

**Proceedings of the 9th National Conference
on Private Higher Education Institutions
(PHEIs) in Ethiopia**

**Major Theme: The Role of Private Higher Education
Institutions in Human Capital Development to achieve
the Ethiopian Growth and Transformation Plan**

**Organized & Sponsored by
St. Mary's University College**

**August 20, 2011
UNECA Conference Center
Addis Ababa, Ethiopia**

User Acceptance towards Alternative Information and Communication Technologies at SMUC

By

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Abstract

The introduction of computers and communication technologies play an important role in the majority of organizations and businesses in order to maintain a competitive environment. So many new technologies are now available and worthy of introduction, considering even that ICT has a high observable impact in optimizing office works. However, because new technologies seem complex and bring some uncertainty in the minds of decision makers or final users respect to their productivity, there is controversy on expansion of their use. The ICT acceptance and use is now a prolific research stream in the field of information systems. In this paper, we tried to examine the level of acceptance and use of different information and communication technology services delivered to the offices of St. Mary's University College. In line with this, the study also analyzed the association between various dependent variables on end users' attitude towards the use of ICT services at the University College.

Key words: ICT acceptance, ICT use, User behavior.

Introduction

The adoption of Information and Communication Technology services are now becoming an important part in organizations and businesses in facilitating their internal and external operations. There are many academic studies conducted to examine the determinants of information technology acceptance and utilization among users. In fact, since ICT has to be accepted and used by its intended users to be successful, the research stream on technology acceptance has become one of the most prolific, and claimed to be one of the most mature research areas in the modern information systems field. Alternative ICTs

can provide a far more flexible use of working time, for example, staff could remain at home and communicate electronically with colleagues, bosses and customers with full company access as if they are in their office.

E-mail represents one of the most useful communication tools in a company. The potential of web technologies, free and open source software tools are making office works smarter than before.

However, technological products must be successfully assimilated into the organization in order to exploit their potential value and benefit on their target. Business firms are migrating toward the Internet-based digital platform that substantially increase productivity, because technological innovations such as the web and free wares are a primary driver of industrial productivity, but if promising innovations cannot be extensively adopted, the benefits will result reduced.

In addition to the above, new and developed information technology has an enormous effect in education. The different ICTs such as audio/video cassettes, radio and TV broadcasts, computers, web based learning systems and similar enable interactive and collaborative teaching-learning if we use their full potentials as educational tools. Despite the fact that modern ICTs have been introduced and used by many organizations, the research stream in technology acceptance and behavioral intention is still a potential research stream in the area of information and communication technology.

In this paper, we identified the most common constructs for the full usage and user acceptance towards alternative information and communication technology services at St. Mary's University College. The paper focused on the usage of three selected technologies: using MS Office Outlook features, using the web based Issue Tracking System and using the Dynamic Learning Management System. The TAM, the most commonly used theoretical model in explaining end users' acceptance behavior, has been employed in analyzing the relationships between variables and end users' attitude towards the use of ICT services.

Research Questions

Since the mid -1970's, various researchers have been interested in identifying those factors that explain or predict the use of different technologies. Several pieces of literature have examined the adoption, assimilation and technological impact on government delivery services. However, the new improvements and utilization of ICT to serve citizens are still becoming an interesting research focus. This study is set to answer research questions regarding end users' levels of acceptance towards the selected technologies (i.e. using Outlook, the web based Issue Tracking System, and using the dynamic Learning Management System) at the SMUC. The research questions are:

- What are the levels of acceptance and use of ICT services by end users at the St. Mary University College? and
- What are the relationships between various TAM variables and other related variables on end users' acceptance towards the use of alternative ICTs?

Literature Review

The key objective of most studies on IT is to assess the value of information technology for an organization and, thus, to understand the determinants of that value. The objective of such researches is to help firms to better deploy and to manage their IT resources and to enhance overall effectiveness. Information Technology (IT) researchers tie those factors and processes to users' perceptions about ICT and how it impacts their work.

