NATIONAL POLICY DIALOGUE ON THE PEDAGOGICAL INTEGRATION OF ICTs

Submitted to:

PANAF

By Christine Namatovu

Rapportuer

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1.0 INTRODUCTION

The second phase of the Pan African Research Agenda on Pedagogical Integration of ICTs project in Uganda covered educational institutions comprising primary schools, secondary schools and tertiary institutions and ran from 2009-2011 and after the implementation, a national policy dialogue was organized for different stakeholders and was held on December 22, 2011 at Makerere University.

1.1 Objectives of the workshop

The workshop was organized to achieve the following specific objectives:

1. To share and discuss research findings of phase 2 of the research on the pedagogical integration of ICTs in the Ugandan educational institutions
2. To share experiences, lessons learnt and the impact of the PanAf project at different levels
3. To draw recommendations for policy reforms at different levels of the educational system in Uganda

1.2 Workshop Participants

The participants of this workshop were drawn from the PanAf project primary, secondary and tertiary institutions of learning. Other participants came from the policy arms of the project thematic areas specifically the Ministry of Education and Sports; Ministry of ICTs and the National Curriculum Development Centre. Students, teachers and lecturers also attended this meeting. The workshop was an opportunity for the actors at different levels of the education system to interact and share and experiences.

1.3 Welcome Remarks

Dr. Charles Owenja, the head of department SoDLL- DACE in the College of Education and External Studies at Makerere University thanked the project coordinator for doing a commendable job. He pointed out that ICTs are one of the fast moving technologies and applauded the department for organizing an update meeting which he referred to as a wonderful “Christmas gift”. He added that the meeting would equip the participants with ways of how they can use ICTs in the pedagogical arena and ended by asserting that struggle for ICT would continue.

1.4 Opening Remarks from the Ministry of Education and Sports (MoES)

Mr. Mukoyo G. Humphrey, an official from the MoES gave the opening remarks in which he assured the participants that the government of Uganda takes ICT seriously. He informed the members that from 2012, all Advanced level students will be required to take ICT as a subsidiary
or take subsidiary Mathematics subject. He emphasized that this government policy is aimed at resolving the gap from Advanced level to university with the hope that learners will be more prepared and more computer literate.

2.0 WORKSHOP PROCEEDINGS

The workshop involved presentations which included an overview phase 2 of the PanAf project, key findings and impact of the project on pedagogical integration of ICTs; Pedagogical integration of ICTs in Makerere University; role of National Curriculum Development Centre in pedagogical integration of ICTs; ICT in education policy, ICT initiatives from the project schools and discussion and recommendations. The details are presented here below.

2.1 PanAf Project: Overview of phase II

Ms Alice Nankya Ndidde, the PanAf project focal person gave the overview of the PANAFRICAN RESEARCH AGENDA on the Pedagogical integration of ICTs in education phase II that ran from 2009-2011. She pointed out that phase 2 maintained the IDRC’s tradition of rigorous data collection, analysis and knowledge sharing through fieldwork, collaboration, paper presentations at conferences and publication and included collecting additional data and uploading it on the Observatory, (http://www.observatoreitic.org).

She said that in phase 2 there was a special focus on gender and ICT and capacity building for scientific publications. She went ahead to present the research mission which is to contribute to the development of African countries and people by increasing knowledge on the Pedagogical Integration of ICT in African schools and education systems. She also presented the main and specific research objectives, the expected project outcomes and the specific phase 2 activities that the project. She emphasized the fact that Uganda contributed the highest number of articles (15) for the PanAF publications.

2.2 Key findings and impact of the project on pedagogical integration of ICTs

This presentation was made by Dr. Jude Lubega, a member of the research team. He pointed out that the research covered several aspects of ICT use such as policies both national and international; access and connectivity specifically looking at equipment access, internet connectivity and software availability and teacher training in relation to presence of training and ability to use ICTs.

In relation to the national education and ICT policies, Dr. Lubega said that in Uganda policy makers had taken the initiative to formulate ICT policies that could streamline the ICT activities in general and established some incentives and pointed out that in the East African region only Kenya had a national ICT policy directly focusing on E-learning.
As far as access to computers was concerned, the research indicated that the teacher to student ratio was too high and hence technology could be the answer to improving the prevailing conditions. The student to computer ratio was very high especially in the lower institutions of learning compared to secondary schools and higher institutions of learning.

As far as lesson planning, research, administration and communication were concerned, it was noted that most educators in all the higher institutions of learning had access to personal computers within their offices with some having some portable computers. However, in both primary and secondary schools, some of the head teachers had computers in their offices and the rest of the administrators would share with the students.

With regard to connectivity it was observed some institutions had integrated more ICT than their counterparts who did not have the connection. Despite having computers within the institutions, just a few were always connected to the internet. Both the students and teachers of the lower institutions accessed the internet through the set up labs. In certain schools students who were within the computer clubs had priority to access the labs in their free time.

