

**Gender based analysis of ICTs in institutions of higher learning:  
A case of E-learning in Makerere University.**

**A paper presented to**

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**Abstract**

Information and Communication Technologies are increasingly becoming a source of inspiration and hope for higher institutions of learning that are grappling with the increasing numbers of both enrolled and even aspiring learners, all this in an environment that has stagnated in terms of capacity building, funding(poor), infrastructure, low wages.

In addition there is an obvious flood of information. There is an urgent need to improve the access, processing and dissemination of available information. Both published and grey literature needs to be made accessible so that users, and even potential users, regardless of their gender can retrieve it with much ease. For the entire information management process therefore, the use of Information and Communication Technologies (ICTs) is seen as offering solutions and answers to the quest for better information management.

Information and Communication Technology (ICT) can change knowledge and the way it is accessed. (Mulyampiti and Kasozi, 2004; Anena and Kisubika, 2005). It is often believed that the use of ICT is gender neutral and even offers more opportunities to the female, than before. In this new information era, raising standards in teaching and learning, it is said, have become intertwined with the use of ICTs. (Mulyampiti and Kasozi, 2004).

It is the intention of this paper to discuss from a gender based angle and give an analysis of ICTs in institutions of higher learning: with Makerere University as a case study. The author will:

- Give the situation analysis of ICT in Makerere University as an example of an institution utilizing ICTs.
- Look into issues of access, use and adoption
- Issues of administration and management
- Challenges
- Recommendations.

**Methodology**

In writing this paper, review of existing literature on ICT in Makerere University was done. In addition face to face interviews with the instructors and learners, guided observations were done.

## **Introduction**

In this paper, Information and Communication Technologies (ICT) is understood to refer to a wide range of tools that facilitate communication and the processing and transmission of information by electronic means. Such could include computers, cellular phones. However I will limit my discussions on the use of computers to aid the education process (learning, teaching, research and information retrieval- the Library).

### **ICT Situation analysis**

Makerere University is Uganda's very first institution of higher learning. It is also the largest in East and central Africa, with a student population of over 30, 000. It is located on Makerere Hill, one of the several hills on which Kampala is located (<http://makerere.ac.ug>).

In Makerere University, the use of ICT in the education process is gaining momentum very fast. This development can partly be attributed to the noticeably increased demand for higher education, which is responsible for the large numbers of students enrolled at the University. Another factor that has worked as a pointer to the fact that there is an urgent need for E-learning in the University is the private scheme.

Until recently in the late 90s, Makerere University was a public University. It only admitted students who qualified for government scholarship. As time went by, the numbers of potential candidates for this scheme increased and so did the competition to win the government bursaries. With a stiff competition, more and more potentially capable students were left out. This was not a good development in the event that the country is developing and needed every body to build it. And so, the University opened up for private students who could fund their University education.

More private universities too were started up. However, Makerere admissions have remained very admirable. Makerere remains a centre of academic excellency.

Unfortunately the resources for the teaching, learning and doing research have remained constant. As a result, there is an urgent need to improve on the methods of learning, teaching and doing research in Universities so as to keep up the high standards and also offering the best to the increased numbers of students. Makerere University, as an institution of higher learning is now applying the use of ICT, to complement the traditional methods used in instruction, learning and research. At the same time E-learning is useful in decongesting the lecture halls which are increasingly becoming constrained in terms of space and time.

The University's' vision is to have "wide access to and utilization of ICT to enhance the position of Makerere University as a centre of academic excellence and its contribution to the sustainable development of society. It's the University policy to promote the development of ICT in all areas of education and research. As such staff (academic, support, administration and managerial are trained on a continuous basis). It's also a

precondition for hiring and appointment to demonstrate competence in technology enhanced interactive learning technique. This policy was approved by the council in 2004.

**ICT programs** (E-learning) include:

- Co-Curricular Development Technology (CCD), designed to develop skills in using instructional technologies.
- End user Program (ICS)
- African virtual University
- Cisco Certified Network Associate Program (CCNA); designed to develop skills, especially for women in internet connectivity.

