

**REPORT OF THE ICT FOR EDUCATION (ICT4E)  
SCHOOLNET UGANDA-CLOSE THE GAP PILOT  
PROJECT  
TEACHERS' TRAINING WORKSHOP  
HELD AT  
GAYAZA HIGH SCHOOL  
(17<sup>TH</sup> MAY – 21<sup>ST</sup> MAY 2010)**



**Fig. 1: Participants of the ICT4E Teachers' Workshop**

## INTRODUCTION

### (a) Project background

SchoolNet Uganda-Close the Gap ICT4E pilot project is a 2 year project implemented by SchoolNet Uganda (<http://schoolnetuganda.sc.ug> ), in partnership with Close the Gap (<http://www.close-the-gap.org> ) and the beneficiary schools. The pilot project involves 20 secondary schools selected mainly from the western and northern parts of Uganda. Close-the-Gap was responsible for providing 10 computers to each of the participating schools. SchoolNet Uganda is responsibility for building the technical and pedagogical capacity necessary for optimally utilizing the computers to enhance teaching and learning and to provide on-going technical and pedagogical support to the participating schools.

Each of the participating schools was required to contribute UGX 2,650,000/= which would entitle them to a package including:

- (i) 10 HP Pentium 4, 2.8 GHz clock speed, 40 GB Hard Disk refurbished computers with brand new 17” HP LCD (flat screen) monitors, brand new HP Keyboards, new mice and new headphones. Computers. Computers have licensed Ms Windows XP and licensed Ms Office 2003. (The computers have already been collected from SchoolNet Uganda by the schools).
- (ii) A half -day non-residential sensitization workshop for the Head teachers (conducted on Tues 19<sup>th</sup> Jan 2010 at Fairway Hotel, Kampala).
- (iii) A 5-day residential ICT4E workshop for 2 teachers from each of the participating schools with the schools contributing transport for the 2 teachers to and from the workshop (17<sup>th</sup> -21<sup>st</sup> May 2010).
- (iv) A 5–day residential technical training workshop for 1 teacher and a student (preferably a girl) from each of the participating school with the schools contributing transport to and from the workshop for the teacher and student (Sept 2010 holiday).
- (v) A 5-day non-residential ICT4E workshop for the school Headteachers (Dec 2010-Jan 2011 Holiday).
- (vi) One on-site Technology Inspection to check the state of the computers. The schools will be responsible for any hardware repairs as will be ascertained and reported during the technology Inspection (June – Sept 2010).

The participating schools are also required to by SMART UPSs to protect and back up the computer against unstable electric power.

The original list of 20 beneficiary schools was provided by the Ministry of Education and Sports but a few schools had to be replaced by other schools already participating in SchoolNet activities when they indicated they were still unready to participate in the pilot project.

The following schools are currently participating in the pilot project: St. Mary's Girls Secondary School Ediofe (Arua), Muni Girls Secondary School (Arua), Arua Public Girls Secondary School (Arua), Transform Education Centre Kasangati (Wakiso), Gulu College (Gulu), Gulu Secondary School (Gulu), Awere Secondary School (Gulu) , Kitara Secondary School (Hoima), Karambi Secondary School (Kasese), Mt. Rwenzori Girls Secondary School (Kasese), Bwera Secondary School, Bukomero Secondary School (Kiboga), High Standard Secondary School Kateera (Kiboga), Gayaza High School (Wakiso), Masheruka Girls Secondary School (Bushenyi), Masindi Secondary School (Masindi), Iganga Secondary School (Iganga), Trinity High School–Kawempe (Kampala), Aringa Secondary School (Yumbe) and Kapchorwa Senior Secondary School (Kapchorwa).

#### **(b) ICT4E Teachers' training workshop**

The 5-day ICT4E Teachers' workshop was organized and conducted by SchoolNet Uganda at Gayaza High School (17<sup>th</sup> May -21<sup>st</sup> May) 2010. It was attended by 19 project schools. SchoolNet Uganda was responsible for training, feeding and accommodation costs and the schools were responsible for transporting teachers to and from the workshop venue.

#### **Workshop Objectives:**

The workshop had a number of objectives which included:

- To provide participants an opportunity to interact both formally and informally for the purpose of peer learning and knowledge sharing.
- To reflect on the current Uganda educational system and how national and global changes are impacting or likely to impact on the Uganda educational system.
- To introduce participants to teaching methodologies needed to equip learners with 21<sup>st</sup> century skills needed to be functionally literate and competitive in the 21<sup>st</sup> century.

- To brainstorm the challenges schools are facing in providing quality education, how ICT4E can help in addressing some of the challenges and the skills teachers would need to implement ICT4E.
- Provide participants with an exposition of how ICT4E can be used to enhance teaching and learning.
- Develop participants' communication, presentation, team work and collaborative skills.
- Develop participants' information literacy and Internet research skills.
- Enhance participants' positive attitude towards self-development and towards ICT4E.
- Introduce participants to education digital content.
- Develop participants' skills to create multimedia PowerPoint presentations.
- Introduce participants to project-based learning, the Innovative Teacher Forum, iEARN Collaboration centre and Microsoft PiL Network.
- Brainstorm the critical success factors for ICT4E in schools.

