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ELECTRONIC READINESS OF ADMINISTRATORS IN MAKERERE UNIVERSITY: A TEST OF ROGERS' INNOVATION DIFFUSION THEORY

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ABSTRACT

This paper reports on a survey of electronic readiness (e-readiness) of senior administrative staff in Makerere University. The study also intended to check whether the e-readiness correlated with six individual characteristics, namely interaction with ICT change agents, ICT training, cosmopolitanism, age, gender and income level. Using the quantitative paradigm, and the survey design, data were collected using self-administered questionnaire from a sample of 124 senior administrators, and analyzed using summary statistics (percentages, means and standard deviations), t, ANOVA and Pearson linear correlation analyses. The results indicated fair levels of e-readiness, but none of the six individual characteristics significantly correlated with the e-readiness. It was thus concluded that all the senior administrators in the University needed equal assistance and/ or encouragement with regard to e-readiness, from the relevant stakeholders such as the University's Top Management and Directorate of ICT Support (DICTS).

Keywords: ***ICT****: innovation adoption; individual differences; higher education; Makerere University*

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Introduction

Electronic readiness (e-readiness) in this study referred the ability to use electronic resources (e-resources), specifically personal computer applications software and internet facilities. Such e-readiness "plays a vital role in supporting powerful, efficient management administration in the education sector" (Krishnaveni & Meenakumari, 2010). The same authors observe that electronic tools such as computers can be used extensively for educational administration, citing such areas as general administration, payroll and financial accounting, administration of student data, inventory management, personnel records maintenance and library systems. What factors are important in making an administrator e-ready, that is, ready for the use of electronic resources? Such factors are important because they can be manipulated to positively influence the e-readiness of the administrator.

In deriving the factors of readiness for innovations, several frameworks are available. However, in this study, Rogers' Innovation Diffusion Theory (IDT), was used. According to Rogers (2003), IDT relates the readiness of an individual for innovations to three categories of factors, namely the characteristics of the individual potential adopter; how the adopter perceives the innovation in question; and the characteristics of the social system (e.g. organization) where the potential adopter is. Of particular relevance in this study, is the stipulation in IDT to the effect that an individual's readiness for an innovation such as ICT, depends on the individual characteristics of that person. Such individual adopter characteristics include the extent to which that individual interacts with change agents of relevance to the innovation in question; the level of training of relevance to the innovation the individual has received; how cosmopolitan (i.e. non-conservative) the individual is; how old the individual is; the gender and income level of the individual.

Research Problem

While electronic readiness (e-readiness) "plays a vital role in supporting powerful, efficient management administration in the education sector" (Krishnaveni & Meenakumari, 2010), the e-readiness of administrators in Makerere University has consistently been reported to be low. For example, the current Makerere Strategic Plan 2008/ 09 – 2018/ 19 (Makerere University, 2008) Strategic Objective Two on ICT is "to promote effective and appropriate utilization of ICT resources by the end of 2013" (p. 21), which implies that right now the utilization of ICT resources in the University is not effective and appropriate. A more recent report of the Task Force on job evaluation and re-organisation of the staff structure and financing of Makerere University (Omaswa, 2014) underscored the relative lack of e-readiness in Makerere when it recommended that, "the University should aggressively embrace the use of ICTs in all its business processes. A dedicated program should be implemented to raise awareness and to promote routine application of ICTs in all university units…." (p. xvi).

This failure to make optimal use of ICT in the University leads to several undesirable outcomes such as wastage of funds the University and donors have sank on underutilized or even unutilized facilities. It was therefore appropriate to isolate the reasons for the low level of e-readiness of the administrators in the University. Basing on Rogers' IDT, this study appraises whether the e-readiness of an administrator in Makerere University, had to do with the extent to which that administrator interacted with ICT change agents; the level of ICT training the administrator had received; how cosmopolitan (i.e. non-conservative) the administrator was; how old the

administrator was; the gender and the income level of the administrator.