Prisca et al. (2010), for example, studied the adoption of Information Communication Technology services in libraries. In their study, the same researchers identified factors which promote or hinder the adoption and usage of ICT, especially in digital libraries, which include benefits/usefulness, awareness, relevance, and ease of use. Most of the precedent studies have been carried out in traditionally and relatively simple but important environments (such as personal computing, e-mail systems, word processing and spreadsheet software). Kwasi et al. (2004) studied an extension of technology

acceptance model in an ERP implementation environment. According to their study, factors that have been identified for achieving ERP implementation success include: top management support, a strong business justification, training of employees, project communication, properly defined roles for all employees and user involvement.

The potential of web technologies to transform business models, organizational structures and processes, and the ecosystem of inter-firm relationships with customers, suppliers, and other business partners is now universally acknowledged. E-Commerce adoption and user's behavior is among one of the adoption of the web technologies studied by different researchers. Boni and Hnagjung (2009) gave a brief description of the constructs, theories and hypothesis used in their studies on factors affecting e-government assimilation. These factors include: ICT expertise, ICT infrastructure, top management support, organizational compatibility, extent of coordination, regulatory and competition environment. The banking system, in the banking industry, has been attempting to gather more information on aspects that induce people to do their banking over the Internet. The adoption of e-banking by consumers and consumer attitude towards electronic banking is being investigated by several researchers.

Technology Acceptance Model

Since its introduction, the Technology Acceptance Model (Davis, 1989), which is one of the first technology acceptance models to be developed, has received considerable attention in the IT community. One of the key measures of implementation success is achieving the intended level of usage of the ICT. System usage is a reflection of the acceptance of the technology by users. The TAM has served as a basis for past research on Information Systems (IS) dealing with behavioral intentions and usage of IT. TAM's major strengths are that it provides factors which lead to IS acceptance, provides room for extensions and elaborations better than other competing models. A meta-analysis on TAM research found that most TAM studies had examined the introduction of office

automation software or systems development applications. Based on the analysis, it is concluded that TAM research would benefit from examining the introduction of business process applications and pointed out that it would be better if it was performed in a business environment. Other empirical studies have also shown that computer technology may have effects on the nature of office work, job satisfaction, and the quality of work life.

The Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. The importance of perceived usefulness, as one factor of TAM, has been widely recognized in the field of IS. Usefulness is the subjective probability that using the technology would improve the way a user could complete a given task. There is extensive evidence proving the significance of effect of perceived usefulness on adaptation of intention to use. Researchers argued that perceived ease of use is the extent to which a person believes that using a particular system would be free from effort; where as perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. Manon and Stephane (2009) argued that the robustness of the TAM, its parsimony, and the interesting results of the meta-analyses aforementioned, convinced researchers to opt for this model.

Research Method

Sample

The study was carried out in the three campuses of the St. Mary's University College, viz, the Midir Babur Campus, Mexico Campus and the School of Graduate Studies had been implemented the technologies under study. The sample composed of 120 individuals from three categories; namely, management staff, instructors, and students with various backgrounds and levels of experience. The study employed a questionnaire to investigate the levels of users' acceptance towards ICT services delivered in the

University College and to find out the level of association between TAM and other related variables on users' attitude towards acceptance. Questionnaire was used as a research instrument for this study because of its flexibility in the creation, standardization and administration of items for sample respondents.

The sample participants were invited to fill out the questionnaire designed for measuring their level of acceptance towards the usage of the selected technologies: MS Office Outlook, the web based Issue Tracking System and the Dynamic Learning Management System already delivered to the University College's community.

Research Instrument

The survey instrument was a pre-formulated written set of statements adopted from the previous studies using TAM with slight modifications and appropriate additional moderator variables that can measure users' acceptance level towards the selected technologies; using MS Office Outlook features, using the web based Issue Tracking System and using the dynamic Learning Management System.

Therefore, the questionnaire measures end-users' acceptance and use of alternative technologies to increase their efficiency. We eliminate items/variables with lower reliable in the context of this study.

