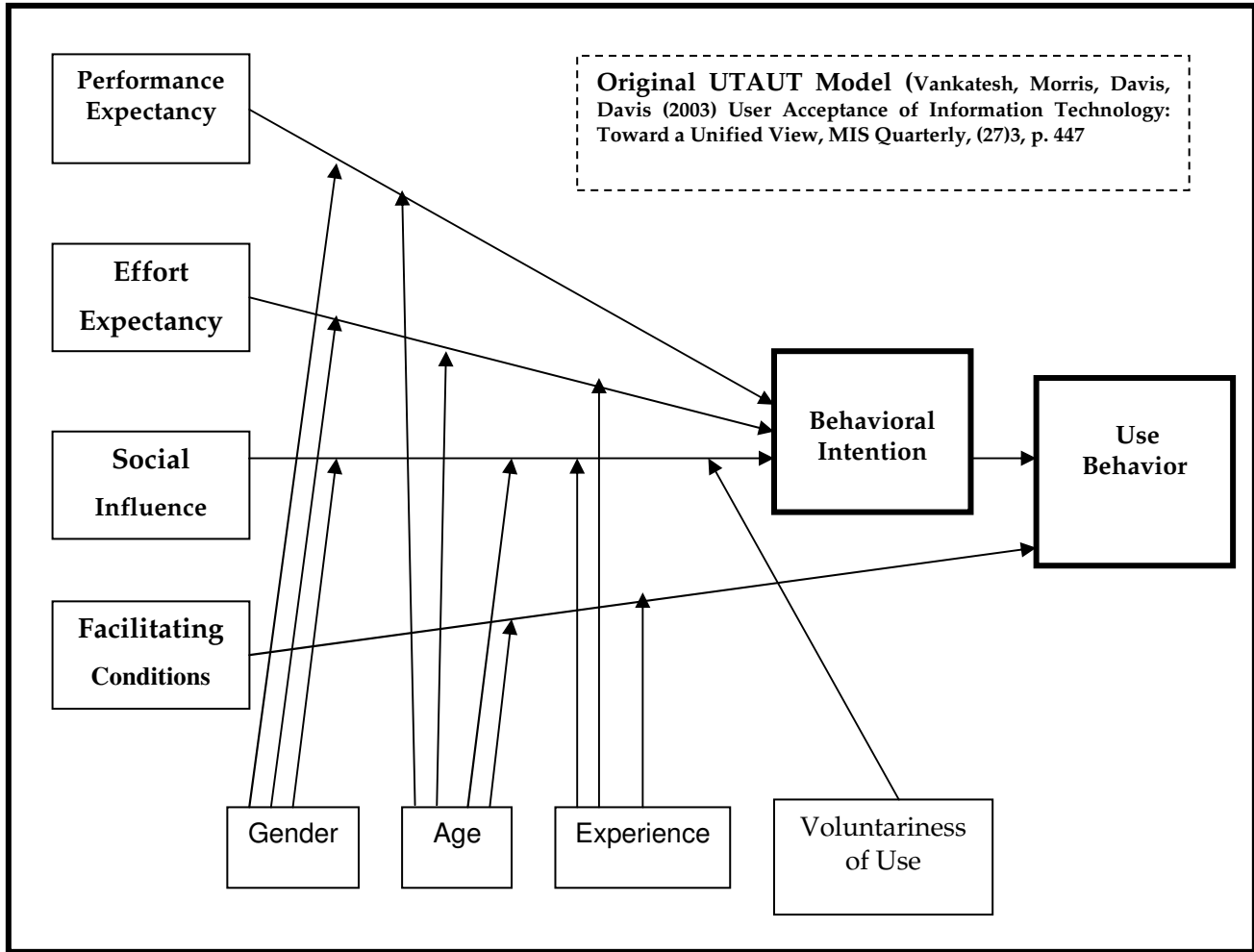


Figure 1 The UTAUT Model (Venkatesh et al, 2003)

The remainder of this section discusses the constructs of intention in the UTAUT model as they are explained by Venkatesh et al (2003).