Research Focus

How Interaction with Change Agents Correlates with Readiness for Innovations

Stuart, Mills and Remus (2009) define champions, another term for change agents, as individuals who emerge to take creative ideas and bring them to life; who actively and enthusiastically promote innovations, building support, overcoming resistance and ensuring that the innovations are implemented. On the importance of change agents and/ or champions in a change effort, Rogers (2003) asserts that "earlier adopters have more contact with change agents than do later adopters" (p. 291), in addition to saying later on, that "the presence of an innovation champion contributes to the success of an innovation in an organisation" (p. 414). However, Rogers (2003) cautions that, the mere presence of a change agent is not a guarantee for the success of a change effort, suggesting some twelve conditions for the success of a change agent, namely: (i) being hard working (ii) being client-oriented rather than change agency-oriented (iii) being compatible with client needs (iv) being empathetic with clients.

Rogers (2003) goes on to give other conditions for the success of a change agent as, (v) having homophily with clients (vi) having to work through opinion leaders (vii) being credible in the clients' eyes (viii) trying to increase client ability to evaluate innovations (ix) having a high social status among clients (x) allowing high social participation (xi) having high education and literacy and (xii) being cosmopolitan. Recent studies relating interaction with change agents or champions and use of innovations by administrators, can be found. For example, Norton (2012) in his exploratory study to examine intentions to adopt an evidence-based HIV linkage-to-care (LTC) intervention among state health department AIDS directors in the US, used relative frequencies or percentages to establish that participants varied with their intention to adopt the LTC intervention in the future depending on endorsement from different key stakeholders, which stakeholders in this study were interpreted as change agents or champions. With such theoretical and empirical support, in this study, it was hypothesized that:

H1: Interaction with ICT change agents was a positive correlate of e-readiness.

How Training Correlates with Readiness for Innovations

Buckley and Caple (2000) define "training" as a planned and systematic effort to modify or develop knowledge, skills or attitude through learning experience, to achieve effective performance in an activity. Thus, training in a work situation is concerned with extending and developing employees' capabilities and enabling them perform better in their jobs, and be readier for changes such as those brought by the electronic revolution. Buabeng-Andoh (2012) on his part, observes that teachers' professional development is a key factor to successful integration of computers into classroom teaching. They cite several studies as having revealed that whether beginner or experienced, ICT-related training programs develop teachers' competencies in computer use, influence teachers' attitudes towards computers as well as assisting teachers reorganize the task of technology and how new technology tools are significant in student learning. Several recent researchers (e.g. Hung, Hung, Tsai & Jiang, 2010) established training to be a positive correlate of readiness for innovations by administrators. For example, Hung etal (2010) in their study of critical factors of hospital adoption of Customer

Relationship Management (CRM) in Taiwan, used Discriminant Analysis to establish that information system capabilities of staff, which only come through training, had significant influence on the adoption of CRM. From the literature, it was thus proposed that:

H2: ICT training was a positive correlate of e-readiness.

How Cosmopolitanism Correlates with Readiness for Innovations

Rogers (2003) defines "cosmopoliteness", another version of the term "cosmopolitanism" as the "degree to which an individual is oriented outside a social system" (p. 290). In this study it was assumed that "cosmopoliteness" was synonymous with "urban influence". Rogers (2003) asserts that earlier adopters are more "cosmopolite" or cosmopolitan than late adopters. Innovators' interpersonal networks are more likely to be outside, rather than within, their system. They travel widely and are involved in matters beyond the boundaries of their local system" (p. 290). Innovators act like the "stranger", whose special perspective stems from a lack of integration into the local system. The "stranger" is not radically committed to the unique ingredients and peculiar tendencies of the group, and because of this social distance from others in the system, the "stranger" is relatively free from the system's norms. This orientation frees the innovator from the constraints of the local system and allows him or her personal freedom to try out previously untried ideas. Recent studies relating "cosmopoliteness" or urban influence and readiness for innovations by administrators could not easily be found.