The presenter further reported that among the institutions that were considered in the research, only primary schools did not have any internet connectivity within their premises. The low and absence of internet connection within many institutions of Uganda is closely related to very high cost of the bandwidth. Thus Dr. Lubega underscored the need for the government to find other measures on how to fund internet connectivity for educational institutions.

**Impact of the project**

In presenting the impact of the project Dr. Lubega highlighted the following:

- The project was used to inform the public and policy makers about the need to help schools acquire ICTs and also train teachers on how to integrate ICT into education. Several schemes have been established like student-teacher laptop project and saving 5000/= from each student within schools per term to fund the acquisition of computers

- Uganda Communication Commission (UCC) provided several computers to schools and organized workshops to provide enhancement ICT skills to all ICT teachers within the schools that have benefited.

- Many schools that have integrated ICTs have devised strategies on helping the female students in accessing the ICTs especially in the mixed schools. Strategies like one computer for both girl and boy, one or two rows of computers for the females have been implemented
• Several ICT in Education projects have been funded with the help from the government. An example is the Millennium Science Initiative Project in one of the Teacher Training Institution: Kyambogo University.

• There has been increased awareness to teachers, parents and students on the proper use of ICTs for educational purposes

• New developments emerging of making the ICT subject a full subject to be taken by students at A-Level

• Improved curriculum in teacher training institutions for integrating ICT in education has been noted

• Incentives in schools have arisen on further training in areas such as use of ICT in teaching and learning

While concluding, Dr. Lubega emphasized that the integration of ICT in pedagogical teaching was of paramount importance in this era of globalization. This could be effectively undertaken with appropriate and effective ICT policies both in institutions and in Government. He noted that ICTs had not yet fully been integrated in most educational institutions in Uganda. He said that a needs assessment is pertinent to find out how much it would cost the government to establish and integrate ICT in education at all levels of educational institutions, issues of equipment acquiring, maintenance, repairing and proper usage can be effectively addressed. He added that accessibility to ICT equipment, training of educators and managers, addressing attitudinal challenges among stakeholders and designing content appropriate for educational levels are critical for meaningful integration of ICTs in education.

2.3 Pedagogical integration of ICT in Makerere University: Progress, Challenges and Opportunities

Mr. Okumu Tito, the E-learning and Manager College of Education and External Studies, Makerere University presented the ICT initiatives undertaken at this institution highlighting the progress made, challenges met and opportunities for ICT advancement. He presented the context of the current Makerere in view of the changes that have taken place within the institution and the pressures that played a catalytic role for Makerere to embrace ICT. He presented the structures in place for ICT enhancement and the efforts that have been undertaken in ensuring the lecturers and students meaningfully embrace ICT.

He highlighted attitude as a major challenge that Makerere faced in implementing ICT initiatives and pointed out a number of lecturers and other staff were not enthusiastic about learning how to effectively use ICTs. He stressed that a number of computers were procured but staff needed to be taught how to use them and they started short courses to equip the staff with utility skills.
Mr. Okumu informed the participants that in the ICT era there is need to implement *Teacher 2.0* in which the teacher is a moderator of learning and thus the teacher needs to know how to use the technology to effectively undertake this role especially in the era where there is an increase in alternative sources of information. He stressed the need for getting student profiles to enhance learning that utilizes ICT. He thus challenged the team to critically distinguish between teaching and learning. He said that learning is an *active process* that takes place when *learners* engage in *dialogue* and create a *common understanding*.

Mr. Okumu emphasized that in order to manage the issues of ICT integration, there is need for commitment from the top leadership including monetary resource commitment, need for advocacy and political propaganda, understanding the dynamics of large institutions, setting realistic objectives, identifying champions and drivers and the need to activate, accelerate, achieve and assess. He ended by giving participants a point to ponder by quoting *Goethe* who wrote “*Things which matter most must never be at the mercy of things which matter least.*”

### 2.4 Role of National Curriculum Development Centre (NCDC) in pedagogical integration of ICTs

Ms Grace Baguma, the Deputy Director at NCDC presented a paper on the role of NCDC in digital content development. She informed participants that NCDC has the mandate to play in development of digital content for schools. She added that teachers are an integral part of the curriculum development process since they deal with learning materials and learners especially the in-service teachers.

She added that innovations are critical in curriculum development and NCDC ensures that innovative content is well sequenced over the course period; the objectives of the content are well spelt out; content is aligned to the approved national curriculum; provides adequate guidance to the learner/user; has appropriate activities that promote learning and is accurate and reliable.

In addition, the presenter informed participants that NCDC is re-orienting the teachers on new methodologies and is looking into issues of equity and access where some schools are in rural areas where the security is a challenge. She added that NCDC is working on promoting facilitation between trainers and learners.

