TIME TO CHANGE: PERCEPTIONS ON USE OF EDUCATIONAL TECHNOLOGY FOR TEACHING IN MAKERERE UNIVERSITY

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Abstract:

Educational technologies (ETS) have globally facilitated teaching in institutions of higher learning for centuries. Makerere University with support from development partners has over the years invested in the integration of ETs in teaching through purchase of ETs and building capacity for their use. However, despite these efforts little is known about the perceptions of staff on access to and the use of these ETs. In order to examine whether gender influences how male and female staff perceive and use technologies for teaching, a study employing a cross sectional research design with qualitative and quantitative methods of data collection was conducted. Data for the survey was elicited from a sample of 218 staff (65% male and 35% female). In addition, key informant interviews (KIIs) and focus group discussions were conducted. Findings indicated that: staff were aware of the benefits of ET use; gender did not affect awareness about usefulness of ETs but it influenced staff strategies and options available for one to access and use ETs; the experience of accessing and using influenced perceptions on future use. Consequent to this, ET use had transformed learning more than the traditional methods of teaching in Makerere University. Thus, for teaching to equally benefit from use of ETs, recommendations made included: a call for more commitment and support from university management; increased access to ETs for staff in lecturer halls, particularly LCD projectors and laptop computers; a policy on maintenance of available ETs, as well as continuous *skilling* of staff and students; staff motivation which should include moral support, appreciation and recognition; transfer of credits for promotion and technical staff to support teaching staff that use ETs as well as context specific uptake of ETs. Staff said that these were extremely important and an urgent preconditions towards enhanced use of ETs in teaching.

***Key words**: Staff perceptions, educational technologies (ETs), university teaching*

Introduction

Educational technologies have globally facilitated teaching and learning in institutions of higher learning for centuries. Studies have been conducted to explore access (Damme, Haan, & Ledema, 2005); use (Bingimlas, 2009; Cilesiz, 2009) staff (Yusuf, Daniel, Low, & Ab, 2011) and students perceptions (Demirci, 2007; Elwood & MacLean, 2009) of educational technology. However, the interplay of gender as a variable in the trio of perceptions, access and use of ETs in reference to university integration of ETs in teaching and learning is what this study sought to add. This is because gender discrimination and differences were viewed as posing serious barriers to efforts of integration by negatively impacting on access and use. However, contradictory results have been documented with some scholars arguing that gender matters in the use of educational technology while others think it does not. Karsenti (2010) is one of the

scholars who posit that gender affects the use of educational technology. He argued that in education, it is increasingly evident that there is a dire need to improve both the quality of technology usage and to resolve equity issues. He further argued that access to and use of educational technology by men and women is different. For instance, Karsenti (2010) found that there are differences in how males and females, both staff and students access computers. Other scholars found that the percentage of women who regularly use Internet is much lower than that of males and that women and men have different interests in using educational technologies (Gargallo-Castel, Esteban-Salvador, & Perez-Sanz, 2010). Others reported that men use computers and the Internet more than the females; have wider computer experience, spend more time online, report greater interest and positive attitudes towards computer-related activities (Selwyn, 2007; Tomte, 2008).

Over the years Makerere University in Uganda has been no exception to the move intended to integrate ETs in teaching and learning. Strategies to achieve effective integration have revolved around the purchase of educational technologies and capacity building for their use. Despite efforts taken to build and support the adoption of educational technologies (ET) in Makerere University little is known about the perceptions of staff on access to and the use of these technologies (ETs) and whether gender influences how male and female perceive the use ETs. This study therefore set out to: establish the influence of gender on staff and students perceptions on access to and use of ETs in Makerere University. Four major questions were to be answered: what are the perceptions of Makerere University staff and students on ETs? How do academic staff and students access ETs? How do staff and students use ETs for teaching and learning respectively and what are the gender implications of integrating ET in the teaching, learning and research activities in Makerere University? The study hypothesized that gender influences perceptions, access and the ultimate use of educational technology. However, the purpose of this article is to present and discuss findings on staff perceptions of ETs, challenges of integrating use of ETs in teaching which need to be addressed so as to enhance ET adoption in teaching.