However, such studies on other stakeholders in Higher Education could be found. For example, Amutabi and Ketch (2003) in their qualitative study based on documentary analysis, used lack of "cosmopoliteness" to explain why adoption of the African Virtual University (AVU) in Kenyatta University had not succeeded. For example, on pages 64, they bring their point home by saying that

> Kenyatta University is located in Nairobi [the Capital City of Kenya] which renders the AVU services accessible mainly to an urban clientele but inaccessible to the majority rural population…. [And] since the [AVU] centres have been taken to universities, they still perpetuate the ivory tower mentality associated with these institutions with their attendant bureaucracy, iron gates, watchmen, and rigid selection criteria…. This hinders access to many (p. 64)

From the literature, the following research hypothesis was natural:

H3: Cosmopolitanism was a positive correlate of e-readiness.

Age as a Correlate of Readiness for Innovations

Kok, Kee, Ping, Khalid and Yu (2011) while quoting relevant studies propose that "youthful managers are more appealing to fresh and unique ideas, and more willing take risks than older managers. The older managers are slow to adopt new technology unless they believe that there is an advantage in adopting the new technology" (p. 303). Several studies have established age to be a negative correlate of readiness for innovations by administrators. For example, Kok et al. (2011) used multiple regression to identify determinants of internet adoption in Malaysian audit firms, and established that "age of audit partners are significantly [negatively] associated with internet adoption" (p. 302). Because of such empirical support, it was hypothesized that:

H4: Age was an inverse correlate of e-readiness.

Gender as a Correlate of Readiness for Innovations

Gender refers to socially constructed differences and distinctions between men and women. Gender differs from sex in that it is not biologically determined. Gender distinctions include the different attributes, statuses, roles, responsibilities, and potentialities as well as their access to and control over resources and benefits (Ssali, Ahikire & Madanda, 2007). Sang, Valcke, van Braak and Tondeur (2010) summarized the views expressed by many authors about technology in general and ICT in particular being a male-dominated discipline, but with the females steadily catching up, saying that:

> literature on educational computing abounds with conflicting findings about the impact of gender…. Since the introduction of computers, ICT related activities have been viewed as a 'male domain'…. There is a significant body of evidence supporting the notion that gender plays a role in actual computer integration…. [However] since technologies have become a normal part of the working place setting, a number of researchers argue that computing should no longer be regarded as a male domain (p. 104).

Recent studies on gender as a correlate of readiness for innovations by administrators, could not be found. However such studies could be found for other stakeholders in Education. For example, Educause Centre for Applied Research, ECAR (2010) in their mixed (i.e. quantitative and qualitative) study of technology adoption and ownership of IT among undergraduates in the US, reported finding that since they had started their annual surveys in 2006, the female respondents had consistently assessed themselves lower on technology adoption. In particular, for the year 2010, they reported that while half of the male respondents indicated that they were innovators or early adopters of technology, only just a quarter of the female respondents rated themselves as such. The literature thus naturally led to the corollary that:

H5: Gender correlated with e-readiness in such a way that the males were readier.

Income Level as a Correlate of Readiness for Innovations

Rogers (2003) observes that "earlier adopters… are wealthier…. Socio-economic status and innovativeness appear to go hand in hand" (p. 288). However, Rogers (2003) poses a rhetorical question, namely "do innovators innovate because they are richer, or are they richer because they innovate?" (p. 288). While regretting that "this cause-and-effect question cannot be answered solely on the basis of available cross-sectional data" (p. 288), Rogers (2003) notes that "there are understandable reasons why social status and innovativeness vary together. Some new ideas are costly to adopt and require large initial outlays of capital. Only the wealthy… may be able to adopt these innovations" (p. 288). Recent studies on income as a correlate (or cost as a negative correlate) of readiness for innovations by administrators were available (e.g. Matovu, 2003). For example, in a study of ICT issues in Uganda's education sector in Central Region, Matovu (2003) reported that cost of ICT was one of the factors hindering acquisition of ICT manifesting itself in initial capital being almost prohibitive, and recurring expenditure that was high. In particular, Matovu (2003) reported that most primary schools lacked the means to acquire even one computer without direct intervention of the Government. With such theoretical and empirical support, in this study a leaf was

borrowed from Rogers (2003) who asserts that earlier adopters have higher social status than late adopters, where status is indicated by such variables as income. Hence the hypothesis to the effect that:

H6: Income level was a positive correlate of e-readiness.