In reflecting on digital content, Ms Baguma said that digital media content developers have remained a nightmare for the NCDC and multimedia developers remain very few. She added that NCDC would like to see how technology can be used in moderating learning and added that this will call for computers to be in the classrooms to be used across all subjects instead of having computer laboratories. She proposed the idea of putting content on radio for schools that may be technologically challenged.
2.5 Ministry of Education and Sports (MoES) ICT in Education Policy: Progress and Challenges

Mr. Humphrey Mukoyo from the MoES gave this presentation on progress and challenges in implementing ICT in Education. He highlighted the role of the MoES as being mandated to raise awareness and mobilize support for ICT; advocate for and mobilize resources for ICTs; promote research, documentation and serve as a depository for ICTs; develop ICT related guidelines for educational institutions; harmonize the activities of private and local training institutions; policy reformulation, monitoring and evaluation.

The presenter also highlighted the initiatives that had been undertaken in the area of ICT by government and partner agencies. He added that the MoES is working to ensure that there is appropriate ICT equipment and infrastructure; internet connectivity; teachers are trained in ICT and using ICT as a pedagogical tool; have digitized curricular and resource centers; have access to digitized teaching and learning materials.

In highlighting the challenges, Mr. Mukoyo pointed out the following: limited ICT infrastructure; unreliable internet services; high user-computer ratio; frequent power cuts and fluctuations; lack of electricity in rural and remote areas; high capital cost for setting up of ICT equipment; high recurrent costs; limited number of teachers with ICT skills; lack of society awareness of the role of ICT in Education and sustainability of ICT initiatives.

He also presented the critical issues that need to be addressed in order to promote ICT and these included: hardware and software concerns and training of teachers as well as strengthening the inter sector linkages and collaboration; strengthen proactive decision making structures and processes in education; enhance coordination of ICT initiatives; monitor and evaluate the impact of ICT in schools and disseminate best practices; mainstreaming ICT in the education sector; promoting public-private partnerships as well as deliberate efforts to increase the budget for ICT usage.

2.6 Ministry of ICT: Uganda ICT Policy, Legal and Regulatory Framework

Mr. Ambrose Ruyooka, the Acting Commissioner IT in the Ministry of ICT gave this presentation in which he highlighted the policies, laws and strategies that govern the ICT sector in Uganda. He gave a background of how ICT had evolved from a mere policy to a fully fledged ministry. He alluded to the advancement that have taken place in Makerere alone where computers in the past had been a reserve of department of computer science and how only a single computer was connected to the internet and people were using floppy disks to carry data. He emphasized that Uganda had made great strides in the ICT area and the trend is promising.

The presenter highlighted Uganda’s ICT regulatory framework comprising the Uganda Communications Commission, the Uganda Institute for ICT, National Information Technology
Authority: Uganda Communications Act, Electronic Media Act, Electronic Transactions Act, Electronic Signatures Act, Computer Misuse Act and the Uganda Communications Regulatory Bill that was approved by Cabinet. He also highlighted the strategies that have been developed. He pointed out as government streamlines the policy framework for ICTs, human resources are critical in effective use of ICT and there is need to train people to be able to utilize and operate the technologies effectively.

3.0 DISCUSSION

After the presentations, a general discussion followed. This involved participants asking questions and making comments in relation to the presentations.

Qn: Has there been a research done to show the ICT to improved performance?

Response: It has been proven that integration of ICTs in schools had an impact on performance. In areas where the cyber schools project was implemented there was an improvement in the performance of girls in science. In Kibuli SSS, there was reported improved performance that can be linked to utilization of ICT. It is critical to integrate ICT in learning instead of looking at it as a separate subject.

Qn: How can government introduce Computer studies as a subsidiary subject at Advanced level when there is no syllabus in place?

Response: The course materials for computer studies for Advanced level will be worked out on a term by term basis. In addition, the Sub-Maths syllabus is to be revised to simplify it for the learners. It was emphasized that improvements will be done along implementation thus the curriculum will continue to be ‘work in progress’ and changes will be made along the way as learning takes place. It is better to start right away and correct errors along the way.

Qn: How is the scale up of computer studies to be undertaken in areas where electricity supply is erratic and in other areas where there is no electricity at all?

Response: The plan is to have solar powered computers in the rural areas so to minimize reliance on electric power.

Qn: How have we created the need for ICT in the community instead of having top down approach?

Response: Initially the donor pressure acted as a catalyst to stimulate ICT and this made ICT to appear as something foreign. Communities need to be sensitized to participate actively in ICT initiatives and to view ICT as an enabler of development in various sectors including education particularly learning and teaching.
3.1 ICT initiatives from project schools

The participants from the project schools presented the initiatives that they were involved in relating to integration of ICT in learning and teaching. Some reported that ICT had helped them in enriching their teaching content than had been obtained from text books; ICT had improved confidence for the educators as they are well informed and prepared, ICT facilitated others in making of term reports. In addition, a number of school teachers had opened and were using emails as a result of the PanAf project. A number of challenges were highlighted by several schools and the cross-cutting ones were:

- Power outages
- Unscrupulous technicians
- Limited access where few computers would be available
- Limited Internet connectivity and intermittent internet connections
- Gender disparities
- Viruses