### Day 1: Monday 17<sup>th</sup> May 2010 Programme

Time	Activity	By Whom
8:30 -9:00 AM	<b>Individual introductions:</b> Name, school, subject, expectations and fears for the workshop	Daniel Kakinda Participants
9:00 - 9:30AM	Reactions to the participants' expectations and fears	Kakinda Daniel
9:30- 10:10 AM	<b>Opening Remarks</b> <ul style="list-style-type: none"> <li>• Open letter to the educators by Dan Brown</li> <li>• SchoolNet Uganda –Close the Gap ICT4E project brief by SNU</li> <li>• Speech of the Minister of Education and Sports</li> </ul>	Kakinda Daniel
10:10- 10:40AM	<b>Plenary- Minds-on Activity:</b> Characterizing Uganda's educational system.	Kakinda Daniel

10:40-11:00 AM	HEALTH BREAK & BREAK TEA	
11:00AM-1:00PM	<b>Plenary- Minds-on Activity:</b> 21 <sup>st</sup> Century Teaching & Learning.	Participants Kakinda Daniel
1:00-2:00PM	LUNCH BREAK & LUNCH	
2:00-2:30 PM	<b>Small Group Discussions &amp; Learning - ICT for Education (ICT4E)</b>	Participants
2:30-3:00PM	<b>Plenary – Group Presentations – ICT for Education (ICT4E)</b>	Participants
3:00 - 3:20PM	<b>Plenary:</b> Identification of other ICT4E issues that the participants wanted to hear from the facilitators	Participants
3:20-5:00PM	<b>Plenary:</b> Facilitators Harmonization and Exposition on ICT4E	Daniel Kakinda Ronald Ddungu Richard Chole
5:00 +) PM	<b>Take-home Hands- on- Activity:</b> Preparation of a PowerPoint presentation of the group discussions on ICT for education (ICT4E)	Richard Chole
	<b>EVENING TEA AND END OF DAY 1</b>	

**(8:30- 9:00 AM): Session 1: Introductions, Expectations and Fears for the Workshop.**

*(Session was facilitated by Daniel Kakinda)*

Daniel welcomed the participants for the workshop and thereafter requested participants to introduce themselves. The introduction included name, school, subject, expectations and fears for the workshop.

**Participants' expectations for the workshop**

The participants' expectations for the workshop included:

- To acquire new skills of using ICT.

- To improve on the ICT knowledge and skills.
- To acquire new methods of presenting lessons to learners.
- To learn more about computers and the Internet.
- To learn simple maintenance of computers.
- To acquire handouts at the end of the workshop.
- To learn how to use projectors and PowerPoint.
- To learn how to use email and the Internet.
- To get a certificate.
- To know how to pass on the knowledge learnt during the workshop to the other teachers.
- To acquire 21<sup>st</sup> century skills.
- To have a refreshment in ICT.
- To learn how to use the mobile phones to teach the students.
- To learn how to use ICT in the day to day teaching e.g. how to use simulations.
- To incorporate ICT in the teaching of mathematics.
- To be able to use ICT to improve on the academic performance in the school.

### **Participants' fears for the workshop**

The following were some of the participants' fears for the workshop

- The machines might break down and this may require sharing of computers.
- Lack of enough computers connected to the Internet.
- Time may not be enough to cover all the content.
- The food may not be enough.
- Failure to apply what would be learnt from the workshop on return to the schools.
- Fear to contract malaria since some participants did not come with mosquito nets
- According to the program, there are too many activities which may not be completed.
- There are so many computer wizards and for the participants with less skills catching up might be difficult.
- How to put the other teachers at school on board.
- Little knowledge of the computer might be a hindrance to learning.
- The participants may not be given off-pocket allowances.

- Some of the participants being semi computer literate, the facilitators might be too fast and yet the computers are slow.
- The food menu might not be friendly.
- Fear of using the ICT knowledge acquired since the school has very few computers and only has power two hours in a day.

**(9:00-9:30)AM: Session 2- Reactions to the participants' expectations and fears.**  
*(Session was facilitated by Daniel Kakinda)*

**(a) Reactions to the participants' expectations:**

(i) *The issue of how to use ICT in teaching:* The workshop was about the use of ICT in educations and therefore all activities were to be geared towards the use of ICT in teaching.

(ii) *The issue of acquiring new ICT skills:* The workshop activities that had been designed to provide knowledge, skills and the right attitude regarding ICT4E. Participants were to acquire a lot of ICT skills during the workshop.

(iii) *The issue of learning simple computer maintenance:* Computer maintenance was not to be part of the workshop but will be covered in the technical workshop that will be held in the September 2010 holidays.