Results and Analysis

The data was analyzed using simple descriptive statistics and Spearman's correlation coefficient of SPSS software Version 10. From the initial, the sample consisted of 120 respondents. Finally, a total of 80 questionnaires were properly filled out by the respondents and returned the questionnaires. Thus, the response rate was 66.7%. Therefore, it was possible to proceed the data analysis.

Of the 80 respondents, 28% were instructors, 31% were management staff, and 41% were students from those campuses. The summarized descriptive data is illustrated in Table 1.

Table 1 - Descriptive Analysis on the Level of Acceptance and Use

ICT Services	Acceptance and Use (Average score)		
	Instructors	Management Staff	Students
Outlook features	4.20	2.86	-
Issue Tracking System	-	1.24	-
Learning Management System	1.16	-	1.04

Source: Own data analysis output, 2011.

The table shows that the ICT services are not efficiently utilized by most of the University College's community. Only the instructors were found to use the Outlook features above the average score (3.0), followed by the management staff who were found to use this service though it was below the average value. The results of the study indicated that the acceptance and use of ICT services in the University College were found to very low. Apart from this, educational level, experience and age were also found to have an impact on the users' level of acceptance.

The respondents represent a diverse sample with regard to educational background, age and years of experience. About 30% of the respondents were aged between 24 and 35, 33% had at least first degree and over 20% had work experience of above 5 years. More than 50% of the instructors who were using the ICT services were in the age category between 24 and 35 years of old and they acquired second degree and above. Above 36% of the management staff using the Outlook services was found to obtain bachelor's degree and above, 16% of them had work experience of 5 years and above and 28% were in the age bracket between 24 and 35 years.

Among the common factors affecting users' acceptance and use of ICT services pointed by the respondents were: luck of training and awareness, poor performance of computers,

problem of accessibility (network problem), lack of pressure and incentive from the management of the University College. Some of the possible recommendations raised were: creating awareness of the systems, providing continuous training, increasing the performance of computers, providing incentive from the management, organizing network infrastructure, and so on.

Table 2 - Reliability Measures

Constructs	No of Items	Grouped Alpha
Perceived Ease of use	3	0.77
Perceived Usefulness	4	0.68
Management support	3	0.88
Training	3	0.91
Computer efficacy	2	0.52
Awareness	2	0.68
Attitude/Intention to use	2	0.87

Source: Own study results, 2011.

The reliability of individual item constructs in the questionnaire was evaluated using Cronbach's Alpha of the SPSS. Constructs were considered to be a good reliable measurement if its reliability measure is above 0.6 as available literature suggested. Based on this measurement value, computer efficacy was rejected from further data analysis as it didn't meet the data analysis (i.e. alpha value of computer efficacy was 0.52).

Table 3- Correlation coefficient results

Independent Variables	Dependent Variable (attitude/intention to use)
Perceived Ease of use	0.52

Management support	0.72
Perceived Usefulness	0.16
Training	0.47
Awareness	0.36

Source: the author's own output from data analysis, 2011.

In order to see whether or not there is association between the variables identified as independent and user attitude/intention to use ICT services, we computed the Spearman's correlation coefficient as shown in Table 3 above. The coefficient tells that there is a strong positive relation between management support and attitude to use. On the other hand, there is no relationship between perceived usefulness and attitude, which has a coefficient of 0.16. The remaining variables (i.e. perceived ease of use, training and awareness) also have a positive correlation with the intention to use the technologies.

Discussion and Conclusions

Information and communication technologies are becoming the corner stone in the success of businesses. In this study, we tried to investigate the levels of acceptance and use of ICT services by the end users at the three campuses of the St. Mary's University College.

The study used simple descriptive analysis to show the levels of acceptance and uses of ICT services in the University College's community and matrix correlation analysis to show the relationships between independent variables and variables on attitude/intention to use. The study can be expanded further by increasing the number of determinant variables, by expanding the scope to cover more institutions and additional ICT services, including other statistical measures like logistic regression and factor analyses to show magnitude and direction of variations between and across variables.

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