Methodology

The study was conducted in Makerere University and at the time of fieldwork in 2009, Makerere had sixty one departments within 10 Faculties, three Schools, six Institutes and one College. For this study, nine Faculties, two schools, one college and one institute participated in the students and staff survey.

A cross-sectional research design that combined qualitative and quantitative research approaches was adopted. Research activities involved mainly the development of research instruments i.e. structured questionnaire; key informant interview and focus group discussion guides; recruitment and training of research assistants, piloting the data collection tools; data collection Including documentary reviews; analysis and report writing.

Findings and Discussion

This section reports and discusses the major findings on staff demographics, their understanding of ETs, challenges of using ETs in teaching and what should be done to improve staff uptake of ETs in their teaching activity.

Social Demographics of Staff

Academic staff that participated in the study comprised of male and female at five levels from: Teaching Assistants (17.5%), Assistant Lecturer (19.9%), Lecturer (27.5%), Senior Lecturer (22.8%), Associate Professor (6.4%) and Professor (5.8%). In addition, administrative staff comprising of representatives from the offices of the Deputy Vice Chancellor, Academic Affaires; Principal, College of Health Sciences, Dean, School of Education; Directorate of Human Resources; University Library; Directorate for Information and Communication Technology Services (DICTS); University Bursar and the Directorate of Planning were included as key informants.

Staff understanding of ETs

Two statements were provided that define ETs: The first was taken from Luppicini (2005, p. 108) and it stated that "ET is a field concerned with the design, development, utilization, management and evaluation of processes and resources for learning". The second definition derived from Januszewski and Molenda (2008, p. 1) was that "ETs,

also called Learning Technology was the study of ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources".

Principally, among the staff most respondents chose from the supplied definitions. Both male (49%) and female staff (54%) agreed more with the second definition, an indication that they perceive ETs as learning technologies, involving an ethical practice of facilitating learning and improving performance, possible through creation, use of and management of appropriate technological processes and resources. This finding also indicates that more female staff than the male staff considered ETs as learning technology or technologies to facilitate learning but were less concerned with their design and development as implied by Luppicini (ibid) in the first definition. This position suggests that staff understand what ETs mean but is associated more as technologies that support learning. This perception is consistent with Buabeng-Andoh' (2012) observation that points out that the rise of technologies has complicated its adoption by teachers in the classrooms. This is a pointer that corroborates Demps, Lincoln and Cifuentes (2011) arguments that teaching using technology takes more time.

Staff were requested to provide an alternative definition if the two provided statements did not fully demonstrate their understanding of ETs. In the alternative definitions of ETs provided—16(6.2%) male and 5 (23.8%) female staff said ETs was technologies such as computers, projectors, Internet, printers, software and PowerPoint, that can be used in the training of students. This finding is an indication that although staff appreciate ETs as tools useful in teaching, as shown in the alternative definitions, the small numbers of respondents suggests a gap in perception of ETs as tools more for learning than for teaching.

Data on alternative definition provided further shows a limited perspective of ETs. Staff mentioned ETs as comprising hardware (mainly computers). Further, data showed that more male staff than the female perceived that ETs are supposed to be used for training

students. This is an indication that staff do not conceptualise themselves as part of the learning process but only as teachers.

Furthermore, in this study, an individuals' perception of ET, for example, its usefulness were considered crucial in forming attitudes about a technology that facilitate its adoption if positive or non-adoption if negative. The perceptions on educational technologies were hypothised as the awareness of or knowing what ETs are, have to offer, plus being able to identify those opportunities as well as give a certain level of confidence or self-efficacy. We hypothesised further that gender is important to how individuals perceive ETs. This then triggers off certain behaviour in the individual to access and use ETs. With a Likert scale, statements measuring staff perceptions were included in the survey and results show that staff, both male and female have positive perception about ETs as summarised in Table 1.