Performance Expectancy: Performance expectancy is defined as the degree to which an individual believes that using a certain technology will help him or her to attain gains in job performance. Five constructs from different models pertain to performance expectancy of UTAUT. These constructs include perceived usefulness from Technology Acceptance Model and Combined TAM and TPB, extrinsic motivation from Motivational Model, job fit from Model of PC Utilization, relative advantage from Innovation Diffusion Theory, and outcome expectation from Social Cognitive Theory.

Effort Expectancy: Effort expectancy is defined as the degree of ease associated with the use of a certain technology. Three constructs from other models capture the concept of effort expectancy: perceived ease of use from Technology Acceptance Model (TAM), complexity from Model of PC Utilization (MPCU), and ease of use from Innovation Diffusion Theory (IDT).

Social Influence: Social influence is defined as the degree to which an individual perceives that important other people believe he or she should use the new technology. This construct is derived from three determinants of the previous models: subjective norm from TRA, TAM, TPB, and C-TAM-TPB; social factors MPCU and image from IDT.

Facilitating Conditions: Facilitating condition is defined as the degree to which an individual believes that the necessary infrastructure exists to support the use of the technology. This determinant captures concepts embodied by three different constructs of the previous models: perceived behavioral control of TPB and C-TAM-TPB, facilitating condition of MPCU, and compatibility of IDT.

Behavioral intention: intention is a proper proxy to examine and predict a user’s behavior toward a particular technology or system. Use behavior is largely influenced by behavioral intention, so behavioral intention plays a vital role in predicting usage behavior.

Use Behavior: usage behavior of a technology can be volitional or forced. The effect, however, would be good if it is under volitional control.

Gender, age, experience and voluntariness of use: These are moderating factors of the key constructs. Gender moderates performance expectancy, effort expectancy, and social influence. Age moderates all the four key constructs of the model. Experience facilitates all key constructs but performance expectancy. Voluntariness of use moderates only the social influence construct of the model.

RESEARCH FRAMEWORK AND HYPOTHESES

Unified Theory of Acceptance and Use of Technology (UTAUT) model is selected as theoretical benchmark in this research. The research framework is as depicted in the figure below, Fig. 2. The framework includes four determinants of behavioral intention and use; namely: performance expectancy, effort expectancy, social influence and facilitating conditions. In this stage, the research framework captures direct determinants of behavioral intention to use and use behavior.