Methodology of Research

General Background of the Research

The study adopted the positivist or quantitative paradigm in that it involved numerical variables. In particular, the study was a survey based on correlational and cross-sectional designs. The study was a survey in that it involved a large number of respondents to facilitate generalisation. The correlational design was to help in correlating e-readiness with each of the characteristics. The cross-sectional design permitted the collection of data in a relatively short period of time, and hence made the study cost effective.

Sample of Research

The target population in the study were all the 196 senior administrators (Table 1) in Makerere University. All senior administrators were considered accessible, given the sedentary nature of most of their jobs. Of the population of respondents (i.e. 196 senior administrators), Krejcie and Morgan (1970's Table, cited in Gay & Airasian, 2003) suggested minimum sample of size, 132 senior administrators. However, factoring in possible non-response, all those 196 administrators (Table 1) were targeted to receive questionnaires. The overall response rate was 124 (94%) of the targeted 132 administrators. Such a response rate compared favourably with Hung etal (2010) who in their study of "critical factors of adoption of Customer Relations Management (CRM) in hospitals in Taiwan, sent out 508 questionnaires to as many hospitals and got back only 95 (19%).

Table 1. Makerere's senior administrators

Administrative unit	Number
Academic Registrar's Office	38
Agricultural Research Institute, Kabanyoro	3
Dean of Students Office *	43
Directorate of ICT Support	8
Finance **	26
Main Library	22
Planning and Development	7
School of Graduate Studies	5
University Secretary's Office ***	23
Vice Chancellor's Office	10
Total	196

* Main Office (8); Chapels and Mosque (3); Counseling and Guidance (4); Halls/ Wardens (14); Hospital (12); Sports and Recreation (2);

** Bursar's Office (22); Internal Audit (14)

*** Main Office (12); Appointments Board (3); Estates/ Works (6); Printery (2).

(Source: Makerere University, 2007, *Prospectus, 2007/ 2010*)

Instrument and Procedure

Data were collected using a self-administered questionnaire (SAQ – see the Appendix) specifically developed for the study. As the Appendix illustrates, the SAQ had only one background item of relevance in the study, namely the "unit of employment", given that many independent variables (IVs) were also background variables. Then it had an item on the first independent variable (IV1) on whether or not a respondent had any ICT change agents in their department. It had a binary item on the second IV (IV2) on whether or not a respondent had any ICT qualification. It had five items on the third IV (IV3) on the cosmopolitanism of a respondent, each of which was scaled on a four-point Likert ($\alpha = 0.8198$). The SAQ had an item on the fourth, fifth and sixth IVs (IV4, IV5 and IV6) on the age, gender and income level of a respondent. Lastly the instrument had 14 items on the dependent variable (DV), the first six of which pertained to the use of personal computer (PC) applications, with each of the six items scaled on a five-point Likert ($\alpha = 0.7584$), and the last eight items pertaining to the use of the Internet, with each of the eight items scaled on a five-point Likert ($\alpha = 0.8768$). In terms of procedure, secretaries in the respective schools were used in the distribution and follow-up of SAQs.

Data Analysis

The data on returned questionnaires were edited, coded and entered into computer using the Statistical Package for Social Sciences (SPSS). Descriptive analysis was done using percentages, sample means and standard deviations, while inferential analysis involving the testing the six study hypotheses was implemented using Fisher's Analysis of Variance for H1; Student's t test for H2, H5 and H6; and Pearson's linear correlation for H3 and H4.