### **E-learning**

Makerere University has an ongoing effort to implement E-learning. This is in line with the University's vision of delivering quality teaching, research amidst the ever increasing demand for higher education. It is worth noting that efforts to implement e-learning at Makerere are a result of a broader global information age revolution by the integration of ICT in the way we live (Baryamureeba, 2003). Goals of e-Learning at Makerere are:

1. Improve the quality of graduates, by utilizing modern instructional materials and methods including use of ICT in teaching and research.
2. Provide greater access to University education by developing capacity for increased enrollment through non- conventional approaches in teaching and learning. i.e. Distance education and virtual university.

### **ICT POLICY:**

Makerere University has an ICT policy in place, designed to make sure that all users (students and staff) utilize the available ICTs efficiently and for the sustainable benefit of all. This policy also provides for the development and maintenance of appropriate skills for the workforce. This is especially vital in IT because of its dynamic nature. There is continuous change not only in the skills needed but also the Technologies.

What I must say here is that this is a good policy but it assumes that both genders will have equal access and benefit. This is where the problem begins. As one reads the ICT policy and observes the implementation, it is pretty obvious that there is no deliberate effort to encourage the females to use ICT facilities. This is partly because it is hoped that the mere provision of a policy and the infrastructure, every computer literate person will certainly use the ICTs. This is not the case.

It is no surprise then when one notices a minimal female participation in the (free) computer laboratories.

Yet for the Laboratories that conduct CCNA courses (for a fee) the status is different. There are actually more females responding to the admission adverts and who actually enroll for these courses.

The Clear explanation lies with the deliberate efforts taken to encourage girls to take up and enroll for these courses. The Academy (at the Department of Women and Gender studies encourages girls to take up careers in IT. This is not the same in E –learning classes. The policy for the women and Gender Studies academy is clearly in favor of a 60% placement of girls. All efforts therefore are put in place to see to this.

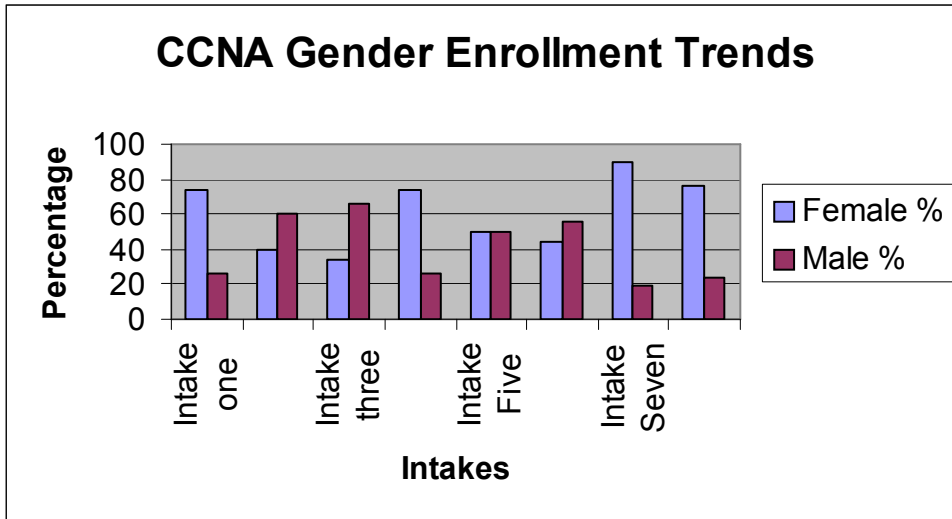
*See figure below*

The table below shows the Gender enrollment trends for CCNA since intake one

**Table 1: Enrollment trends for the CCNA course**

	Total	Females	Males	Female %	Male %
Intake one	35	26	9	74	26
Intake two	57	23	34	40	60
Intake three	35	12	23	34	66
Intake four	37	29	8	78	22
Intake Five	20	10	10	50	50
Intake Six	46	32	14	70	30
Intake Seven	35	28	7	80	20
Intake Eight	31	23	8	74	26
Total	296	183	113	62	38