Table 1: Staff Perceptions about ETS

Perceptions about ETs		**Strongly Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**		**Totals**	
	Sex	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
I use Educational Technologies more than other resources for instructional purposes	M	32	28.1	34	29.8	25	21.9	16	14	7	6.1	114	100
	F	18	30	12	20	13	21.7	15	25	2	3.3	60	100
I know how to use ETs in the instructional environment	M	29	25.7	60	53.1	17	15	4	14	3	6.1	113	100
	F	36	58.1	21	33.9	5	8.1	4	6.7	1	1.7	60	100
I am aware of the opportunities that ETs offer	M	52	46	47	41.6	11	9.7	2	1.8	1	.9	113	100
	F	36	58.1	21	33.9	5	8.1	0	0	0	0	62	100
I can answer any question my students ask about a given ET	M	12	10.5	35	30.7	33	28.9	26	22.8	8	7	114	100
	F	5	8.2	21	36.1	21	34.4	9	14.8	4	6.6	61	100
I believe that tools like e-mail, forum and chat will make communication with my colleagues and students easier	M	79	68.7	33	28.7	1	.9	2	1.7	0	0	115	100
	F	36	59	21	34.4	3	4.9	0	0	1	1.6	61	100
Technology supported teaching	M	77	67	33	28.7	5	4.3	0	0	0	0	115	100
	F	42	68.9	13	21.3	6	9.8	0	0	0	0	61	100

Perceptions about ETs		Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Totals	
	Sex	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
makes learning more effective													
The use of instructional technologies increases the interest of students	M	65	56.5	35	30.4	14	12.2	1	.9	0	0	115	100
	F	34	54.8	18	29	9	14.5	15	25	2	3.3	62	100
Usage of instructional technologies makes it easier to prepare course materials (assignments, handouts e.g.).	M	76	66.1	29	25.2	6	5.2	4	3.5	0	0	115	100
	F	41	66.1	18	29	2	3.2	0	0	1	1.6	62	100
The use of instructional technologies increases the quality of courses	M	68	59.6	34	29.8	10	8.8	2	1.8	0	0	114	100
	F	37	60.7	19	31.1	4	6.6	1	1.6	0	0	61	100
I don't want to use ETs	M	4	3.5	1	.9	0	0	26	23	82	72.6	113	100
	F	0	0	1	1.6	4	11.5	11	18	45	73.8	61	100

Source: Field data 2009

Data in Table 1 indicates that awareness of ETs was equally high among the female and male staff (87.6% males and females 92%). In addition, all benefits or opportunities that ETs offer were highly rated (above 80%) by both males and female therefore indicating no gender differences in awareness of ETs.

Staff were asked about their use of ETs and data shows that although both male and female staff reported use of ETs on a daily basis, there were variations in use. Male and female staff use ETs for varied activities and males have more use of ETs than females. Some examples seen from the survey indicate that the female staff engage more in the use of ETs for communication (57% male and 70% female). More female than male staffs said they use ETs to communicate with colleagues. They also said that they use ETs to do research (60.3% male and 62.7% female) than the male do. While, more male (49.1%) than female (32.7%) reported that they use ETs for: administrative roles; communication with students; recreation; assessment of students; research; and digitization of materials

on a daily basis. This is an indication that there are gender disparities in how male and female staff use ETs.

Further, although data shows that more male staff use ETs than the female, yet male staff dominate both in the use (58.7% male users compared to 30.4 % female) and non use of ETs (i.e. 7.3% male and 3.6% female). Findings also revealed that non-use of ETs is greatest among male Associate professors (4.6% male and 2.1% female).