(iv) *The issue of handouts:* All workshop material and material produced during the workshop were to be put together on a CD that would be given to the participants to go with after the workshop. Some material was to be sent to participants' emails.

(v) *The issue of learning how to use the projector and PowerPoint:* Participants were going to make PowerPoint presentations and would use the projector to present their work.

(vi) *The issue of certificates:* Participants were to be given certificates of completion at the end of the workshop.

**(b) Reactions to the participants' fears**

(i) *The issue of learners who have less computer skills:* Participants were at different levels as far as computer literacy is concerned. They were advised to share knowledge and skills through peer-to-peer teaching and learning especially during their private time.

(ii) *Issue of putting the other teachers on board:* Participants need to organize sensitization workshops for other teachers on return to their schools to bring them on board. Participants were advised to learn as much as they could both formally and informally so that the head teachers can view them as resource

persons for the workshops. SchoolNet Uganda would be happy to be part of the facilitators of the sensitization workshops if invited.

- (iii) *Issue of few computers connected to the Internet:* Participants were advised to be co-operative and give room for sharing. A number of workshop activities were to be group activities which would require sharing of computers.
- (iv) *Issue of too many activities that may not be completed:* Participants were requested to keep to task in order to utilize the time maximally and to maximally use the private time to finish the take home activities.
- (v) *Issue of the meals not being enough and not being friendly to some participants:* Participants were assured that meals would be more than enough for everyone though they may not be friendly to everyone. As the teachers become international and global citizens, they have to learn to adapt to the different types of food eaten elsewhere.
- (vi) *Issue of the many computer wizards among the participants:* Participants were reminded that this was not an ICT workshop but an ICT4E workshop and were assured that the most important pre-requisite for the workshop was the educational background and the pedagogy rather than the computer knowledge since the computer is just a tool.

### **(9:30 -10:00) AM: Session 3: Opening Remarks**

#### **Open letter to Educators by Dan Brown**

(<http://www.youtube.com/watch?v=-P2PGGeTOA4> )

Participants watched the “Open Letter to Educators” video by Dan Brown.

Dan Brown noted that institutional education is still bent on providing just facts to the students and test them to find out how many facts they can reproduce. The current education system places too much emphasis on the exam and not enough on discussions and peer cooperation among students.

“Teaching facts should not be the core activity of the education system but rather teaching students to be creative because facts are freely available on the Internet. Education should not be about teaching students how to conform to the world as it is but to empower students to change the world for the better” urges Dan Brown.

“The world is changing and if you don’t change with it, the world will decide it no longer needs you” concluded Dan Brown.

#### **SchoolNet Uganda –Close the Gap ICT4E project brief by SNU**

Daniel Kakinda gave participants a brief about the SchoolNet Uganda – Close the Gap ICT4E project brief indicating the project partners, their responsibilities and roles and

the project activities. (Details outlined under project background on Page 2 of this report). The project brief was aimed at giving the participants the BIG PICTURE and to put the workshop in the context of the BIG PICTURE.

### **Remarks by the Minister of Education and Sports – Hon Geraldine Namirembe Bitamazire**

Participants viewed and listened to a video clip which was part of the Minister of Education and Sports address to the participants of the Microsoft Uganda Innovative Teachers' Forum which was held March 2009 at Hotel Africana.

In her address, the Minister of Education and Sports highlighted five educational reforms in Uganda where she saw a great potential for ICT4E to help government in the provision of Education. These included:

- (1). Improving access to education, knowledge and skills.
- (2). Equity in provision of Education to address the urban-rural divide.
- (3). Provision of quality education, teaching and learning.
- (4). Affordability of Education (UPE and USE).
- (5). Relevancy of the curriculum and education given to the learners.

“What it requires today is commitment, hard work and interest to keep on learning. You should stop lamenting that when I was at the Teacher Training institute, there was no ICT. Whenever, you get an opportunity like at this workshop, you should learn as much as possible especially ICT and encourage your colleagues to do the same” advised the Minister.

### **(10:10-11:00)AM: Session 4 -Plenary- Minds-on Activity: Characterizing Uganda's education system.**

*(Session was facilitated by Kakinda Daniel)*

#### **(i) Reflection on the changes in the Uganda classroom in the last 30 years**

Participants were asked to reflect on the changes in the classroom in the last 30 years. The participants were given the following questions which they could have at the back of their minds as a way of guiding their thinking but they were also free to use their own questions.

- a) How were you taught when you were in school and how are you teaching now?
- b) How many were you in your class and how many students do you teach in class?
- c) What learning resources are you using and what learning resources are your students using?

- d) How were you assessed or examined and how are you assessing or examining the students now?
- e) What characteristics of today's students are different from those students when you were at school?