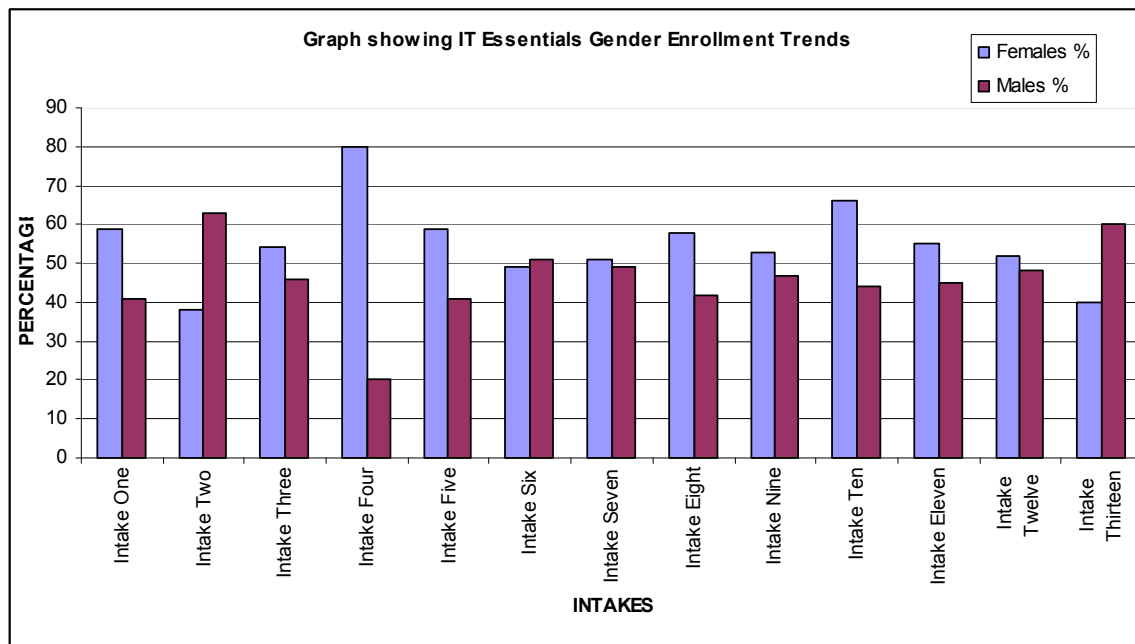
**Figure 1: Graph showing CCNA Gender Enrollment Trends**



**Table 2: Enrollment trends for the IT essentials II course & I.**

	Total	Females	Males	Females%	Males%
Intake One	17	10	7	59	41
Intake Two	24	9	15	38	63
Intake Three	28	15	13	54	46
Intake Four	20	16	4	80	20
Intake Five	37	22	15	59	41
Intake Six	35	17	18	49	51
Intake Seven	34	18	16	51	49
Intake Eight	12	7	5	58	42
Intake Nine	15	8	7	53	47
Intake Ten	18	12	8	66	44
Intake Eleven	27	15	12	55	45
Intake Twelve	17	9	8	52	48
Intake Thirteen	22	9	13	40	60
Total	103	167	141	714	597

**Figure 2: Graph showing IT Essentials Gender Enrollment Trends**



*Source: Academy periodical reports*

### **Access, Use and Adoption**

Access to all IT facilities is free at the moment to (all) registered University students and staff. Does “ALL” practically translate to include both females and males at least in good ratios?

The answer, basing on the daily monitoring and observations done, is NO.

There are set access and use regulations in place specific to different labs and kiosks. On average, one is free to use a computer for an hour in the lab and for 10, 20 or 30 minutes in the kiosks depending on the level of demand at the time. The computer laboratory attendants or kiosks assistants (who are usually intern students) supervise the process. (This is done with the aid of a soft ware known as butterfly to regulate the time for each user).

In the labs one has a desk and a chair to use. Even at the level of registration, I noticed that , the process of booking in advance to access the facility has not equally favored the female users.

WHY?

