Determinants of E-Services Use in Higher Education: A case of a Kenyan University Academic and Non Academic Staff

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ABSTRACT

The establishment of electronic services (e-services) has been an important policy goal in many universities worldwide. This notwithstanding, staff access to e-services and its reliability still remains an issue of concern that can hinder use of these services. The use of e-services in operational processes of teaching and administration can support staff to improve their work performance and promote competitive advantage for the university. However, many factors determine the use of e-services for staff in their day-to-day operations. This study is focused on towards academic and non academic staff of the University of Nairobi, College of Agriculture and Veterinary Sciences (CAVS). Specifically, the aim was to identify the factors that determine e-services use. An empirical study was carried out whereby data was collected through a survey questionnaire administered face to face with a total of 100 academic and non academic staff users of e-services. The results were obtained from econometric modelling that is Logit regression. The evidence from staff in CAVS gave a set of factors that included staff characteristics and organizational constraining factors of e-services. The perception they had about e-services led them to the kind of choice they made and the intensity of e-service use. Other factors that emerged were seen as some amenities that should be enhanced to allow staff to access and sustainably use e-services at the university.

Key words: Information and Communication Technologies (ICTs), e-service, Academic and Non academic staff, Higher education

INTRODUCTION

The core purpose of e-services ventures in universities is to improve service delivery and efficiency. E-services have become one of the key components in policy reforms designed to improve university operations and to enhance their relationships (Goldkuhl & Persson, 2006). Policy makers

and the university management are responsible for maintaining and improving the quality of e-services within their universities. Determinants of e-services use have become an increasingly important concern to academic staff and non academic staff. Therefore, there is a need to measure the level of uptake of the e-services as well as identify drivers of such services and their constraints in order to improve them because ICT have the potential to transform higher education (Seyed & Leila 2009). As De Villa and Westfall (2001) indicated, information at the university level, university policy makers may not have a variety of good measures by which to evaluate their universities in relation to e-service usage, over time or to evaluate policy interventions and determine critical needs. Hence, there is a need to develop indicators in the effort to increase the level of uptake at universities. Measurement of level of uptake is important because it helps institutions improve what has already been measured (De Villa & Westfall, 2001); as you can hardly improve what you have not measured.

Fairweather (2002) argues that faculty have been characterized as barriers ICT use in higher education and this contributes to the clients' negative view of faculty efficiency in service delivery. Research has shown that university education can make optimum contribution to national development by intensifying and spreading its programme through utilizing ICT to inprove the quality of higher education (Diyaolu et al., 2012).

Use of ICTs can radically increase efficiency and effectiveness in the delivery of public information and services (Adeboye, 1995; Kenny, 2001). Provision of online services reduces bureaucracy, paperwork, and saves time (Rose, 2005) as services can be accessed from anywhere at any time. Rose further posited that automation procedures eliminate the risk of clerical errors. Such efficiency allows university management to reduce redundancy positions and offer incentives for users and clients to utilize online services.

Purpose and Objectives

The purpose of this study is to determine the level of e-services uptake by university staff which will be helpful in analyzing its successful utilization at the university. The aim is that such insights can inform decision making and policy review. To accomplish this purpose, the following specific objectives were identified:

> 1.) To determine the level of uptake of e-service use by staff
>
> 2.) To establish the types of e-services available in the College
>
> 3.) To establish the constraints of e-services

Significance of this study

It is expected that the findings of this study will expose some factors that determine the use of e-services by University staff. The identified areas where university policy makers have a role will be brought into limelight and inform how to bridge the gap. This in turn will enable the effective use of e-services for improved services delivery, accountability and transparency in the public universities and impact positive social change..

METHODOLOGY

Study context

Adoption of ICT has influenced the way universities' operations are being conducted. As Xiao and Dasgupta, (2005) identified, ICT is facilitating virtual delivery of programs and research activities in Universities. This study applied survey research design which entailed description of the influence of demographic factor on the use of e-service by staff in one of the public universities in Kenya. Specifically, the study focused on factors affecting the level of uptake from a users' perspective in the University of Nairobi and discusses e-services available, existing constraints and factors determining the level of uptake by University staff. College of Agriculture and Veterinary Sciences (CAVS) of the University of Nairobi was selected as the study site.