### **Participants' responses included:**

- In those years, the teacher knew it all and it is still the same even today.
- The secretary had all the information and typed all the examination questions but today students can do research and access all the information they need.
- In the past, students were assessed like twice i.e. at the end of second term and end of year but today there is a series of assessment .i.e. students do Beginning of term exams, exams at the end of every month and end of term exams.
- The examinations were safeguarded and only brought out at the time of the exam.
- There were few students in the class and the teacher could easily identify them but today there are very many students in one class and the teacher can only build a relationship with only a few students.
- In the past the teachers were strict and always acted as kings while today teachers are becoming friendlier to the students.
- There was the use of the canes by the teachers to promote discipline today it is illegal to beat a student.
- Students today can access the examination papers and are already used to the questions at the time of the examinations.
- Teachers are moving from recall type of questions to application type of questions in the exams.
- Teachers were focused on the process instead of the results but teachers are now focusing on the results. It no longer matters whether students understand or not as long as they pass exams.
- Double shift education system: there are too many subjects that have to be taught with a tight timetable hence the teachers end up covering a few lessons. However some schools are adapting to overlapping double shift education system where students do different activities at the same time e.g. while some students are using the library, the rest are having a lesson.

### **(ii) Characteristics of Uganda classroom**

As a way of harmonizing, Daniel summarized participants' responses into the following characteristics of the Uganda classroom.

- Teacher-centred: The teacher remains the sole provider of information and the student a mere absorber of information.
- Teaching and learning are exam-driven. There is more interest in passing exams than understanding and application of concepts learned in class to daily life situations.

- Learning is mainly passive where teachers use mainly talk-and-chalk lecture methods.
- Students take paper-and-pen exams silently and alone. Assessment is done by the teacher only and questions are kept secret until exam time.
- The curriculum is fragmented based on subjects like Physics, Geography rather than on themes like global warming.
- ICT is used occasionally. Teachers' use of ICTs is limited to the use of videos and presentation of notes.
- Lesson focus is on Lower Order Thinking Skills (LOTS) of Bloom's taxonomy
  - Remembering – Can the student recall or remember information?
  - Understanding - Can the student explain ideas or concepts?
  - Applying – Can the student use the information in a new way?

“The above characteristics are more or less of a 19<sup>th</sup> century or 20<sup>th</sup> century classroom than a 21<sup>st</sup> century classroom” Kakinda noted.

**(11:00 AM-1:00PM): Session 5- Plenary- Minds-on Activity: 21<sup>st</sup> Century Teaching & Learning.**

**(i) Reflection on global or country specific changes in the last 20 years.**

Participants were asked to explain what global or country specific changes those have occurred in the last 20 years that are impacting or are likely to impact on Uganda education system

**(a) Uganda specific changes**

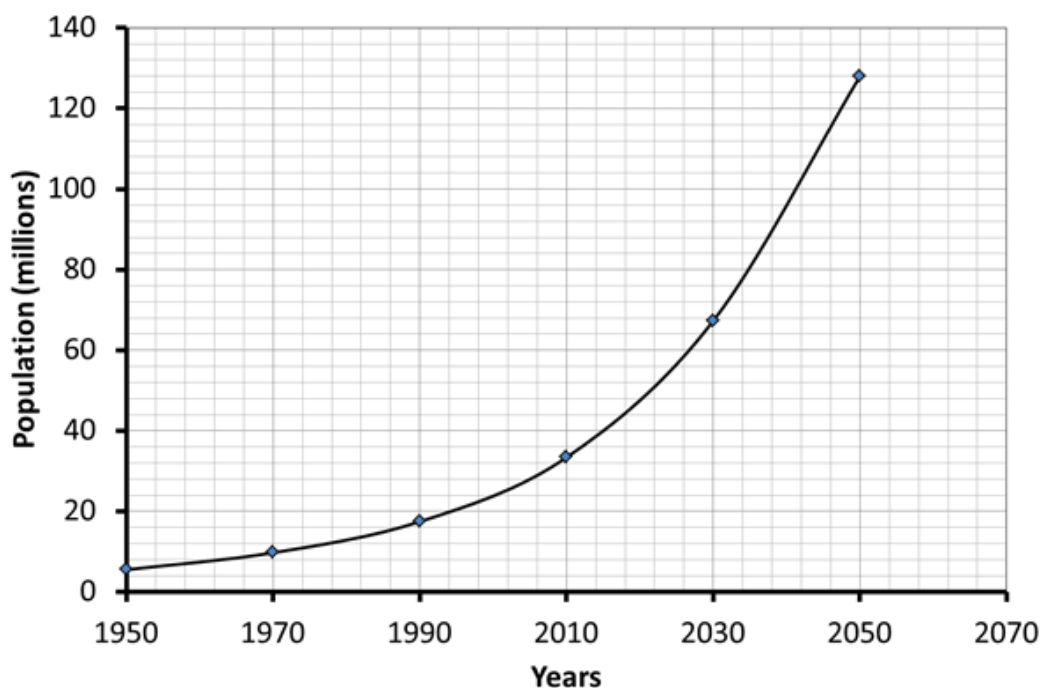
Participants were given an example of the Uganda's population growth.