Findings generally show that in aid of teaching, ETs are used basically for illustrations and preparation of lecture notes. However, there is limited actual usage of ETs for course delivery or teaching. Some of the challenges that lead to this were mentioned.

Challenges of ET Uptake in teaching

This subsection discusses the constraints that staff members sometimes face as they try to gain access to ETs. The first challenge highlighted was limited number of ETs available in comparison to the available numbers of users, for both staff and students. Academic staff members revealed that the high ratio of user to ET, particularly of computer to students was a challenge that has affected their access to these ETs and therefore limited their use in teaching. Data further revealed that although the science based faculties are relatively well endowed with computers than the humanities are, the ratio of computers to staff too is still very low as confirmed in the KI interviews: …*the ratios are not yet convenient for us to do that [use computers to teach] (KII, Manager, Female).*

Another said:

> "*… we have few computers in the school [and] not all departments have computers, [yet] those that have, have colonial times computers…" (Male, KII, Manager, College of Health sciences)*

Lack of adequate facilities, both personal and university ones, complicates access for students even in the seemingly well-endowed units like FCIT. The findings show that Makerere population has continued to increase disproportionately to the rate at which infrastructure grows. As a result, he said:

> *You find that even in FCIT where there are many computers, students do not have ready access to the labs…they have nearly all the computers but also have many students. [Yet] For one to effectively use a computer, you need from 5 to 8 hours, especially when programming. So [to have such amount of time] you need a computer to yourself, the whole day (Male Manager, DICTS).*

He also said that although none science students may work for at least 2 hours and get tired, and go away, a science student may work for 3 days continuously. So if the students are expected to share a computer, then this is a problem to access and use a computer as an ET. He said that therefore there is need to find out actual realities of access and use of ETs because the existing measures based on students to computer ratio is wrong. It is wrong because it under plays or even hides the fact that (practical access?) is not met. Because access for students is not easy, the teachers' interest in using ETs in teaching is reduced because the students will not have access to ETs. This finding indicates that access and use are still significantly linked together as earlier argued (Bassey et al., 2007; Czerniewicz & Brown, 2006) and also show that adoption of ETs in teaching influences and is influenced by uptake of ETs in learning.

The challenge of inadequate equipment is even made worse by the lack of technical personnel to provide support to Staff especially when the few ETs are faulty and need troubleshooting.

The second challenge mentioned was that of time. Qualitative data revealed that time is a factor that can be a constraint to staff opportunities of access to ETs especially the junior lecturers who have many classes to teach. They thus find it more demanding to prepare and access ETs required in their teaching:

> *I do not have time to discuss, I have too much to cover …I think there are some things [ETs] that work for undergraduates and [those] that can only work for post graduates [who] have small numbers- [of students] undergraduates (classes) are always big (Manager, KII, male).*

This challenge corroborates what Pluss (n.d) discussed that many times teachers find that using ETs for teaching takes more time. That this is a challenge particularly for the junior teachers who normally do the teaching and hence have more classes than their

seniors. To compound this, the teaching carries a lesser weight in ones career development compared to the activities of research. Thus many wish to spend as little time as possible on teaching which might not be possible if ET, with such challenges is adopted.

The third challenge that was found to affect staff access as well as use of ETs is their perceptions. Qualitative data revealed that some staff members have negative perceptions about the use of ETs and this affects their ability to access any ETs. Some perceive ETs as Eurocentric and not for use in an African context and that these ETs are solutions from the west which cannot have anything to offer in our universities, at least not in all cases. One manager during a key informant interview said:

> *Introducing technology outside context of the normal teaching and learning is a waste of money, if a lecturer is not interested in using technology… he will continue with his things and talk and go out…we are witnessing slow adoption of ET use…because technology has superseded our interests (male , Manager, KII).*

Another respondent said that:

> *These technologies are supposed to promote interaction in small classes, here [in Africa, where classes are big] it cannot work (male, manager, KII)*

This suggests therefore that if ones perceptions are negative then use is jeopardised. This finding is consistent with Buabeng-Andoh (2012, p. 138) statement that to successfully initiate and implement educational technology in school's program depends strongly on the teachers' support and attitudes. It is believed that if teachers perceived technology programs as neither fulfilling their needs nor their students' needs, it is likely that they will not integrate the technology into their teaching.