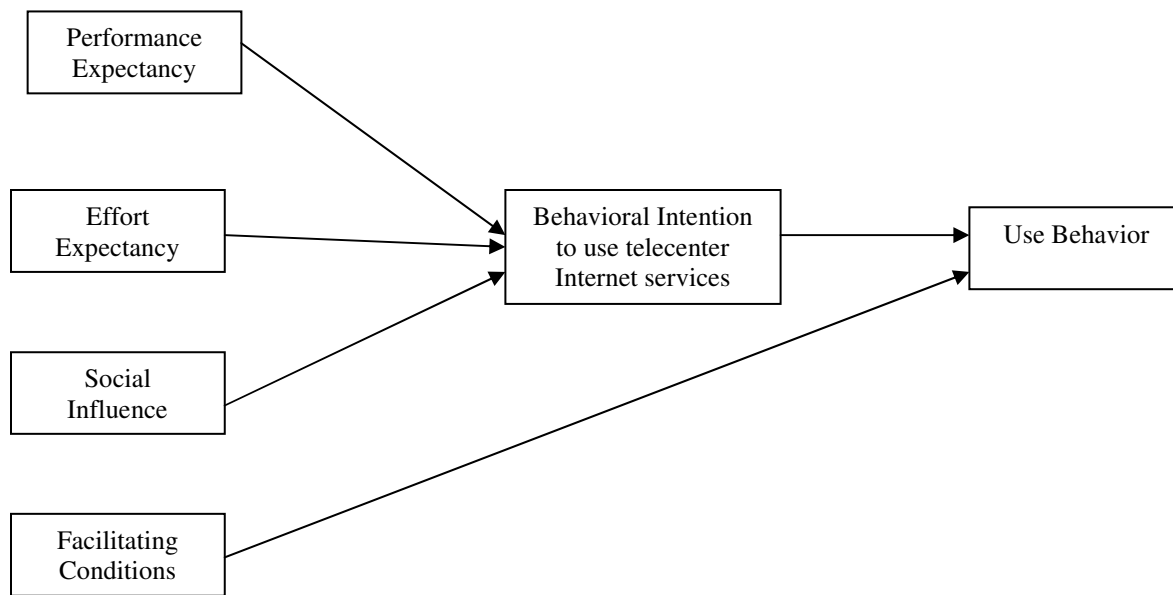


Figure 2 Conceptual Framework: adapted from Venkatesh et al (2003)

Hypotheses

Performance expectancy, as defined by Venkatesh et al (2003), is the degree to which an individual believes that using a certain technology will help him attain performance gains in his work. The first hypothesis in this study hypothesizes the positive influence of performance expectancy on behavioral intention to use telecenters Internet services.

Hypothesis 1: Performance expectancy positively affects behavioral intention.

Effort expectancy, as defined by Venkatesh et al (2003), is the degree of ease associated with the use of the technology or system. The second hypothesis in this study hypothesizes the positive influence of effort expectancy on behavioral intention to use telecenters Internet services.

Hypothesis 2: Effort expectancy positively affects behavioral intention.

Social influence, as defined by Venkatesh et al (2003), is the degree to which a person perceives that important others believe he or she should use a new technology. The third hypothesis in this study hypothesizes the positive influence of social influence on behavioral intention to use telecenters Internet services.

Hypothesis 3: Social Influence positively affects behavioral intention.

Facilitating conditions, as defined by Venkatesh et al (2003), is the degree to which an individual believes that the necessary infrastructures to use the new technology or system are available. The fourth hypothesis in this study hypothesizes the positive influence of facilitating conditions on use behavior.

Hypothesis 4: Facilitating conditions positively affects use behavior.

Behavioral intention, as described in Venkatesh et al (2003), is used to examine users' behavior toward the use of a certain technology. The fifth hypothesis of this study hypothesizes the positive influence of behavioral intention on use behavior.

Hypothesis 5: Behavioral intention positively affects use behavior.

METHODOLOGY

Setting

The study was conducted in South Wollo Zone of Amhara Regional State with in selected cities of the Zone. The main city of the Zone, Dessie, was taken as the first place to work on and two additional cities, Kombolcha and Haik, were considered as cite places.

Study Subjects

The subjects were those people who were encountered using the telecenters for Internet services and the sampling technique is a non probabilistic one. From among the users of the telecenters, 200 users were involved in this study.

Survey Instrument

The survey instrument items are based on items from a well known and researched model known as UTAUT which was developed by Venkatesh et al (2003), and adapted to fit with the study at hand. The variables included in the survey instrument ar Performance expectancy, Effort expectancy, Social influence, and Facilitating conditions. The questionnaire also collected additional information necessary for the study. Such information include: Gender, Age, and Educational level. The questionnaire items were measured using a 7-point Likert scale ranging from "strongly disagree" to "strongly agree".

Data Analysis

Data analysis was made using SPSS and divided in to demographic and descriptive statistics, reliability and validity analysis, and PLS regression analysis.

RESULTS AND DISCUSSION

Overview of Sample

All the 200 questionnaires were usable for the analysis purpose. 79 % of the respondents were in the age range 20-29 which shows that most of the users are youngsters, gender wise 24 % of the respondents were females and 76 % of the respondents were males.

Assessing Measurement Reliability and Validity

Table 1 shows measurement reliability based on Cronbach's alpha coefficient values and validity of the instrument based on inter-item correlation values. The Cronbach's alpha coefficient values are greater than 0.7 and this shows that the reliability of the instrument, as discussed in Kripannont (2007) citing Sekaran (2000) and Yalew (2009), is acceptable. The inter-item correlations are greater than 0.3 and this shows that the validity of the instrument, as detailed in Kripannont (2007) citing Hair, Black, Babin, Anderson & Tatham (2006), is authorized.