Recommendations

- Standard specifications
- N computing should be promoted where one CPU is connected to several monitors
- Technicians – Get a reputable technician and work with an individual firm
- Integrate ICT and introduce a training on how to incorporate ICT in other subjects. The teachers who are trained can train others
- Label machines and indicate the specifications
- To keep records and develop an inventory of the computer and the different components
- Have a pool of trained teachers so that they train their colleagues in the schools
- Organizing capacity building for the teachers to update themselves on ICT integration
- Special training for computer instructors and the lab attendants

3.2 Vote of thanks by a representative of the participants

Ms Namara Margaret, the headmistress of St. Antony Primary School on behalf of the participants appreciated the organizers of the workshop for extending an invitation to the participants. She commended the research team for a job well done and challenged them to include more schools in future projects. She ended by urging the schools to fully embrace ICT.
ANNEX 1:
LIST OF PARTICIPANTS
# NATIONAL POLICY DIALOGUE ON PEDAGOGICAL INTEGRATION OF ICTs
## PHASE 11
### December 22, 2011

## ATTENDANCE LIST

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ANNEX 11: WORKSHOP PROGRAM
ANNEX 111:
PANAF PROJECT:
PHASE 2 OVERVIEW
PanAfrican Research Agenda on the Pedagogical Integration of ICTs: Phase 2

NATIONAL POLICY DIALOGUE
December 2011

Alice Nankya Ndidde
Project Focal Person / Researcher
Overview of PanAf Project
Phase 2: 2009-2011
Presentation Outline

• Relationship between Phase I and Phase II

• Mission

• Main Research Objective

• Specific Research Objectives

• Expected Outcomes of Phase II

• Phase II – Specific Activities
Relationship between phase I and II

- Phase two maintained the IDRC’s tradition of rigorous data collection, analysis and knowledge sharing – through fieldwork, collaboration, paper presentations at conferences and publication.
  - Included collecting additional data and uploading it on the Observatory. (http://www.observatoreitic.org)
  - Additional countries like Zambia and Ghana
- A special focus on Gender and ICTs
- Included capacity building for scientific publications
Mission

Through IDRCs ACACIA PROGRAMME the PanAf Project’s mission is:

To contribute to the development of African countries and people by increasing knowledge on the Pedagogical Integration of ICT in African schools and education systems.
Main research objective

• To better understand how and under what circumstances the pedagogical integration of ICT can substantially improve the quality of teaching and learning at all levels of African education systems
Specific Research Objectives

1. To describe and analyse the specific impacts of ICT on the quality of teaching and learning in African schools (including gender differences)

2. To describe and analyse the policies and strategies that can most effectively support and impact embedded and systemic pedagogical integration of ICT in education
Specific Research Objectives

3. To better understand and analyse what teacher training strategies for the pedagogical uses of ICT impact most on the quality of teaching and learning

4. To describe and evaluate the differences and similarities in ICT integration practices in Anglophone and Francophone countries in Africa
Specific Research Objectives
Contd

5. To describe and analyse the role of access and connectivity, other resources, school management, administrative personnel and the larger community in the integration of ICTs by educators and learners.

6. To describe and analyse how and under what circumstances can innovative ICT in education strategies improve equity and the quality of teaching and learning in African contexts.
Specific Research Objectives

7. To make recommendations to teachers, school principals and teacher training institutions, with regards to their use of ICT in African educational contexts

8. To make recommendations to political leaders, with regards to ICT-education policies and ICT-curricula to be developed or implanted in their country
Expected Outcomes: Phase II

• Main expected outcome was to influence African ICT related policies on education, the way teachers are trained, teaching practices and curriculum through scientific publications.

• To achieve this, had to throw light on the new and solid evidence (data rigorously and meticulously analysed) that Panaf Phase I provide.

• Recommendations for improvement of education outcomes through the integration of ICT had to be addressed to:
  • Decision makers,
  • Academic researchers,
  • Teacher-trainers,
  • School managers, or teachers.
3 brochures of recommendations from the Panaf project research team

- Teachers and school directors

- ict-africa.org
Phase II – Specific Activities

To attain the outcomes,

• organised scientific writing workshops for researchers,

• Undertook rigorous analysis of the existing data – focusing on transnational and thematic lessons-learned on subject of the pedagogical integration of ICT

• Scientific dissemination through communication in international conferences such as e-Learning-Africa

• Organising round table discussions and policy dialogues in each participating country
Uganda: Major Activities

• Collected data on additional indicators and uploaded it on the Observatory

• 4.4.3 on female learners' points of access to computers/Internet (cybercafé, home, mobile...
4.4.4 on male learners' points of access to computers/Internet (cybercafé, home, mobile…)  

4.4.5 on female learners' participation in Internet-based social networking (MySpace, Facebook, Twitter…)
Uganda: Major Activities  Contd

- 4.4.6 on male learners' participation in Internet-based social networking (MySpace, Facebook Twitter...)

- 4.12.2 on the number of ICT in education related research publications

- 4.13.1 on pioneering initiative in ICT in education
Uganda: Major Activities Contd.