A fourth constraint is that of structural issues such as space which affect availability of and appropriateness of venue for the application of ETs in the teaching activity. Space in one way or the other further poses a challenge to academic staff members and impinge on their access to and use of ETs in teaching:

> *Internet kiosks are very tiny and can barely accommodate 20 students…one of the things I saw when they were demonstrating a white board to us was the size of the class, once*

> *the size exceeds [a particular number]… there are some things you cannot do… when you have a big number, it precludes any possibility of interaction, it becomes a broadcast (Manager, KII, Science).*

Space also becomes an important structural issue to consider when many times the venues allocated for conducting lectures are not ready for teaching with ET support in many of the academic units. The university time table schedules lectures to be conducted in different venues depending on the size of the class to suit the available spaces. This means that the classes are almost handled in a nomadic way as many times classes are shifted from one place to another in the University. The shifting in itself is a challenge to use of ETs in teaching because it becomes a problem for the lecturer to move the equipment around, unless there was equipment in every room:

> *…we have these LCDs…but many times we do not use them, the reason really are structural…they are not availed in time or the rooms in which the teaching is to be done is not conducive for their use or you will need a lot of time to be able to use the ET and yet the class you are teaching will have to move… (Male Lecturer, FGD, Humanities)*

Another academic staff member added that:

> *…but there are structural problems that I think should be addressed if we are to use some of these technologies …there are other technologies which are available …a big television which …as an anthropologist, I would love to use…[so] the students can watch some of the studies I have carried out …and are documented…then they would relate to them …for better understanding but it is not practically possible to get the Televisions to class (Male, FGD, Humanities)*

These structural challenges are not only unique to the humanities, or only to males; one female staff member from the School of Industrial and Fine Art had this to say:

> *…we also have a television but it is rarely used because of the limitations that we have…like lack of documentaries. …at times we have no electricity to keep the television running (Female, KII, Staff FGD, MTSIFA)*

This structural related challenge means that access to the ETs is further compromised for both the teachers and the students. As such teaching cannot be done with the help of ETs. This finding confirms the views stated that if teachers cannot access ET resources, then they will not use them (Buabeng-Andoh, 2012). Therefore, timely access to ETs such as computers, LCD projectors, in addition to ample space conducive to their use, are structurally a challenge that have made it difficult for staff in Makerere University to adopt use of ETs in teaching.

The lack of uniform Infrastructure within Units in the university is a fifth challenge that staff identified. They revealed that there are notable differences in infrastructure provision because all academic units are availed with ETs differently and thus, access to ETs for teaching is affected differently:

> *I am from a section [where] I did not have that chance [to use ETs], I come from languages… staff and students desire to but do not have access to computers… we do not have much support from the centre in terms of equipment…[yet] we are a big Faculty. Whatever comes [ET received] is very small (Male, lecturer, staff FGD, Humanities).*

The issue of varied infrastructure provision which is a challenge to a number of units emanates from either the differences in administration of these units or kind of courses and pedagogy inclinations. Administrative differences are notable in the case of Mulago Hospital (*The National Referral Hospital*) which is under the Ministry of Health and the School of Medicine which is covered under Makerere University as the College of Health Sciences. This two in one unit is under the administration of two entirely different governing bodies which explains why some departments particularly the School of Medicine has better facilities while others that are under Mulago hospital, Ministry of health have poor facilities. The two administrative wings- Mulago and School of Medicine have different management, administrative and technological preferences. As a result, the availability of ET infrastructure and other ET resources is quite varied and this is a challenge to those who wish to access and use ETs in their teaching as one of the managers revealed:

> *Most of the departments in the School of Medicine have access to the Internet yet most of those in Mulago hospital do not have access to the Internet, nothing much can be done...(Manager, KII, health science).*

From the tone of this manager, he has given up and surrendered to not using ETs basically because there is no administrative support in the wing under ministry of health. Certainly if the administration changed the environment would be conducive to the use of ETs in teaching. This finding confirms Anderson & Dexter, 2005' argument cited in (Buabeng-Andoh, 2012) that leadership is a stronger predictor of teachers' use of technology in teaching for it influences provisions in the units.

Access to and use of ETs for teaching is further challenged by the lack of clear guidelines and a policy on Repair and Maintenance. This has denied the university commitment to repair and maintain the existing ETs and in turn adversely affected access to ET. Interviews with some staff members revealed that it is the lack of technical support in terms of computer maintenance and repair that has affected access in all academic units:

> *…most departments lack this technical support and maintenance…they are not facilitated… [and] it takes longer to repair let alone replacing worn out ETs (Female, Manager, KII)*

> *…some time ago we got 20 computers [but] many of them broke down and [some were] vandalized by students…so many of them [of these 20 computers] have broken down, so there is that problem of maintenance (Male, Staff FGD, Faculty of Arts)*

Without a clear policy on maintainace and absence of strategies on servicing and repair of ETs, there is a high likelihood of breakdowns and failure which frustrates adoption. This finding is in agreement with what other scholars found and stated that breakdown of a equipments such as computers causes interruptions and if there is lack of technical assistance, then it is likely that the regular repairs of the computer will not be carried out resulting in teachers not using computers in teaching (Buabeng-Andoh, 2012; Jones, 2004).

Further, data revealed that in the Faculty of Sciences, numbers of ETs such as the computers, the projectors as well as Internet connectivity are inadequate:

> *…getting to[a] wireless Internet here is a miracle, its only in a few departments and yet very unreliable. This means that even those few students who can afford laptops cannot use the Internet… (Manager, KII, Sciences).*

> *The projectors are few, they cannot satisfy our educational needs, at least each department needs a projector for illustrational purposes (Manager, KII, Sciences).*

Staff members also revealed that they experience a problem of power cuts which greatly affects access and use of ETs: *" …we are so dependent on technology and when power goes off, we are rendered redundant" (Female, staff FGD, Library).*

Qualitative data also shows that lack of training, staff mind-set, fragmentation of the university academic and administrative units as well as inadequate access to ETs are some of the challenges staff face in their quest to use ETs for teaching. " *…very few lecturers or trainers are specialists in the field of Educational Technology. They generally know ICT skills but not ICT and pedagogy "(Male, Dean).*

This argument was supported by findings from the human resources directorate which identified lack of training as a need that also possess a challenge to the adoption of ETs in teaching. The respondent from Human Resources Directorate had this to say:

> *..What has brought this up is that human resources matters, including training…have in the past not been professionally handled… we are receiving lukewarm support [in the quest] to identify skills gaps…existing in different units (Male, manager, KII).*

Another KIl revealed mind-set as a factor affecting use of ETs in the university: "*''The mindset of lecturers in pedagogy as Well as their personality types are still negative'' (Male Dean).* This mindset also leads into fragmentation seen through each unit standing on its own. As a result, both access and use of ETs in Makerere is hampered, as indicated in the university Bursars' words that over fragmentation raises issues of data integrity due to different systems. He also said that: "*The biggest gap however is that the integration of ICT has been heavily fragmented i.e. Finance has its own system, the academic registrar has its own system, and the library works in isolation… (Manager, Bursars office, KII).*