Data collection and analysis

This study employed mixed method design where both qualitative and quantitative data collection methods were used. Notably, the study was more biased towards quantitative approach in which a survey questionnaire was majorly utilized. Data was collected from the participants through administration of 100 questionnaires with both closed and open-ended questions. Additionally, observations and interviews were used to offer additional qualitative data to corroborate questionnaire data. The analysis was done using descriptive statistical techniques. Further, the study incorporates the constructs of Technology Acceptance Model (TAM) and Logit Regression Model (LRM) to analyse how user perceive e-services in CAVS.

KEY FINDINGS AND DISCUSSION

Demographic characteristics and use of e-services

Descriptive statistics were used to extract relevant data used to understand the characteristics of academic staff involved in the study. That is, an analysis of respondents' characteristics was used to know the user group for e-service in terms of age, gender, level of education and job cadre (academic and non academic staff). The findings of this study are consistent with Diyaolu et al. (2012) who identified that respondents with higher level of education have high level of acceptance in using e-services, which includes use of online resources and tools; therefore contribute to the effectiveness of the system.

The results in Figure 1 were generated to explore the distribution of the respondents' age and gender of academic staff. Figure 1 shows that the age bracket of 51-50 years old had the highest number of respondents (36%). This was followed by those who were 60 years old and above with (18%) uses the services while (5%) do not. The age bracket of 31-40 years old had (18%) using the services while age bracket 26-30 had (9%).
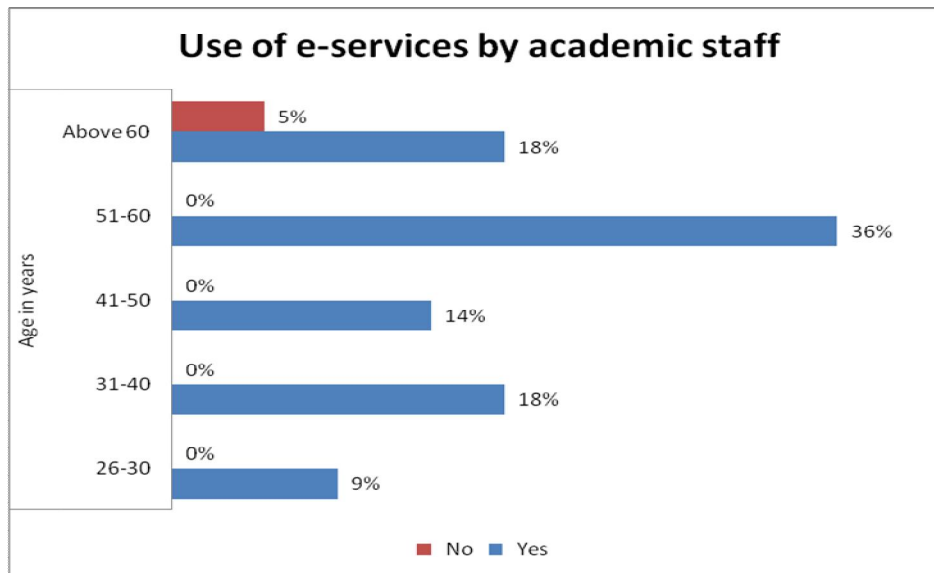
Figure1: Age and usage for academic members of staff

Results in Figure 2 further indicate that the majority of respondents were male (77%) who uses the services and only (5%) were female respondents. This was in line with Bimber (2000) who found out that women are substantially less likely to be frequent users, equally likely to be infrequent users, and more likely to be intermediate users and that females are less intensive internet users than males. Ono and Zovodny (2003) also found that women are less frequent and less intense users of the Internet. Unlike Shakhawat (2010), who found out that, some organizations did not have any ICT professionals and operate ICT by outsourcing. The respondents in this study did use outsourced ICT experts which despite the fact that the ICT staff were inadequate.
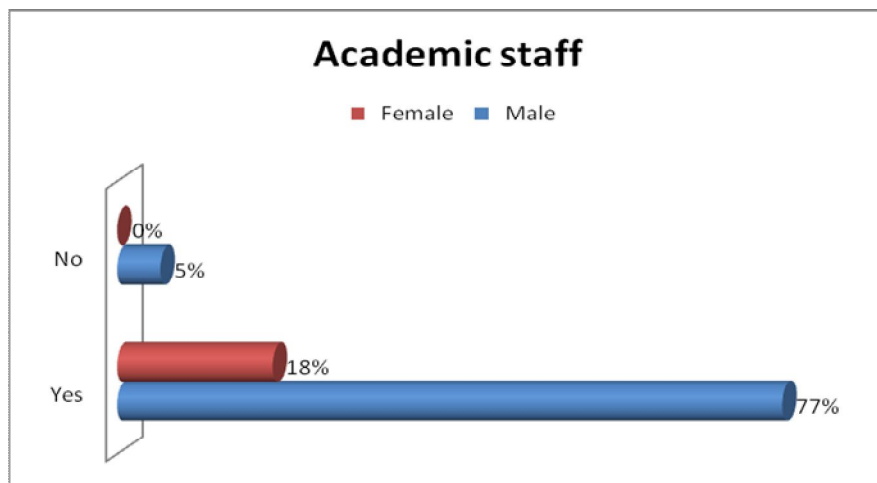