- Participated in the production of the book: “Pedagogical Integration of ICTs: Successes and Challenges from 87 African Schools”

- The Ugandan Team contributed over 15 articles in the PanAf Edu project’s newsletters- All the articles appear at the PanAf Webportal at: www.panaf-edu.org

- Presented papers in e-learning Africa conference in Dakar-Senegal, Lusaka Zambia and Dar-el-salaam Tanzania

- Organised round table discussion on the Pedagogical integration of ICT: The gender perspective

- Attended a series of scientific writing workshops organised by the project team (ERNWACA and the University of Montreal)
Thank You
ANNEX IV:
KEY FINDINGS
Key Findings and Impact of the Pedagogical Integration of ICT in Education Project in Uganda

Dr. Jude Lubega

THE NATIONAL POLICY DIALOGUE ON THE PEDAGOGICAL INTEGRATION OF ICTS IN EDUCATION (UGANDA)
AGENDA

- Introduction
- ICT Policies
  - National
  - International
- Access and Connectivity
  - Equipment access
  - Internet Connectivity
  - Software Availability
- Teacher Training
  - Presence of ICT Training
  - Ability to use ICT
- Conclusions
Introduction

The research covered several aspects of ICT use in relation to education

- Many of the findings being presented are a result of direct interaction between the researchers, educationists and learners within Ugandan schools and some policy makers.
- As observed by Mooji (2007), integrating ICT in education means using all technologies that can process information and transmit it for the purpose of educational development.
  - This research considered computers as the form of ICT to be integrated within education.
  - The research was carried out in rural, semi rural and urban schools, primary, secondary and tertiary institutions.
  - Uganda was among the several countries considered in Africa under this project.

The UNESCO report 2003 noted that:

- African education requires innovative ways to support it in achieving the millennium goals and these can be achieved through integrating ICT.
Key findings: ICT Policies

- It was apparent that Uganda Policy makers had initiated the formulation of several ICT policies
  - The government under the Ministry of ICT, UCC and Telecommunications had developed policies to streamline ICT integration and use
  - Some of the observed ICT policies include:
    - National ICT Draft Policy 2008 (section 2.3 focuses on the integration of ICT within education at all levels)
      - However none of these above had direct support for integration of ICT within education
    - Other policies such as Pro-Poor ICT were found to exist and advocating for poverty eradication
    - It was observed that 63% of the East African countries that participated in the research had established ICT policies for different purposes
    - Only one country (Kenya) had an National ICT Policy that directly focused on E-Learning
Key findings: ICT Policies (cont…)

- It was observed that Uganda and Kenya had already established a national ICT curriculum to guide in teaching ICT within primary and secondary schools
  - However it is only Kenya that had a National Curriculum ICT syllabus for primary teacher training colleges and also had established ICT within local education development plans

- Within the established policies within Uganda
  - Incentives had already been established to boost the integration of ICT within education, for example
    - Government put a tax waiver on the importation of computers
  - It was clearly observed that higher institutions of learning considered within the research had Institutional ICT policies
    - For example Makerere University had both an ICT Policy Master Plan and E-Learning Policy
    - However these existing policies were not effectively being implemented to help in the integration of ICT in education
Key findings: ICT Policies (cont…)

- Both primary and secondary schools considered during the research did not have established ICT policies but institutional motivation to integrate ICT within education
  - For example, some of the lower institutions of learning had established motivation in trying to acquire at least 5 computers every term by requesting each student to contribute to the cause

- How do you think ICT can be effectively integrated within lower institutions of learning?
- What policies and incentives do you think could enhance the quick integration of ICT within education
Key findings: Access and Connectivity

- The research indicated that the teacher to student ratio was too high and hence technology could be the answer to improving the conditions.

- The student to computer ratio was very high especially in the lower institutions of learning:
  - Buganda Rd 1:157, St Peters Nsambya 1:150, Kisowera 1:73, St. Anthony PS 1:38, St. Kizito Primary School 1:100, Kibuli Secondary 1: 62, Kings’ College Buddo 1: 20, St Kizito Secondary 1:18, Nabisunsa Girls 1:29, Kyambogo University 1:25, Department of Adult and Communication Skills 1:23
  - It was apparent that most of the primary schools had very high student to computer ratio as compared to other institutions.
  - Higher institutions of learning had a lower student to computer ratio.

- It was found that ICT were used for different purposes by both staff and students:
  - Lesson planning, research, administration and communication etc.
Key findings: Access and Connectivity (cont...)

- Most educators in all the higher institutions of learning had access to personal computers within their offices hence reducing the pressure on sharing.
- It is apparent that also many of these administrators had portable computers.
- However in both primary and secondary schools, some of the head teachers had computers in their offices and the rest of the administrators allowed to share with the students.
- How can teachers be facilitated to implement ICT within their teaching and learning?
Key findings: Access and Connectivity (cont…)

From the figure, all the institutions have a high computer student ratio with none below 1:15.