Effects of fragmentation are exacerbated by the ideology and indifferent attitudes of administrators to efforts of promoting access and use of ETs in teaching. At the same time, some teachers do not agree that ETs should be used in their context of big classes, many students, few equipments, limited skills among staff and students, slow internet and power cuts. A representative from DICTS said that technology in Makerere has moved ahead of the need and is outside context of normal teaching and learning. That the classes are too big and the teaching approaches are different from those in universities outside Africa like MIT and this in itself is a challenge:

> *One of the things I saw when they were demonstrating a white board to us was the size of the class. Once the size exceeds a particular number, there are things you cannot do…if you have a class of 300, in the Main Hall, people from the middle to the back will not hear… [Although] a few learning technologies have been brought in to enhance*

interaction and to promote it like the white boards but still with a big number of students in class, it precludes interaction, it becomes a broadcast (Male Manager, DICTS).

He added that:

> *Take an example of the use of a microphone, if one [a student] has a question, will he or she come and get the microphone [from the lecturers, who is at the front of the class?] so you see, you can only interact with those at the front, not with everyone in a big class. Even the learning management system (LMS) is not adequately used, discussion boards are not used and the LMS has been converted into a document management system where students download documents that their lecturers post (Male Manager, DICTS).*

In his statements he pointed out the issues of class size and lack of context matching as well as appropriate identification and use of ETs as another challenge of access to and use of ETs.

Another challenge of use as pointed out by a female manager was the issue of bandwidth:

> *I think many things would be moving for us but our biggest challenge is the bandwidth. We have struggled, we have written proposals, we have tried to increase the LAN, increase the computers to do everything that we can. The issue is the bandwidth (*Librarian*).*

Conclusions and Recommendations

We are now aware that the university is making efforts to promote the integration of ETs in all its core functions but particularly in teaching and learning. The strategies so far adopted have revolved around acquisition of hard ware and end user training. Data from a study supported by the PHEA project, upon which this article is based, revealed that students' learning has benefited more from the use of ETs than has teaching. Data has shown that male and female appreciate the use of ETs in university teaching and learning. However, use of ETs has transformed the learning more than it has the teaching and this is basically due to staff perception.

Staff in Makerere University face a number of challenges in the quest to use ETs in the teaching. Some of the hurdles that teachers face which limit the rate of adoption of ETs in teaching have been found to include: challenges to access in the form of student to computer ratios as well as number of available equipments required for teaching, this included the projectors, television sets and computers, varied and unsure infrastructure provisioning in units, lack of technical support for teachers, time, staff perceptions, structural issues such as student numbers, class sizes and space in classrooms and computer labs, plus the absence of a policy and strategies for equipment maintenance.

Thus, the frustrations and fear of failing before the class when the technology does not work causes them to view ET use more as a technology to support learning than teaching. Yet as argued by several scholars, the teachers are the prime movers of ET adoption (Afshari, Bakar, Luan, Samah, & Fooi, 2009; Buabeng-Andoh, 2012). It is thus time for the university to change its approaches of implementing use of ETs by working towards solving the challenges teachers face. This will be a sure way of supporting the teachers to have a positive attitude towards use of ETs and thus integrate their use in teaching?

In order to enhance Uptake and change the way teaching is done, the following recommendations should be considered. First, the university should promote adoption of ETs within context. Issues such as class size, nature of the course, ET needs and

capabilities of both the teacher and the student should be considered. We think, institutions need to find an optimal number of students in a class for ETs to be appropriately useful.

At the moment, staffs in Makerere are not competent to handle technical issues which they may encounter and are expected to handle when using ETs in class. Although the university recruitment policy demands that staff need to be trained in pedagogical skills before they can be appointed, many of them still are not learned in use of ETs. The university should thus take it as an urgent need to train staff and also provide extra technical support personnel who should be prompt In the event that there is a technical problem.