Results of Research

Background of Respondents

Table 2 gives the profile of the 124 respondents in terms of "unit of employment" in the University, possession of qualification in ICT, age group, sex, and income level. The typical respondent worked in a purely "administrative" unit (67.5%); had an ICT qualification (82.6%); was aged between 30 and 40 years (44.7%); was a female (54.1%); and perceived him/ herself as being of medium income (66.4%).

Table 2. Demographic profile of the respondents

Description	Category	Frequency *	Percentage
Unit of Employment			
	Academic **	37	32.5
	Administrative ***	77	67.5
Hold any ICT qualification?	No	19	17.4
	Yes	90	82.6
Age group of respondents in years	Below 30	33	28.9
	30 but below 40	51	44.7
	40 and above	30	26.3
Sex of respondent	Female	66	54.1
	Male	56	45.9
Income level	Low	37	31.1
	Medium	79	66.4
	High	3	2.5

* Item total frequencies differ because of non-responses

** Administrators (e.g. registrar and financial administrators) in the Faculties/ School of Agriculture (3); Computing & Information Technology (5); Education (4); Law (7); Medicine (11); Science (2); Statistics & Applied Economics (3); and Veterinary Medicine (2)

*** From Printery (3); Library (19); Academic Registrar's Office (9); Hospital (12); Directorate of ICT Support, DICTS (7); Finance/ Audit (11); Estates (6); Planning (4); Vice Chancellor's Office (3); University Secretary's Office (6); Dean of Student's Office (7)

Electronic Readiness

The main variable in the study, namely electronic readiness (e-readiness) was broken into two parts, namely that on the use of personal computer (PC) applications software and that on the use of Internet facilities respectively. Each item had been scaled in such a way that 1 = Very rarely or never, including never heard of it; 2 = Rarely; 3 = Fairly, that is, neither rarely nor regularly; 4 = Regularly; and 5 = Very regularly. Table 3 gives the pertinent summary statistics, where, among the PC applications software, only word

processing and to a reduced extent spreadsheet software, recorded outstanding levels of use. And among the internet facilities, only e-mail and web surfing were used appreciably. An overall index on e-readiness (from the 14 items in Table 3) had a mean = 2.80, which as per the scale used, suggested that the majority of the respondents were only fairly e-ready, that is neither rare nor regular users the electronic resources.

Table 3. Summary statistics on electronic readiness

	Mean	Standard deviation	Overall
(a) Indicator of use of PC applications software			
Word processing software	4.23	1.07	Mean = 2.82
Spread sheet software	3.45	1.33	Std dev = 0.88
Database management software	2.82	1.47	
Graphics software	2.78	1.37	
Desktop Publishing	2.03	1.36	
Statistical or Data analysis software	1.70	1.14	
(b) Indicator of use of Internet facilities			
Email	4.33	1.04	Mean = 2.76
Web surfing	4.07	1.27	Std dev = 0.97
Bulletin board, mailing lists, discussion groups	2.75	1.49	
Computer conferencing systems	1.74	1.13	
Video conferencing systems	1.58	0.97	
Electronic journals, newsletters	2.69	1.54	
Electronic databases	2.54	1.48	
On-line library catalogues	2.51	1.48	

Tests of Hypotheses

The first hypothesis (H1) in the study was that interaction with ICT change agents was a positive correlate of e-readiness. The respondents were thus prompted to state whether or not, in their observation, their unit had any ICT change agent, that is, a person promoting the cause of ICT. Table 4 gives the pertinent summary statistics and Fisher's ANOVA, where the sample means suggested differentials in e-readiness with respect to interaction with ICT change agents, which however was not supported by the small F value ($p > 0.05$). This led to the rejection of H1.

Table 4. Statistics and ANOVA on e-readiness by interaction with ICT change agents

Any departmental ICT change agents?	Count	Mean	Standard deviation	F	p
No	24	2.95	0.86	1.073	0.346
Yes	67	2.80	0.88		
Not observant	8	2.44	0.62		

The second study hypothesis (H2) was that ICT training was a positive correlate of e-readiness. The respondents were thus prompted using one item to state whether or not they possessed any ICT qualifications. The resultant summary statistics are given in Table 5, where the two-sample means suggested that the holders of ICT qualifications, were more e-ready than those who did not. However, the small t value ($p > 0.05$), led to the rejection of H2.