Year	Population (millions)	Position (most populated)
1950	5.52	63
1970	9.74	53
1990	17.46	47
2010	33.40	37
2030	67.29	22

2050	128.01	14
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Source: <http://www.census.org>

## Uganda Population Growth



**Fig. 2 : Uganda population growth**

Uganda has an annual population growth rate of 3.27% (World Bank, est. 2008), the third highest in the world after Yemen and Niger respectively. The World average is 1.2%. This high population growth rate is putting a great burden on Uganda school infrastructure. The big number of students in the classes is yet to increase and the jobs will become more competitive.

Participant's mentioned the following Uganda specific changes which are having an impact on the Uganda educational system:

- **Corruption:** The finances that are put aside for buying educational materials and for construction of school infrastructure are being misused. Teacher absenteeism is also a new form of corruption.
- **High costs of education:** The high cost of education at secondary and at university level makes parents with many children can only afford to pay for a few up to a certain level.

- Global warning: Climatic factors hinder the source of income for most of the parents who depend on Agriculture and hence can't afford school fees for their children.
- HIV/AIDS epidemic: HIV/AIDS has had an impact on the parents' ability to pay for their children. There are also many teachers who are HIV positive and this has an impact on their capacity to teach and there are many young positives in schools today and this affects their moods and capacity.
- Social challenges: There are many issues like child sacrifice, domestic violence which hinder social interactions.
- Regional imbalances: The environment in the central regional is more conducive for learning than the environment in the northern region.
- Politicizing government educational policies: Universal Primary Education (UPE) and Universal Secondary Education (USE) have been misunderstood by some parents and are reluctant even to provide the basics to their children.
- Teachers' salary versus the cost of living: The teachers' salary is low and hence they pay less attention to teaching and look for side income elsewhere, some of the teachers teach many schools to make ends meet.
- Media: The media is open and students acquire a lot of information. They find the media more interesting than the books. As a result of exposure to the media, students have become less interested in other professions and are paying attention to music, football and entertainment because they see that musicians and footballers get a lot of money.
- Religious factors: Pastors organize a number of prayer retreats and students tend to devote most of their time on prayer instead of education.
- The mobile phones have become very common among the students in the schools.
- Conservatism and negative attitude towards change: Some people fear using computers and mobile phones thinking that they will get cancer.

### **(b) Global Changes**

Participants did not give any example of global changes impacting or likely to impact on the Uganda educational system. Daniel then mentioned the following global factors which are impacting on the educational system:

- Miniaturization of electronic devices (smaller, faster, more efficient and cheaper).
- Advances in telecommunications.

- Media-saturation
- Internet which provides easy access to global information.
- Globalization: A single event has a potent enough to affect everyone around the world almost immediately.  
With globalization:
  - Foreign cultures are affecting the local cultures through TV and the Internet (e.g. homosexuality, pornography etc.).
  - There is a very stiff competition among companies consequently the workforce requires constantly changing new skills.

## **(ii) Identification of 21<sup>st</sup> century skills**

Participants were asked to mention some of the skills that they must have as teachers and also develop in the students in order for them to be functionally literate and competitive in the 21<sup>st</sup> century and their responses were:

- Communication skills and this encompasses listening, writing and presentation skills.
- Innovative skills i.e. in order to competitive in this world, teachers have to come up with new innovations.
- Collaboration, team working and networking.
- Technology literate.
- The skill to acquire new knowledge.

Daniel supplemented on the list that the participants had generated with the following Skills:

- Cross cultural understanding and sensitivity.
- Oral and written communication and listening skills.
- Creativity and innovation.
- Comfort with digital technologies including online communication and collaboration.
- Problem solving skills.
- Social responsibility – take on civic and global issues.
- Working for long hours unsupervised.
- Critical thinking- taking on complex problems.
- Information literacy i.e. ability to realize the need for certain information; identify possible sources of the information; search for the information, analyze the information for its authenticity, correctness and relevancy, repackage the information in the most appropriate format and share it.

### **(iii) Characteristics of the 21<sup>st</sup> century classroom**

Daniel outlined some the characteristics of the 21<sup>st</sup> century classroom needed to develop 21<sup>st</sup> century skills among the learners which included:

- Lessons focus on the Higher Order Thinking skills (HOTS) in addition to the of the Lower Order Thinking skills (HOTS) of Bloom's Taxonomy.