Figure 2: Academic staff gender and use of e-services

Descriptive statistics were also used to understand the characteristics of non academic staff in in relation to use of e-service use. The findings, as indicated in Figure 3 shows that frequent users in the non academic staff cadres composed of the young members of staff. This is consistent with

Okiki (2011) who found that younger generations are likely to use computers as they belong to the digital era and have had early exposure to ICT. Majority being in age bracket of 31-40 years where (40%) uses and (2%) do not use the e-services. The old composed of those of age bracket 51-60years old (8%) confirmed the usage.
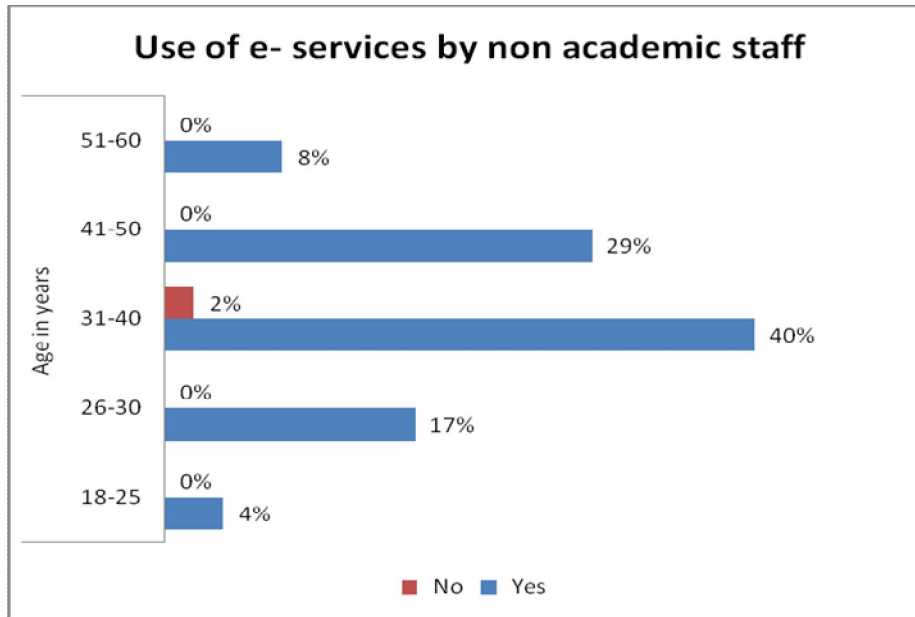

Figure 3: Age and usage for non academic members of staff

Factors affecting uptake of e –service

The access and stability of Internet remain rather irregular. However, the proxy cables currently being installed around the entire university, and already in position in CAVS, offer the promise of widespread access to broadband connectivity.

According to the *Tobit* regression, two variables were statistically significant and had impact on the level of uptake of e- services are: availability of ICT staff and availability of internet. The model of choice was significant at 1percent (prob > chi2 = 0.000) and the pseudo R2 of 13.40.As shown in Table 1.

Tabl**e 1: Logistic regression of e-service**

Factors	coefficient	P Value
Age of staff in years	.701	0.334
Highest level of education	-1.507	0.334
University website user friendly	-9.617	0.998
Adequate help provided on the website	-19.667	0.000
Internet inaccessibility	-1.661	0.425
Internet unavailability	17.095	0.000
Power blackout	-1.015	0.560
In adequate number of ICT equipments	9.129	0.998
Number of obs =	74	
LR chi2(9) =	13.40	
Prob > chi2 =	0.1452	
Log likelihood = -	0.5338	
Pseudo R2 =	-5.85293	

The current findings showed a positive relationship between availability of internet and the level of uptake of e- services. This implies that, availing internet throughout will lead to a higher uptake level of e- services among staff members. These results are in agreement with Isabalija et al. (2011) where they found out that inadequate number of computers and software negatively affected the level of uptake.