Table 5. Statistics and t test on electronic readiness by possession of ICT qualification

Hold any ICT qualification?	Count	Mean	Standard deviation	t	P
No	15	2.45	0.84	1.536	0.128
Yes	79	2.83	0.87		

I had been hypothesized that cosmopolitanism was a positive correlate of e-readiness (H3). Taking cosmopolitanism as ranging from the worst case scenario of "rural poor" to the best case scenario of "urban elite", the respondents were asked to do self-rating as to the places where they resided, at different levels in their lives, using a scale ranging from a minimum of 1 = rural poor, through 2 = rural but elite, 3 = urban poor, to a maximum of 4 = urban elite. The pertinent summary statistics are in Table 6, which revealed that on average, the respondents' levels of cosmopolitanism rose with the levels of schooling. An overall index on cosmopolitanism (from the five items in Table 6) had a mean = 2.91, which suggested that overall, the respondents rated themselves as urban poor. Pearson linear correlation of the cosmopolitanism index (from Table 6) and the e-readiness index (from Table 3), gave $r = 0.149$, $p = 0.138$, which suggested a positive ($r > 0$) but insignificant relationship ($p > 0.05$) between cosmopolitanism and e-readiness at the five percent level of significance. Hence the rejection of H3.

Table 6. Statistics on cosmopolitanism at different levels in life

Level in life	Mean	Standard deviation
Childhood place	2.31	1.16
Primary schooling place	2.43	1.13
O-level schooling place	2.98	0.96
A-level schooling place	3.09	0.91
Current place of abode	3.69	0.59

In the fourth hypothesis (H4), it had been postulated that age was an inverse correlate of e-readiness. The respondents were thus prompted to state their ages in years, which resulted into a mean age of 37.3 years with a 95% confidence interval estimate ranging from 35.6 to 38.9. The median age was 36.5 years. The ages had a ranged of 37.0 years, from the youngest respondent being 23.0 years to the oldest one having the maximum possible age for administrators in Makerere University, of 60.0 years. Pearson's linear correlation between the two numerical variables, namely age and the e-readiness index (from Table 3), yielded r = - 0.092, p = 0.449, leading to the rejection of H4 at the five percent level of significance (p > 0.05).

It had been hypothesized that gender related with e-readiness, in such a way that the males were readier (H5). The corresponding descriptive statistics and t test results are given in Table 7, where the means suggested that the females were more e-ready than the males, although the t value was small (p > 0.05). Thus, at the five percent level of significance, H5 was rejected.

Table 7. Statistics and t test on electronic readiness by gender

Gender	Count	Mean	Standard deviation	t	p
Female	57	2.86	0.77	0.961	0.339
Male	48	2.70	0.92		

In the last hypothesis (H6), it had been stipulated that the income level was a positive correlate of e-readiness. The respondents accordingly rated themselves on income on a scale where 1 = Low; 2 = Medium; and 3 = High. However, given that only three individuals gave a self-rating in the third category, those respondents were ignored, leaving only two categories of the respondents. Table 8 gives the summary statistics and t test results, where the means suggested that e-readiness did not vary with income. This was supported by the small F value (p > 0.05), leading to the rejection of H6 at the five percent level of significance.

Table 8. Statistics and t test on e-readiness by income level

Income level	Count	Mean	Standard deviation	F	p
Low	30	2.74	0.87	0.044	0.965
Medium	69	2.73	0.82		

Discussion

Interaction with ICT Change Agents and Electronic Readiness

The first hypothesis (H1) in the study namely that interaction with ICT change agents or champions was a positive correlate of e-readiness, was not supported by the findings. This was at variance with past findings (e.g. Norton, 2012), and even theoretical assertions such as that by Rogers (2003) that a potential adopter who has more contacts with a change age is more likely to embrace the innovation in question, than those with fewer contacts. This lack of significance of the ICT change agents might be in support of Roger's (2003) assertion to the effect that the mere presence of change agents is not adequate unless the agents are hardworking, compatible with client needs, credible in the eyes of clients and allowing social participation. May be the ICT change agents in Makerere are not doing these, in the eyes of the administrators.