The Higher Order Thinking Skills include:

- Analyzing – Can the student distinguish between the different parts?
  - Evaluating - Can the student justify a stand or a decision?
  - Creating – Can the student create a new product or point of view?
- 
- Student-centered with the teacher as a facilitator providing opportunity for students to apply skills and construct their knowledge.
  - Learners work in collaboration with classmates and others around the world-global classroom.
  - Integrated and interdisciplinary curriculum based on themes rather than subjects-thematic e.g. global warming.
  - Active learning aimed at higher order thinking skills e.g. inquiry based learning and project based learning.
  - ICT is used routinely; students use various ICTs to conduct research, communicate and create knowledge.
  - With assessment, students know in advance how they will be assessed and receive feedback from both the teachers and peers throughout the course.

### **(iv) Teaching methodologies (pedagogies) which promote acquisition of 21<sup>st</sup> Century skills.**

Daniel told the participants that if learners are to develop 21<sup>st</sup> century skills, the teachers must use some of the pedagogies below:

- Active-based learning: this involves discussing, debating, explaining, brainstorming and presenting.
- Problem- based learning: students collaboratively solve a world problem and reflect on their experiences.
- Inquiry- based learning: students participate in a process of asking questions to learn about a problem or topic.
- Project based learning: students work on real world projects that require interdisciplinary work and result in a product that is relevant for an authentic audience.
- Effective technology integration in everyday classroom practice.

## **(2:00-2:30)PM: Session 6- Small group discussions and learning: ICT for Education (ICT4E)**

Participants were divided into six groups and each group was asked to select a chair person, secretary and a time keeper. Each group was asked to discuss each of the questions below for a maximum of 5 minutes.

Q1. What challenges are schools facing in providing quality education?

Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology (ICT) for education?

Q3. How can ICT for education help schools to address some of the challenges schools are facing in providing quality education?

Q4. What skills do teachers need to implement ICT for education?

## **(2:30 – 3:00)PM: Session 7- Plenary Group Presentations**

*(Session facilitated by the participants)*

The secretaries of the groups were told to present on a summary of the key issues that were discussed in each group and were told that when presenting, they should avoid repeating issues which had already been said by the previous groups expect if presenting a different view of the issue.

### **Group 1 Presentation**

*Q1. What challenges are schools facing in providing quality education?*

*Responses:*

- Lack of instructional materials like books, apparatus and chemicals.
- Absenteeism of both teachers and students.
- Untimely transfer of teachers and head teachers.
- Poor time management e.g. the morning assemblies take long and this affects the morning lessons.
- Changing government policies e.g. changes in the number of subjects to be offered by the students.

*Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology for education (ICT4E)?*

*Responses:*

- ICT is accessing and passing information using the appropriate media like computers.
- ICT for education (ICT4E) is the method of accessing and passing information to learners using digital media to improve the learning process.

*Q3. How can ICT for education (ICT4E) help schools to address some of the challenges schools are facing in providing quality education?*

*Responses:*

- It saves time
- It helps in the absence of the teacher.
- It eliminates problems of infrastructure like the large library.

*Q4. What skills do teachers need to implement ICT for education?*

*Responses:*

- Teamwork
- Networking
- Creativity
- Working without supervision

## **Group 2 Presentation**

*Q1. What challenges are schools facing in providing quality education?*

*Responses:*

- Large number of students especially in the Universal Secondary Education (USE) schools.
- Lack of facilities i.e. there are very many students in schools with very few facilities.
- Environments: the learning environments aren't favorable e.g. some of the schools are next to pubs and some students come from places where people drink from morning to evening.
- Lack of scholastic materials.
- Teacher absenteeism.
- Influence from leaders both political and religious leaders.
- Foreign cultures e.g. students want to do what they see in the movies.

*Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology for education (ICT4E)?*

*Responses:*

- ICT is the use of tools like computers, phones, radios to relay information or messages.
- ICT for education (ICT4E) is the use of computers, phones, radios to aid in the teaching and learning process.

*Q3. How can ICT for education help schools to address some of the challenges schools are facing in providing quality education?*

*Responses:*

- It enhances teaching and learning with the use of the virtual science labs e.g. the Cyber School technology.
- Students can get information from the Internet.
- It enhances collaboration among teachers through the use of emails.

*Q4. What skills do teachers need to implement ICT for education?*

*Responses:*

- Communication skills
- Presentation skills
- Technology literacy.
- Working for long hours unsupervised.
- Problem solving

### **Group 3 Presentation**

*Q1. What challenges are schools facing in providing quality education?*

*Responses:*

- Inadequate learning materials like text books.
- Absenteeism of teachers.
- Use of nonprofessional teachers.
- Lack of refresher courses for the teachers.
- Exam-driven curriculum
- The negative attitude of the learners towards the teachers.
- Lack of professional ethics for the teachers e.g. some of the teachers when they quarrel with their wives at home, they transfer the anger to the students.

*Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology for education (ICT4E)?*

*Responses:*

- ICT is the acquisition of information through electronic devices such as phones, computers, scanners etc.
- ICT for education (ICT4E) is teaching and learning using electronic gadgets such as scanners, printers, projectors etc.