Measurement Items	Number of Items	Cronbach's Alpha of main survey	Reliability results	Inter-item Correlation
Performance Expectancy	3	0.716	Acceptable	0.371-0.566
Effort Expectancy	2	0.743	Acceptable	0.592
Social Influence	2	0.785	Acceptable	0.650
Facilitating Conditions	4	0.717	Acceptable	0.280-549
Behavior Intention	3	0.704	Acceptable	0.345-0.560
Use Behavior	2	0.904	Good	0.875

Table 1: Reliability Analysis and Validity Analysis of the Survey

PLS REGRESSION RESULTS

Partial Least Square Regressions in SPSS have three major outputs; namely: Proportion of Variance Explained by Latent Factors, Variable Importance in Projection (VIP) and Parameter Estimate Coefficients.

Proportion of variance explained by latent factors should have an adjusted R-square greater than or equal to 0.1 so as to consider the factors to observe whether they affect the dependant variable (Pirouz, 2006). The experiment, with this respect, has shown values greater than 0.1 for behavioral intention and use behavior but one case. From this, we considered the model to see the factors that affect behavioral intention and use behavior.

VIP of a variable should be greater than 0.8 so as to say the variable or the factor affect the independent variable (Pirouz, 2006). With this respect, the VIP values for performance expectancy, effort expectancy, and behavioral intention are greater than 0.8 and as a result they are considered to affect the dependant variables. Hence, performance expectancy and effort expectancy positively affect behavioral intention and behavioral intention positively affects use behavior. The VIP for factors facilitating conditions and social influence is less than 0.8 in almost all of the cases and as result these two factors cannot be considered as critical factors to motivate people use telecenters Internet services.

Parameter estimate coefficients with smallest values in absolute value should be removed from the determinant factors of technology adoption (Pirouz, 2006). When we see from this angle, performance expectancy, effort expectancy and behavioral intentions are to be considered as positively affecting their respective dependant variables. Facilitating conditions and social influence are once again do not support their respective dependant variables. Table 2 to Table 7 shows those outputs.

Latent Factors	Statistics				
	X Variance	Cumulative X Variance	Y Variance	Cumulative Y Variance (R-square)	Adjusted R-square
1	.329	.329	.092	.092	.087
2	.195	.523	.037	.129	.126
3	.082	.605	.013	.142	.128
4	.111	.716	.007	.148	.131
5	.165	.881	.003	.152	.136
6	.060	.941	.004	.155	.129

Table 2: Proportion of Variance Explained for Dependent Variable Behavioral Intention

Latent Factors	Statistics				
	X Variance	Cumulative X Variance	Y Variance	Cumulative Y Variance (R-square)	Adjusted R-square
1	.367	.367	.360	.360	.357
2	.189	.556	.031	.391	.385
3	.124	.679	.010	.401	.392
4	.068	.747	.007	.408	.396
5	.118	.865	.001	.409	.393
6	.064	.929	4.268E-5	.409	.390

Table 3: Proportion of Variance Explained for Dependent Variable Use Behavior

Variables	Latent Factors					
	1	2	3	4	5	6
PE1	1.147	.984	.982	1.008	.997	.997
PE2	1.306	1.182	1.223	1.208	1.195	1.188
PE3	.506	1.013	.984	1.009	1.036	1.026
EE1	1.243	1.332	1.319	1.291	1.277	1.262
EE2	1.285	1.150	1.162	1.184	1.174	1.161
SI1	.560	.620	.592	.589	.655	.703
SI2	.464	.395	.432	.439	.450	.523

Table 4: Cumulative Variable Importance for Dependant Variables BI1, BI2 and BI3

Variables	Latent Factors					
	1	2	3	4	5	6
FC1	.629	.645	.654	.650	.653	.653
FC2	.804	.780	.774	.774	.776	.776
FC3	.561	.674	.673	.668	.668	.668
FC4	.801	.774	.767	.764	.764	.765
BI1	1.066	1.033	1.029	1.045	1.045	1.044
BI2	1.178	1.134	1.155	1.171	1.170	1.170
BI3	1.574	1.609	1.611	1.597	1.597	1.597