ICT Training and Electronic Readiness

The study set out to test H2 to the effect that ICT training (proxied as the possession of an ICT qualification) was a positive correlate of e-readiness. H2 was not supported by the study finding, which was at variance with past (e.g. Hung et al., 2010). It was also against theoretical assertions such as that by Buabeng-Andoh (2012) who argued that adaptability to technological advances is a factor of training. This anomalous finding could be as a result of the low levels of ICT qualifications the administrators held. It so happened that of the 90 who gave their levels of ICT qualification (Table 2), 61 (67.8%) had a mere certificate, six (6.7%) had an undergraduate diploma, 15 (16.7%) a bachelor's degree, three (3.3%) had a postgraduate diploma, five (5.6%) had a Master's degree and none (0%) had a PhD in ICT. It could be that these rather low ICT qualifications could not significantly positively correlate with the e-readiness as expected.

Cosmopolitanism and Electronic Readiness

Contrary to what was hypothesized (H3) in the study, findings dismissed cosmopolitanism as a positive correlate of e-readiness. This disagreed with other studies (e.g. Amutabi & Oketch, 2003) and the corresponding theoretical assertions (e.g. Rogers, 2003). The explanation for the finding could be that while innovations are expected to start from urban or cosmopolitism areas and spread to other areas (Bisaso & Visscher, 2005) both the rural and urban areas in Uganda have equally low levels of e-readiness to the extent that the urban or cosmopolitan ones do not enjoy any advantage.

Age and Electronic Readiness

The study finding disagreed with the initial hypothesis (H1) to the effect that age was an inverse correlate of e-readiness, which finding was inconsistent with several past studies (e.g. Kok et al., 2011). The finding equally challenged theories such as that fresh ideas are more appealing to the youth, who are more willing to take risks than the older people (Kok et al., 2011). The possible explanation for this could be in line with the contention that while the

older administrators may have had more experience, education and financial resources which factors could have been incentives to try and use the said resources, the young administrators might have tended to have more schooling and exposure to new ideas that may have helped them to adopt the e-resources faster, which suggests an inconclusive debate and hence a gap on this issue, for future research.

Gender and Electronic Readiness

While the study set out on the premise that the female administrators were at a disadvantage as far as e-readiness was concerned (H5), the study finding proved otherwise. This finding was dissimilar to that of others (e.g. ECAR, 2010), and pertinent theory (e.g. Sang et al., 2010) to the effect that technology in general and ICT in particular is a male-dominated discipline. The possible explanation for the odd finding could be due to the fact that electronic resources have become a normal part of the working place setting in Makerere University, and thus such resources are no longer be regarded as a male preserve (Sang et al., 2010).

Income Level and Electronic Readiness

Inconsistent with the sixth hypothesis (H6) in the study, income level was not significant correlate of e-readiness, a finding inconsistent with findings of several other studies (e.g. Matovu, 2003). The finding also challenged the theoretical assertion that the higher the income, the easier it is for an individual to acquire or otherwise access expensive innovations such as electronic ones (Rogers, 2003). The possible explanation for this could be that the administrators with more financial ability to acquire the electronic resources might have tended to be older, making their advanced age to militate against their eagerness to go in for the e-resources. The opposite may have been true for the less financially able administrators. This inconclusive debate raises a gap for future researchers to consider.

Conclusions

Electronic readiness (e-readiness) that is the ability to use electronic sources (e-resources) such as personal computer applications software and internet facilities, "plays a vital role in supporting powerful, efficient management administration in the education sector" (Krishnaveni & Meenakumari, 2010). This paper reported on a survey on the electronic readiness of senior administrators in Makerere University carried out with the purpose of not only establishing the levels of e-readiness, but also correlating this readiness to individual characteristics of an administrator, namely the administrator's level of interaction with ICT change agents, ICT training, cosmopolitanism, age, gender and income level. In so doing the study closed several gaps. For example, it was among the few done in the area of relating e-readiness to those six or indeed any other correlates in Makerere University. The main findings of the study were that of all the six potential correlates, none was a significant correlate of e-readiness.