There is a positive relationship between availability of skilled ICT staff and the level of uptake of e-services. This implies that the lesser the number of skilled ICT in an institution, the lesser the level of uptake of e- services. This finding is consistent with Isabalija et al. (2011) who identified that lack of training support staff as a key factor that impeded uptake of telemedicine in Uganda. According to Husseini and Safa (2009), skills and knowledge level in ICT influenced the level of uptake of ICTs by 47 percent among faculty members.

Another key finding is that, though there are a number of e-services available, the study found out lack of implemented policies and strategies to emphasize the usefulness, efficiency, and user trust of e- services have contributed the decrease usage of e-services.

Types of e-services and level of use

Descriptive statistics were used to determine the most used e-services in the university. The results were analyzed and interpreted based on the ranked mean values which represented the least mean being the commonly used e-service the highest mean being the least use e-service. Results in Table 2 show that email was found to be the most service used by staff (Mean=2.31), followed by payslips retrieval (Mean=2.66). The timetable retrieval had a mean of (3.5). Although air ticket booking was available service the respondents were not using it commonly and they ranked it the least (Mean=6.1)

Table 2: Rank of e-services in terms of its use

E-services	Mean	Std. Deviation
Timetable	3.5833	1.53595
Course registration	3.7639	1.45827
Payslips	2.6667	1.55645
E-mails	2.3194	1.57289
Payments	4.2917	1.80326
Air ticket booking	6.1250	1.04730
Grading students marks	5.4444	1.84535
E-library	4.5000	4.04145

Unlike Fue *et al* (2009), who found out that management information systems, human–computer interaction and service marketing, this study found out different constraints of e-services as shown in Table 3.The least mean indicate major constraint I Table 3. Inadequate number of computers and ICT equipment were the major e-service constraint (Mean=1.97), followed by power blackout (Mean=3.085), Internet inaccessibility (Mean=3.087) Lack of wireless (4.04); Internet unavailability (4.19) and Lack of enough ICT staff(Mean 4.69) were ranked as the major constraints respectively.

Table 3: Rank of major constraints

Constraints	Mean	Std. Deviation
Power blackout	3.0851	1.96524
Inadequate number of computers and ICT equipment	1.9783	1.32479
Internet inaccessibility	3.0870	1.36343
Internet unavailability	4.1957	1.16656
Lack of wireless	4.0435	1.42916
Lack of enough ICT staff	4.6957	1.48877

Based on the above Table 3, it can be concluded that inadequate number of ICT equipments is the major constraint to e-service use by staff.

The above findings answered our research objectives. Majorly, Table 1 answered to determine the level of uptake of e-service use by staff, Table 2 answered the second objective to establish the types of e-services available in the College and Table 3 answered the constraints of e-services.

CONCLUSIONS, RECOMMENDATIONS AND FUTURE RESEARCH

The implication of these findings is that university management should focus on mitigating obstacles to the use of ICT by their staff in order to facilitate greater use of these services. This study investigated the key factors relating to e-service uptake from a users perspective. The contributions of this study have both theoretical and practical implications. For theoretical implications, the study identified new determinants of e- services. The study findings also provide empirical support and validate the findings of previous research. For instance, University policy and decision makers should implement policies and strategies that emphasize the usefulness, the efficiency, and user satisfaction with e- services. Therefore, understanding of these factors would help the university policy makers better plan e- services adoption and sustainable usage. Moreover, availability of e-services without implementation policies and strategies that emphasize the usefulness, efficiency, and user trust of e- services can contribute to decreased usage.

Moreover, universities should strive to enable easy use of website for users. They should do these by providing communication tools such as e-mail, chatting (twitter and Facebook) and evaluation forms to attract customers. When such customers are encourage then they can bring more customers to the organization, which increase their satisfaction in e-service.

Whist the results of this study can be considered statistically significant and has relationship with findings of previous research, this study was limited to a specific public university in Kenya. This notwithstanding, the insights emerging from the findings can inform other public Universities especially in developing countries.

Future research may confirm these findings in other settings and incorporate other relevant parameters of e-services use including prior experiences with the e-service use and frequency of e-service usage in education sector.

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