*Q3. How can ICT for education (ICT4E) help schools to address some of the challenges schools are facing in providing quality education?*

*Responses:*

- Students acquire abundant information and resources from the Internet.
- Students are able to study on their own.
- Students are able to carry out research on their own

*Q4. What skills do teachers need to implement ICT for education?*

*Responses:*

- Literacy skills i.e. computer literacy
- Organization skills e.g. there is need for organization in case the students think they know more than the teachers.
- Networking
- Team working and collaboration skills

#### **Group 4 Presentation**

*Q1. What challenges are schools facing in providing quality education?*

*Responses:*

- Absenteeism of the teachers and learners.
- Lack of motivation as a result of low income and lack of incentives for the teachers.
- Inadequate resources.
- Poor management.
- Over enrollment of students in the USE schools.
- Misuse of time.

*Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology for education (ICT4E)?*

*Responses:*

- ICT refers to information that is electronically derived.
- ICT for education (ICT4E) is the application of electronic devices to impact knowledge, skills and attitudes to learners.

*Q3. How can ICT for education (ICT4E) help schools to address some of the challenges schools are facing in providing quality education?*

*Responses:*

- Introduction of computer lab with Internet services.
- The use of projectors to present to large classes.

*Q4. What skills do teachers need to implement ICT for education?*

*Responses:*

- Technological literacy.
- Working for long hours.
- Team spirit.
- Effective communication skills.

## **Group 5 Presentation**

*Q1. What challenges are schools facing in providing quality education?*

*Responses:*

- Inadequate teaching/learning materials
- High pupil to teacher ratio
- Teacher absenteeism.
- Double shift in the USE schools
- Lack of exposure for students e.g. fieldwork in case of geography
- USE policy of automatic promotion of students i.e. all the students must pass.

*Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology for education (ICT4E)?*

*Responses:*

- ICT is creating, processing and sharing of information using electronic devices.
- ICT for education (ICT4E) is using ICT in imparting skills during the learning process.

*Q3. How can ICT for education help schools to address some of the challenges schools are facing in providing quality education?*

*Responses:*

- Accessing teaching materials via the Internet.
- It reduces the teachers' workload.
- Taking photographs of relevant topics.
- Easy information retrieval.

*Q4. What skills do teachers need to implement ICT for education?*

*Responses:*

- Computer technology literacy
- Organization e.g. tolerance and sense of humor
- Networking
- Team working

### **Group 6 Presentation**

*Q1. What challenges are schools facing in providing quality education?*

*Responses:*

- Insufficient facilities and human resources e.g. computers, classrooms, teachers etc.
- Teacher and student absenteeism
- Big classes.
- Poor learning classroom environment.

*Q2. What is Information Communication Technology (ICT) and what is Information Communication Technology for education (ICT4E)?*

*Responses:*

- ICT is acquiring information using computers, projectors, smart boards etc. for better understanding and management of knowledge and skills.
- ICT for education (ICT4E) is the use of computers and other related equipment for easy and effective learning and teaching multimedia approach for disseminating process.

*Q3. How can ICT for education (ICT4E) help schools to address some of the challenges schools are facing in providing quality education?*

*Responses:*

- Encourage intra and inter ICT school networking.
- Use of projectors to deliver lessons.
- Softcopy notes, research and online assignments provided to students in absence of the teacher or in case of inadequate teachers.
- Group work assignments in case of few computers.

*Q4. What skills do teachers need to implement ICT for education?*

*Responses:*

- Basic computer knowledge and skills plus refresher courses in ICT.
- Teamwork and collaboration.
- Have positive attitude towards change in ICT.
- Interpersonal skills.

**(3:00- 3:20)PM: Session 8- ICT4E issues participants wanted to hear from the facilitators during the facilitators' harmonization and exposition.**

Participants were given an opportunity to mention ICT4E issues that they wanted to hear from the facilitators. Below were some of their responses:

- More concrete examples and applicability on how to use ICT to enhance learning and teaching.
- How to use the mobile phones in the teaching and learning process.
- How scanning and printing is relevant to the students.
- How to use ICT in assessment.
- How to control websites so that the students don't access pornography.
- How to maintain and optimally use the computers.
- How ICT can be used in the Arts subjects because it has always been associated with Sciences.
- The negative impact of ICT for education (ICT4E).

**(3:20 – 5:00)PM: Session 9- Facilitators' Harmonization and Exposition.**

*(Session was facilitated by Daniel Kakinda, Ronald Ddungu and Chole Richard)*

**(i) Responses to ICT4E issues raised by the participants.**

Below were the responses to the other issues that the participants' wanted to hear under ICT for Education by the facilitators

- *On the issue of how students can make use of scanners and printers:*
  - Students' Fine Art pieces can be scanned and stored in digital form. These can then be used as learning and teaching resources by the teacher.
  - In language subjects and Arts' subjects, students' poems or essays can be typed and printed to be shared on different notice boards on the school compound.
  