Table 5: Cumulative Variable Importance for Dependant Variables UB1 and UB2

Independent Variables	Dependent Variables		
	BI3	BI2	BI1
PE1	-.033	.107	.170
PE2	.321	.058	.023
PE3	.120	-.207	-.069
EE1	-.038	.099	.224
EE2	.173	.020	.016
SI1	.018	.029	.124
SI2	.039	.020	.146

Table 6: Parameter Coefficients for the Dependant Variable Behavioral Intention

Independent Variables	Dependent Variables	
	UB2	UB1
FC1	.093	.065
FC2	.082	.030
FC3	-.044	-.010
FC4	.075	.082
BI1	.101	.182
BI2	.090	-.017
BI3	.454	.329

Table 7: Parameter Coefficients for the Dependant Variable Use Behavior

.Based on the results of PLS regression discussed, the following findings are obtained.

1. Hypothesis 1 which states that performance expectancy positively affects behavioral intention is supported.
2. Hypothesis 2 which states that effort expectancy positively affects behavioral intention is supported.
3. Hypothesis 3 which states that social influence positively affects behavioral intention is rejected.
4. Hypothesis 4 which states that facilitating conditions positively affect use behavior is rejected.
5. Hypothesis 5 which states that behavioral intention positively affects use behavior is supported.

From the examination of these hypotheses, it is found that performance expectancy, effort expectancy, and behavioral intention are the main factors which commence the adoption of Internet services of telecenters.

The test of the hypotheses also showed that unavailability of adequate and reliable connection and other facilitating conditions is a challenge for the telecenters to provide their Internet services. The great opportunity, however, is positive response of the society to use the Internet service with all the difficulties that exist.

CONCLUSIONS

The first and main research question in this study was “What determinant factors do highly positively affect telecenters’ Internet service users?”

As explained in detail in chapter four while testing the hypotheses, performance expectancy, effort expectancy and behavioral intention to use telecenter Internet services do positively affect telecenters’ Internet service users. That is to say performance expectancy, effort expectancy and behavioral intention motivate people to use Internet services in telecenters. Facilitating conditions and social influence, however, have no positive effect. Facilitating conditions and social influence which have VIP values less than 0.8 and very small parameter estimate coefficient values in absolute values do not motivate people to use Internet services in the telecenters. From the questionnaire survey and the researcher’s observation, facilitating conditions like enticing and fast Internet connections; and good technical support were not there in the telecenters. This is the reason why facilitating conditions do not attract people to use the telecenter Internet services.

The second question of this research was “what is the acceptance level of telecenters’ Internet services by the community?” In regard to this research question, observation of people waiting to use the service in telecenters and trends of use behavior and behavioral intention to use telecenter Internet services in this research has shown that the communities’ acceptance of the technology is good.

RECOMMENDATIONS

This study validates four core constructs from Venkatsh et al (2003) model of UTAUT in a different context, telecenters’ Internet services. This research will hopefully spark more research into factors that influence adoption of this technology under investigation of this study and other innovations. Based on the conclusions, our recommendations are: concerned bodies of government and organizations must put especial attention on providing appropriate and modern communication devices in growing towns like Kombolcha, Haik and Dessie; owners of telecenters must higher skilled and trained man power to facilitate use of Internet services in their centers; it would be very easy to use the Internet services and motivate people’s intention to use if the services are available in local languages with all the functionalities. Concerned bodies of government and professionals need to consider this issue as critical one and incorporate it as one activity while adopting new technologies.