- This poses a very big challenge to the institutions if they are to realize their ICT integration goals in pedagogical teaching and learning
- How can the government contribute to the ICT integration within institutions?
Key findings: Access and Connectivity (cont…)

- It was observed that eight out of eleven institutions had Internet connectivity
  - These same institutions had integrated more ICT than their counterparts which did not have the connection
  - The Institutions that had internet connection indicated that it helped them
    - greatly search for most recent information used to update their tutorial notes,
    - improve on their classroom teaching methods
    - increased life long learning which made them very confident while teaching
  - Despite having computers within the institutions, just a few were always connected to the internet
  - Only primary schools were found not to have internet connection
  - Both the students and teachers of the lower institutions accessed the internet through the set up labs
    - In certain schools students who were within the computer clubs had priority to access the labs in the free time
Key findings: Access and Connectivity (cont…)

- It was found that the band width used for internet connection was too poor for majority of the institutions and costly too.
- The researchers noted that 75% of the schools within the research in Uganda had internet connection compared to the 50% within Kenya.
- How can the established back bone and the marine cable be tapped to contribute to the ICT integration within institutions.
Key findings: Access and Connectivity (cont…)

- The courses taught using ICT differed from institution to institution with primary schools having the least subjects.
  - In most primary schools the pupils were only introduced to computers in areas such as knowing the key components of the computer especially hardware, typing skills, keyboard functions, games among others.
  - Of all the primary schools involved in this study it was St Kizito primary school which integrated more ICT with 5 subjects out of 15 which accounted for 33.3%.
  - Kibuli SS was the best in as far as integrating ICT is concerned with 35.2%.
  - Two institutions of St. Anthony Primary School and Kisowera Primary School did not integrate or teach any subject using ICT which accounted for 0% integration.

- It was found from the research that male educators and students used the ICT more than the female.
  - It was also found that the schools that had great use of ICT, it is the youthful teachers that were key in the integration of the ICT.
Key findings: Access and Connectivity (cont...)

- It was found that many of the teachers responsible for teaching ICT within the schools were not fully qualified but had undertaken only ICT related courses.
- What factors can support the use of ICT within the institutions?
- Who is responsible for encouraging the integration of ICT within institutions?
- How can we encourage more females to use ICT within the institutions?
Key findings: Access and Connectivity (cont...)

- In order to maintain the ICT, the schools had established ICT advisors/technicians to help in the maintenance
  - These were entitled to undertake activities such as software installation, hardware repair, configuration and safe guarding the labs
  - 90.1% of the institutions in Uganda had established technicians as compared to 80% of the institutions in Kenya
  - It was also established that mainly the primary schools are the ones which did not have the technicians
  - Many of the technicians were not qualified to undertake the maintenance but had taken on the roles because of their interests

- It was apparent that many of the institutions used the same software like MS Office, Encarta, Linux, Ubuntu, SQL Server etc
- How can ICT related syllabus be effectively introduced in teacher training institutions?
- How can technicians be nationally trained and recruited to work within the institutions of learning with the same conditions as teachers?
Key findings: Teacher Training

- Only two institutions were considered as teacher training within Uganda
  - Kyambogo University and School of Adult Learning Makerere University
  - It was observed that all the teacher trainers within these institutions had email addresses as being compulsory however 4.25% of the teacher trainers in the Kenya teacher technical had emails addresses

- The figure indicates that male teachers easily adopt the use of technology as compared to the female teachers
- How can institutions encourage female teachers to adopt use of technology for teaching and learning?
Key findings: Teacher Training (cont…)

- Teachers are obliged to undertake refresher courses such as ICT training.
- However, this undertaking varies from gender, type of institution.

What policies are necessary to encourage further training of teachers?
Who is responsible for the implementation?
Key findings: Teacher Training (cont…)

- ICT are used both in the training and to aid other courses for professional training and development.
  - Most of the educators rely heavily on the Internet to improve and develop their facilitation skills including updating their courses, research
  - Publishing and documentation
- A number of staff members are also involved in Masters studies and they use ICT skills to undertake their studies more effectively.

- Majority of teacher trainers were reported to be computer/ICT literate and they had comfortably mastered the following software
  - Micro Soft application like Word, Excel, Access and PowerPoint
  - Micro Soft Project
  - Data Base Management
  - Internet Exploration/Connectivity and Emailing
- It was however noted that much as the teacher trainers’ posses the above ICT skills; they lack the attitude and motivation to fully integrate ICT in their training
- This could probably be as a result of limited ICT equipment, lack of incentives from institutions and government to encourage ICT use.
Impact of the Project in Uganda

- The project was used to inform the public and policy makers about the need to help schools acquire ICTs and also train teachers on how to integrate into education.
  - Several schemes have been established like student-teacher laptop project
  - Save 5000/= from each student within the school per term to fund the acquisition of computers

- Uganda Communication Commission (UCC)
  - Provided several computers to schools
  - Workshops to provide enhancement ICT skills to all ICT teachers within the schools that have benefited were organized

- Many schools that have integrated ICTs, have devised strategies on helping the females students in accessing the ICTs especially in the mixed schools.
  - Strategies like one computer for both girl and boy, one or two rows of computers for the females
Impact of the Project in Uganda

- Several ICT in Education projects have been funded with the help from the government
  - An example is the Millennium Science Initiative Project in one of the Teacher Training Institution: Kyambogo University.