As noted by Buabeng-Andoh (2012), these factors are interrelated and work towards influencing the perception of the teaching staff sometimes negatively and so preventing adoption of ET use in teaching. Thus the university should support and promote context specific use of ETs, Identify and recognise successful ET implementers, design an e-credit system in which those teaching with technology can earn points for promotion, in addition to the publications, provide technical support staff to teaching staff during teaching sessions that involve use of ETs and should make ETs like projectors, televisions and laptops readily available in each lecture hall to solve access and use challenges for staff and students, for effective integration of ETs in teaching.

References

Afshari, M., Bakar, K. A., Luan, W. S., Samah, B. A., & Fooi, F. S. (2009). Factors affecting teachers' use of information and communication technology. *International Journal of Instruction, 2*(1), 77 - 104.

Bassey, U. U., Umoren, G. U., Akuegwu, B. A., Udida, L. A., Ntukidem, E. P., & Ekabua, O. O. (2007). *Nigerian graduating students' access to e-learning technology: implications for higher education management.* Paper presented at the Sixth International Internet Education Conference and Exhibition; , Ramses Hillton, Cairo, Egypt.

Bingimlas, K. A. (2009). Barriers to the successful intergration of ICT in teaching and learning environments: a review of literature. *Eurasia Journal of Mathematics, Science and Technology Education, 5*(3), 235-245.

Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of ICT into teaching: a review of the literature. *IJEDICT, 8*(1), 136 - 155.

Cilesiz, S. (2009). Educational computer use in leisure contexts: a phenomenological study of adolscents experiences at the internet cafes. *American Educational Research Journal, 46*(1), 232 -274.

Czerniewicz, L., & Brown, C. (2006). *The Virtual Mobius Strip: access to and use of Information Communication Technologies (ICTS) in higher Education in Western Cape*.

Damme, M. v., Haan, J. d., & Ledema, J. (2005). *Modelling a multidimesional concept: ice access at work*. Paper presented at the Conference Name|. Retrieved Access Date|. from URL|.

Demirci, N. (2007). University students perceptions of web-based Vs paper-based home work in a general physics course. *Eurasia Journal of Mathematics,Science and Technology Education, 3*(1), 29-34.

Demps, E. L., Lincoln, Y. S., & Cifuentes, L. (2011). Conflicts over the utilities of teaching using educational technologies: an interpretive critical inquiry. *Advances in Developing Human Resources, 13*(2), 135 - 170.

Elwood, J., & MacLean, G. (2009). ICT usage and student perceptions in Cambodia and Japan. *International Journal of Emerging Technologies and Society, 7*(2), 65-82.

Gargallo-Castel, A., Esteban-Salvador, L., & Perez-Sanz, J. (2010). Impact of gender inadopting and using ICTs in spain. *Journal of Technology Management and Innovation, 5*(3), 120-128.

Januszewski, A., & Molenda, M. (2008). Educational technology: a definition with commentary. Retrieved 10th April, 2013

Jones, A. (2004). A review of the research literature on barriers to the uptake of ICT by teachers. Retrieved 11th /4/2013, from http://www.becta.org.uk

Karsenti, T. (2010). *The PanAfrican research agenda on the pedagogical intergration of ICT: synthesis phase 1*. Ottawa: IDRC.

Luppicini, R. (2005). A systems definition of educational technology in society. *Educational Technology and Society, 8*(3), 103 - 109.

Pluss, M. (n.d). ICT update: Digital Divide and the Role of Education. Retrieved 30th September, 2010, from http://plu.wikispace.com

Selwyn, N. (2007). The use of computer technology in university teaching and learning: a critical perspective. *Journal of Computer Assisted Learning, 23*(2), 83-94.

Tomte, C. (2008). *Return to gender: gender, ICT and education.* Paper presented at the OECD expert meeting, Oslo, Norway.

Yusuf, A. M., Daniel, E. G. S., Low, W. Y., & Ab, K. (2011). Teachers' perceptions on the blended learning environment for special needs learners in Malysia: a case study. *2nd International Conference on Education and Management, 13*, 5.