This is because both the Labs and kiosks open in time (8.00am) the time when all intending users will then be expected to make the bookings for the computers. This booking can be done for all the computers, for a particular day.

In this is a hidden connivance to shut female users out. Boys more than the girls have more flexibility in time management and so are able to come early, just in time to make the bookings. This is not the case for the majority of female users many of whom are increasingly enrolling for university education after attaining a married status.

Therefore one is quick to notice that on analysis the otherwise good intentioned procedure of booking to regulate access and use is a bottleneck faced by female users.

The other access and use procedure that is gender biased is, the arrangement to provide no sitting facilities in the kiosks on the understanding that one needs to spend only a few minutes and what ever they are there to do must be done so fast. Well as it is assumed that all the students for example will gain from this arrangement. The discomfort of standing in the kiosks, to have access to the computer, indirectly favors the male gender over the female. The females who in most cases hate standing for some time will keep away. The expecting mothers too will be blocked. Therefore indirectly these kiosks are reserved for only the male gender.

### **Administration and Management**

As for e-Learning infrastructure, a unit is in place, computers were procured with funds from donors, and E-learning labs were set up. Although at the moment E-learning is being supported with funds from development partners, Makerere University has set up a management policy to ensure sustainable management of the University e-Learning policy and resources. For example; e-learning management structures have been set up at deferent levels. These include central E-learning units, High level E-Learning management committee, Faculty e-learning committees. (To which I am a member).

The management structures in place ensure that there is a sense of ownership. For example the faculty E-Learning committees are charged with the following responsibilities:

1. Define faculty goals for e-learning, such as timing on course transformation. (Student enrolment, course schedule etc).
2. Identification of priority courses for online teaching. This is important because not all courses have the same advantages in as far as designing online content is concerned. Therefore depending on the needed technical support, faculties and departments decide on the way forward. In gender for example, at the moment only three courses out of twelve for the under graduates are taught online.
3. Support training. In this, each faculty committee decides on which areas need more training.
4. Budgeting.

## **Training:**

- Training of trainers was done. To date there is a total of up to 93 trainers. These are able to guide the staff members in learning how to use teaching packages. They are also available to trouble shoot and facilitate course development and uploading when needed.
- The University supports training of academic staff so as to develop their capacity. Academic staff members have had a series of trainings in the use of teaching soft wares like blackboard, KWEL. This is intended to build their capacity for course content development, management and assessment.
- Students too are trained.( This is done on a continuous basis)

## **Challenges**

- Gender specific challenges. Although my research results are not statistically quite conclusive yet, I realized that women more than the males are constrained by a number of factors. These include all the other known factors that affect women's' access to education (like cost, cultural barriers, multiple gender roles). And now there is what is popularly referred to as the third shift.
- Connectivity.

When we talk about connectivity issues, as Africans, we have a problem here. It's expensive, slow, unreliable and concentration only in urban centers. The list of connectivity challenges it self is endless. Makerere University for example had 5mb band width. This was not sufficient then. However due to the problem of non payment (partly because the University has to depend on other sources to fund this connection) tariffs accumulated leading to huge sums of debts to the service providers.(EASSY workshop notes). As a result, the university had to loose 3mb, as a negotiation for the otherwise total cut off from the service. This was done with a promise of payment for the arrears. Now the capacity of bandwidth Makerere uses for its operations is at only 2mb, (Who knows what will happen if the university fails to complete payment. Your guess is as good as mine - may be even the little that it has at the moment will be taken away just like Jesus said in the bible. – “to him who has, more shall be added”.

- Cost:

This is a very significant component crucial not only in the acquisition of soft ware, but also in the development of content. It has been realized that one of the major obstacles in developing quality e-Learning content is the substantial development cost involved. The e-Learning content has to give basically all that would have been offered in a face to face lecture session. Illustrations, files experiences like case studies, have to be developed and included in the content. This therefore means that Universities must have in place all the necessary ICTS required for such tasks. For example digital cameras, scanners, in addition to the books since the use of ICTs run side by side with the traditional teaching methods.

- Time:

Time is increasingly becoming a scarce commodity, not only for the business world with its popular slogan “time is money” but also for the academic world.