- There has been increased awareness to both teachers, parents and students on the proper use of ICTs for educational purposes

- New developments emerging of making the ICT subject a full subject to be taken by students at A-Level

- Improved curriculum in teacher training institutions for integrating ICT in education has been noted

- Incentives in schools have arisen on further training in areas such as use of ICT in teaching and learning
Conclusions

- The integration of ICT in pedagogical teaching is of paramount importance in this era of globalization.
- This can be effectively undertaken if there exists appropriate and effective ICT policies both in Institutions and Government.
  - There is a draft national ICT policy that hopefully will further encourage the integration of ICT.
- It was noted that ICT has not yet been effectively integrated in most of the educational institutions in Uganda.
- In order to do this effectively, a needs assessment is needed to find out:
  - how much it would cost the government to establish and integrate ICT in education at all levels of educational institutions,
  - issues of equipment acquiring, maintenance, repairing and proper usage can be effectively addressed with a clear strategy.
- The key issues to be noted include:
  - accessibility to ICT equipment, training of educators and managers, addressing attitudinal challenges among stakeholders, designing content appropriate for educational levels.
ANNEX V:
ICT TERRAIN IN
MAKERERE UNIVERSITY
PEDAGOGICAL INTEGRATION OF ICT IN MAKERERE UNIVERSITY: Progress, Challenges & Opportunities

Tito O. Okumu  
E-Learning Manager  
Makerere University  

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Presented at PanAf workshop on 22nd Dec 2011
At the turn of the Century

20\textsuperscript{st} Century Look

Makerere University
Makerere of the 20th Century
Learning in the Yesteryears

Living with the Challenges
Identification of Institutional Challenges

- Increased student population;
- Bandwidth issues;
- Financial constraints;
- Lack of technological skills amongst staff;
- Power outages;
- Low throughput;
- High administration costs;
- Institutional Bureaucracy;
- Lack of autonomy;
- Staff mindset towards educational technology;
- Lack of teamwork and ‘territorialism’ limiting collaboration;
- Poor quality assurance strategies;
- Inadequate infrastructure;
- Management responsibilities are wrongly prioritised over academic progress.
Mapping the Challenges into a Framework

<table>
<thead>
<tr>
<th>Social -Economic</th>
<th>Organizational</th>
<th>Pedagogical &amp; Epistemological factors</th>
<th>Technological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of organizational skill by staff</td>
<td>Connectivity (ICT &amp; Power)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low throughput</td>
<td>Lack of time for capacity building</td>
<td>Different curricula between campuses</td>
<td>Infrastructural</td>
</tr>
<tr>
<td>Increased student population</td>
<td>Communication Administrative Costs Bureaucracy</td>
<td>Limited opportunities for academic discourse development</td>
<td>Bandwidth</td>
</tr>
<tr>
<td>Experience &amp; continuity</td>
<td>Lack of teamwork &amp; territorialism</td>
<td>Lack of access to computers by staff &amp; students</td>
<td></td>
</tr>
<tr>
<td>Attitudes and resistance to change</td>
<td>Poor assurance strategies</td>
<td>Small computer labs</td>
<td></td>
</tr>
<tr>
<td>Funding</td>
<td>Lack of strategic ICT vision</td>
<td>Most lecturers lacked ICT skills</td>
<td></td>
</tr>
</tbody>
</table>
External Pressures

- Ignition of Makerere came through:
  - Public Opinion
  - Web ranking
  - Donor Pressure
  - Alumni Pressure

- Financial pressure added more challenges
  - Reduction of financial support from govt
  - Innovative ways of solving financial problems came to the for (Mamdan, 2007)
Start Of A New Makerere

The Achievements

FCIT Building
Implementation Methods

- **Policies**
  - ICT Master Policy ICT Master Plan 1 2001 – 2004
  - ICT Master Plan 3 2009 – 2013
  - ETS still in the Drawing Table *******
  - Strategic Plan 2008/09 to 2018/19 *******

- **Contribution from various points**
  - Leadership Commitment to champion ICT usage in the University
  - Development Partners (NORAD, SIDA, Carnegie).
  - The Millennium bug (Y2K)
  - The Togboa Committee.
  - The Ally blog, analysing Makerere’s Performance in the July 09 Webometrics Rankings.
  - EUTP by FCIT
## Structures in Place