These findings have practical significance to ICT change agents in the University, in that they suggest that all the senior administrators in the University deserve the same encouragement and/ or help with respect to electronic resources, irrespective of differentials in levels of interaction with ICT change agents, ICT training, cosmopolitanism, gender and income level. However, this study had limitations. For example, it used only individual characteristics as the independent variables, yet there are other variables that could potentially relate to e-readiness. Future studies should integrate more of these independent variables. Further, the study was quantitative, which prompts the proposition that future studies may at least combine the quantitative paradigm with

the qualitative one to get a fuller picture of the phenomenon. However, the above shortcomings aside, the study has contributed to the debate on the factors related to electronic readiness.

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Appendix: Study Questionnaire

Background variable One, BV1: Unit of Employment

Name your "unit of employment" in the University, which could be an administrative department or an academic unit (e.g. School, Faculty or Institute) ……..

Other background variables in this study were also independent variables (IV2, IV4 through IV6)

Independent Variable One, IV1: Interaction with ICT Change Agents

According to your observation, does your Department have any ICT change agent or agents, that is a person or persons promoting the cause of ICT? 1. No 2. Yes 3. Not observant

Independent Variable Two, IV2: ICT Training

Do you hold any ICT qualification? 1. No 2. Yes

Independent Variable Three, IV3: Cosmopolitanism (CS)

Please rate each of the following places using a scale where 1 = Rural poor; 2 = Rural but elite; 3 = Urban poor; and 4 = Urban elite

CS1	Where you spent (most of) your childhood before going to school, as it was then	1	2	3	4
CS2	Where you had (most of) your primary schooling from, as it was then	1	2	3	4
CS3	Where you had (most of) your O-level schooling from, as it was then	1	2	3	4
CS4	Where you had (most of) your A-level schooling from, as it was then	1	2	3	4
CS5	Where you are residing now	1	2	3	4

Independent Variable Four, IV4: Age

How old are you (to the nearest whole year)? …….

Independent Variable Five, IV5: Gender

What is your gender? 1. Female 2. Male

Independent Variable Six, IV6: Income Level

How would you rate your income level? 1. Low 2. Medium 3. High

Dependent Variable: Electronic Readiness

Dependent Variable One, DV1: Use of PC Applications (PC)

Please indicate how often you use a given PC application software using a scale where 1= Very rarely or never, including never heard of it; 2= Rarely; 3= Neither rarely nor rarely; 4= Regularly; and 5= Very regularly

PC1	Word processing	1	2	3	4	5
PC2	Spread sheet management	1	2	3	4	5
PC3	Data base management	1	2	3	4	5
PC4	Graphics	1	2	3	4	5
PC5	Desktop publishing	1	2	3	4	5
PC6	Statistical or data analysis	1	2	3	4	5

Dependent Variable One, DV2: Use of Internet (Int)

Please indicate how often you use a given internet facility using a scale where 1= Very rarely or never, including never heard of it; 2= Rarely; 3= Neither rarely nor rarely; 4= Regularly; and 5= Very regularly

Int1	Email (sending or receiving messages)	1	2	3	4	5
Int2	World wide web (surfing)	1	2	3	4	5
Int3	Bulletin board services, mailing lists, discussion groups	1	2	3	4	5
Int4	Computer conferencing systems	1	2	3	4	5
Int5	Video conferencing systems	1	2	3	4	5
Int6	Electronics journals, newsletters (e.g. in Library)	1	2	3	4	5
Int7	Electronic data base (e.g. in Main Library)	1	2	3	4	5
Int8	On-line library catalogs (e.g. in the Main Library)	1	2	3	4	5