Course instructors require time to build the content, let alone revising it and also uploading it. This has to be done concurrently with every thing else they have to do like setting exams, marking, tutorials, teaching, research including making ends meet.(private consultancies, especially with the minimum wage that has not yet been realized for most employees)

In the same vain, the students too need extra time to be able to visit the kiosks, whose access principle is laid on prior set times. The University is increasingly becoming open to a new set of students, the working class. (As opposed to fresh students). By the fact that they continue with their offices it means that they are constrained in both time and place.

- Variations in Characteristics of learners:

Learners, even in the same class may have different personal learning goals, motivations, prior knowledge and learning style preferences. It becomes a very big challenge for the instructors to address all these diverging characteristics, more so marching them with the goals of the taught course.

- Course variations:

This is seen not only in terms of university to university but also expressed in the instructors approach. Much as University instructors are under increasing pressure to enhance the pedagogical quality and technical richness of their courses. Not much has so far been done to create synergies. An urban planning course unit for example is differently designed and taught at different faculties and by the different lecturers’

- Competition and individuality:

This is seen most especially among the Teaching staff. All the courses materials developed are individualized. There is no peer review encouraged, sharing or even open access. Yet costs and time would be minimized.

This competition is carried further by the different Universities.

- Power cuts:

In this millennium, Uganda is still one of those countries that are still depending on the single Hydro power plant inherited from the colonial masters, so many decades after independence. The population has increased. Demand for power too has gone up albeit not equally with the power generated and supplied. This has reduced the reliability of the

power available for use. As a result all institutions with activities dependent on power have a big problem. It is no surprise when we see trainings and lectures interrupted. Making the adoption of computer aided learning even more challenging.

It is unfortunate to note that even the Training of trainers (TOT2) which was supposed to have all lecturers in priority faculties trained had to be halted due to power cuts. *(interview with a TOT Trainer)*

- Skills development:

There is a constant change in skills competence. This has affected both the students and the staff. As the courses evolve, new technologies come up with better or different modes. (E.g. from Black board to kewl).

- Class populations:

The large numbers of students in most courses too is a challenge. Which pedagogical aspects should be adopted? The questions such as should it be a chat, discussion board, which tutorial to use are frequently asked. Etc. all this is happening at a time when the e-Learning environment is just being born. What about the facilities in place. The ratio of computer to student is not yet 1: 1 in many Universities.

- Biases and resistance to change:

Tech-nophobia. This is seen when not only students but even the lecturers resist adopting the use of ICT. In the CCNA classes for example, it was observed that there is a problem or raising the numbers of females' candidates. It has not been so easy to achieve the 60% level of adoption partly because females steel feel that IT is a male field. Efforts have been taken to reduce the cost by 10% for the girls but still the enrollment is bellow the projections.

## **Recommendations**

- There is need for a focused strategy to implement gender based equal access.
- There is an urgent need to find a lasting solution on the problem of band width. If Universities could find away of working together so that they can jointly acquire more bandwidth, it would be cheaper and more reliable. This is a win- win situation.
- On the issue of skills training, the University could solicit for funds to train the users of e-Learning.
- Collaboration instead of competition. ( designing, development of courses)
- Stand-by generators
- Upgrading and refresher courses for staff at all levels and students.
- Work towards a capacity that can comfortably handle the growing need for university education.

## References

1. Anena, Musubika (2005); Information technologies. Unpublished.
2. Mulyampiti and Kasozi (2004); making education technologies work: a gender analysis of the E- learning programs in Makerere University.
3. African Information society Initiative (AISI): an action framework to build Africa's information and communication infrastructure. Economic Commission for Africa; Addis Ababa, Ethiopia
4. The role of information and communication technologies; isis- wicce's experience of being a WOUGNET member"

<http://www.dot-com>

<http://www.makerere.ac.ug>

Definition of key concepts

### Acronyms

KEWL:	Knowledge based Environment for web based learning
ICTs:	Information and communication technologies
E-Learning:	Electronic Learning
DLE:	Learning in a digital learning environment