<table>
<thead>
<tr>
<th>Structure</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>MakNET (24/7 outfit)</td>
<td>Optical fibre; structured cabling for building LAN, access to internet, hotspots, emails, staff directory etc</td>
</tr>
<tr>
<td>Expanding the range of online <strong>MakLIBIS</strong></td>
<td>Online Journals; Computer Resources Capacity Building; User Training</td>
</tr>
<tr>
<td>Addressing the <strong>Academic Records, Finance and Library Information Systems</strong></td>
<td>Student Web Module, Effective Intranet Capacity Building, software development unit</td>
</tr>
<tr>
<td><strong>E-Learning</strong></td>
<td>Capacity Building; Multimedia lab User Training; Use of Web 2.0, Resources</td>
</tr>
<tr>
<td>Student’ Computer &amp; resource centre</td>
<td>Computer Labs, Kiosks</td>
</tr>
</tbody>
</table>
Prevailing Situation
What is Learning? Learning is an active process that takes place when learners engage in dialog and create a common understanding.

ICT Created the enabling environment
- To manage the increased number of applicants
- Paradigm shift in Teaching & Learning in HEI’s
- Increase in alternative sources of knowledge
- To improve the multi-institutional collaboration
- To increase the flexibility for students and teachers
- To access the global markets for education
Does Makerere Measures:

- IM, VoIP
- Blogs, Vlogs & Vodcasts
- Myspace, Facebook, Twitter, Linkedin
- Wikis, Googledocs, Flickr, Picassa
- Instant communication, snail mail???
- Collaboration capabilities
- Real time, online subs,
- Discussion Fora, Online publishing,
- Collaboration Tools
Some Challenges @ Makerere

- **Human**
  - Limited capacity of E-Learning Unit to handle multiplicity of issues
  - Resistance to new pedagogical approaches
  - Inadequate ICT Skills

- **Technology**
  - Equipment to support online learning
  - Use of ICT is still challenge to many
  - Power Outages
  - Bandwidth

- *(Is it Pedagogy or Technology which should be Emphasized?)*
Opportunities ICT has Provided

- Information;
- Materials Online;
- Research Component
- Communications
- Collaboration-
- Administrative Resources
  - Network
  - Student Support
  - Content delivery
  - Administration
Managing Change

- Commitment from top leadership is a prerequisite to success.
- Political propaganda must be initiated to manage change.
- The dynamics of large institutions should be understood (*it has barriers of traditionalism*)
- Realistic objectives have to be worked out
- Champions & drivers should be identified
- Activate, Accelerate, Achieve & Assess (*Hyatt, 2009*)
Recommendations

- ICT policy should be formulated at various levels
- Intellectual Property Laws (Sensitization & Issues of Creative Commons)
- Lack of Quality Assurance Framework for Online Education in Sub Saharan Africa
- Get Champions
- Visit this URL
Points to Ponder

Things which matter most must never be at the mercy of things which matter least  

Goethe, author, poet, scientist
ANNEX VI:
UGANDA’S ICT POLICY FRAMEWORK
presentation to POLICY DIALOGUE ON PEDAGOGICAL INTEGRATION OF ICT IN UGANDAN EDUCATION SYSTEM (PANAF PHASE II)

22\textsuperscript{th} December 2011, Kampala

www.ict.go.ug
POLICY DIALOGUE ON PEDAGOGICAL INTEGRATION OF ICT IN UGANDAN EDUCATION SYSTEM (PANAF PHASE II)

UGANDA: ICT POLICY, LEGAL AND REGULATORY FRAMEWORK

22 dec 2011

By

Ambrose Ruyooka, PMP, CRISC
Ag Commissioner/IT, MoICT, Ambrose.ruyooka@ict.go.ug
GoU has identified ICT as one of the Pillars for social economic development.

ICT has been identified as one of the core pillars for transformation of Uganda in National Planning Development Plan (2010).
ICT sector structure

Policy ➔ Ministry of ICT

Regulatory ➔ Uganda Communications Commission, National Information Technology Authority Uganda

Service delivery ➔ Telecom, courier, IT services, training
Laws

- Uganda Communications Act
- Electronic Media Act
  - “The Uganda Communications Regulatory Authority Bill intended to merge the above Laws approved by Cabinet”
- The National Information Technology Authority –Uganda, Act
- The Computer Misuse Act
- The Electronic Transactions Act
- Electronic Signatures Act
Policies

Information Technology Policy.

E-Governance Policy Framework

Analog to Digital Television Broadcasting migration policy

Uganda Postal Policy

Rural Communications Development Policy guidelines (Under UCC operations)
Draft Policies

Telecommunications (update of existing policy)

Information Management Services

Electronic (e-Waste) Management

.ug country code Top Level Domain (.ug ccTLD) Management
## Strategies

<table>
<thead>
<tr>
<th>National Information Security Strategy</th>
</tr>
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<tbody>
<tr>
<td>Uganda Business process outsourcing Strategy and Model (2008-2011)</td>
</tr>
<tr>
<td>Internet Protocol version 6 (IPv6) transition strategy</td>
</tr>
<tr>
<td>Institutionalization of the ICT function in MDAs/LGs</td>
</tr>
</tbody>
</table>