REFERENCES

1. Cardoso, Mattos, Midro and Moura (2007). *Modeling the Acceptance and use of Telecenters in Brazil*. Journal of Technology Management and Innovation . Vol. 2 Issue 4 Available at: <http://www.jotmi.org/index.php/GT/article/viewFile/art66/109>. Retrieved on: October 23, 2008.
2. Carr (1999). Technology Adoption and Diffusion. Available at: <http://www.au.af.mil/au/awc/awcgate/innovatio/adoptiodiffusion.htm>. Retrieved on: October 17, 2008.
3. Castañeda, Friás and Rodríguez (2008). Antecedents of Internet Acceptance and use as an Information Source by Tourists. *Online Information Review*, 33(3), 548-567.
4. Christina (2005). Technology in Academic Organizations: Implementation of Virtual Learning Environment.
5. Grandon, Alshare and Kwun (2005). Factors Influencing Student Intention To Adopt Online Classes: A cross-cultural Study. *JCSC* 20(4).
6. Koivisto (2009). Mobile Information System Adoption and Use: Beliefs and Attitudes in Mobile Context. Dissertation. Helsinki University of Technology. Available at: <http://lib.tkk.fi/Diss/2009/isbn9789512297146/isbn9789512297146.pdf>. Retrieved on: July 12, 2009.
7. Kripanont (2007). Examining a Technology Acceptance Model of Internet Usage by Academics with in Thai Business Schools. Dissertation. Victoria University, Melbourne, Australia. Available at: <http://wallaby.vu.edu.au/adt-VVUT/uploads/approved/adt-VVUT20070911.152902/public/02whole.pdf>. Retrieved on May 29,2009.
8. Kurtenbach and Thompson (1999). Information technology adoption: Implication for Agriculture. Available at: http://www.ifama.org/tamu/iama/conferences/9/1999/1999%20Congress/Forum%20Papers_PROCEEDINGS/Kurtenbach_Tammy.PDF. Retrieved on: June 15, 2009.
9. Olantoregun and Binuomote (2007). Awareness and adoption of Information and Communication Technology among secretarial staffs of Ladoke Akinota University of Technology, Ogbomoso, Nigeria. *Research Journal of Social Sciences* 2: 57-59
10. Parkinson (2005). Telecenters, Access and Development: Experience and Lessons from Uganda and South Africa. Fountain Publishers. Kampala-Uganda. Available at: <http://www.idrc.ca/openebooks/189-2/>. Retrieved on: October 15, 2009.
11. Pirouz (2006). An Overview of Partial Least Squares. The Paul Merage School of Business University of California, Irvine. Available at: <http://www.merage.uci.edu/~dpirouz04/>. Retrieved on: October 15, 2009.
12. Proenza, Bastidas-Buch and Montero (2001). Telecenters for Socioeconomic and Rural Development in Latin America and the Caribbean: Investment Opportunities and Design Recommendations, with special Reference to Central America. Washington D.C. Available at: <http://www.iadb.org/sds/itdev/telecenters/exsum.pdf>. Retrieved on: July 15, 2009.
13. Sandberg and Wahlberg (2006). Towards a model of the Acceptance of Information and Communication Technology in Rural Small Business. Mid Sweden University. Available at: <http://www.ncsb2006.se/pdf/Towards%20a%20Model%20of%20Acceptance.pdf>. Retrieved on: October 25, 2008.
14. Seyal and Rahman (2007). The Influence of External Variables on the Executives' use of the Internet. *Business Process Management Journal*, 13(2), 263-278. Available at: www.emeraldinsight.com/1463-7154.htm. Retrieved on: April 16, 2009.
15. Venkatesh, Morris, Davis, & Davis (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. Available at: <http://csdl.ics.hawaii.edu/techreports/05-06/doc/Venkatesh2003.pdf>. Retrieved on: November 15, 2008.
16. Wills, El-Gayar, Bennett (2008). Examining Health care Professionals' Acceptance of Electronic Medical Records Using UTAUT. *Issues in Information Systems*, IX(2). Available at: http://www.iacis.org/iis/2008_iis/pdf/S2008_1053.pdf. Retrieved on: October 15, 2008.
17. Wu, Tao, Yang (2007). Using UTAUT to Explore the Behavior of 3G Mobile Communication Users. Taiwan. Available at: <http://tao.nuk.edu.tw/papers/IEEM2007.pdf>. Retrieved on: November 16, 2008.
18. Yalaw (2009). Basic Guidelines to Conduct Research. 2nd ed. Bahirdar University, Ethiopia.
19. Yang and Lee (2007). Comparison of the ICT Adoption Pattern: In the Case of Korea and the U.S. Available at: http://www.kmis.or.kr/3_sig/krais_data/07spring-2.pdf. Retrieved on: April 15, 2009.