- *On the issue of ICT for assessment:*
  - Teachers can send assignments to students by email e.g. during the holidays. The students can email back their work and the teacher emails them their marks.
  - There are a number of educational assessment softwares some of which are free for download from the Internet e.g. Hot Potatoes (<http://hotpot.uvic.ca/index.php>) which teachers can use to set interactive quizzes and exercises for students. Hot Potatoes is a freeware which enables a teacher to create interactive multiple-choice, short answer and gap-fill exercises.
  - There are also a number of websites with self-paced interactive exercises in different subjects e.g. Biology Interactive exercises ([http://www.fed.cuhk.edu.hk/~johnson/interactive\\_MC/eng\\_selection.html](http://www.fed.cuhk.edu.hk/~johnson/interactive_MC/eng_selection.html) )
  
- *On the issue of mobile phones:*

Mobile phones are becoming a convergence of ICTs. Phones have now a number of features like Camera, Video, SMS/Text, MP3 Audio, Television, Radio, Alarm, e-Mail, Internet, Bluetooth etc. All these tools have a great potential for enhancing teaching and learning. Unfortunately our schools are still finding a problem to accept students having mobile phones at the schools.

  - Teachers and students can use the Television feature for news and current affairs.
  - Teachers can use the SMS/Text feature to send assignment reminders and website links for reference to students.
  - Teachers and students can use the camera to take photographs or video clips which can be used as teaching and learning visual aids.
  - Teachers and students can use the Internet feature to do research and enhance the learning resources available to them e.g. Online Biology Book (<http://ridge.icu.ac.jp/biobk/biobooktoc.html> ) or Online Literature Library (<http://www.literature.org> )
  
- *On the issue of controlling websites that the students can access to prevent them from accessing pornography:*

It is true there is software which the school can use to filter and block certain pornographic websites but the students will still access the pornography outside school in the Internet cafes. It is better to educate the students about the dangers of getting addicted to porno and to give them engaging activities and assignment

so that they use the Internet for research purposes and remain focused on academic issues.

- *On the issue of how ICT can be used in the Arts subjects because it has always been associated with Sciences:*

ICT can be used to enhance teaching and learning for both Sciences and Arts. The facilitators promised to give concrete examples from both Sciences and Arts in the workshop.

- *On the issue of the negative impact of ICT for education (ICT4E).*  
ICT4E is addictive. It is difficult to keep students focused in the computer lab and to get them out of the lab. When students get used to ICT4E, they tend to find traditional methods of teaching less interesting.

## **(ii) Challenges that the schools face in providing quality education**

As a way of harmonizing, Daniel mentioned the following as some of the challenges schools face in providing quality education some of which had already been presented by the participants:

- Lack or poorly equipped science laboratories.
- Shortage and high cost of instructional materials like text books, apparatus etc.
- Poor teaching methods which are predominantly teacher centered and where teaching is mainly theoretically.
- Abstract concepts which are difficult to visualize.
- Shortage and gender imbalance of teachers in some subjects e.g. shortage of female teachers in science subjects.
- Teacher absenteeism and low motivation.
- Generation gap between the teachers and students (“the dot.com students Vs. the P.O Box teachers”).
- Large number of students making demonstration and supervision of experiments almost next to impossible.
- Lack of perceived relevancy of concepts taught in class to daily life experiences of learners.
- Lack/insufficient teacher professional development and exposure.
- The “finishing the syllabus syndrome” where teachers just want to complete the syllabus whether students have understood or not.
- Lack of use of visual aids or models in teachings.

## **(iii) Information Communication Technology (ICT) and Information Communication Technology for education (ICT4E)**

ICT- Information and Communications Technology are devices or tools that can be used

to create, store, manipulate, package, transmit display information in digital form in text, audio, graphic or video formats.

ICT for education (ICT4E) refers to use of ICT devices and tools to support teaching and learning across the curriculum.

Daniel illustrated some examples of ICT for Education (ICT4E) which included:

- Using a computer animation to explain a physics concept e.g. Faradays law of electromagnetic induction.
- Use of a digital camera or phone to take a photo to be used in a biology lesson on methods of seed dispersal or to show a physical feature e.g. an inselberg in geography.
- Using a video camera to take a video clip to be used in a discussion on the waterfalls.
- Using the Internet for reading the literature novels ( <http://www.literature.org>).

**(iv) How ICT4E can address the key Educational policy issues raised by the Minister of Education and Sports in a video watched earlier in the day.**

Daniel explained with examples how some of the key policy issues in the Ministry of Education speech that they had watched in the morning session can be addressed.

### **Improving access to education, knowledge and skills**

#### **1. Anytime, anywhere. ICTs have the ability to transcend time and space**

- Online course material can be accessed 24 hours a day, 7 days a week from anywhere across the globe.  
Examples:
  - Free video courses from leading universities; Yale, Harvard, MIT, Berkeley and Stanford (<http://academicearth.org> ).
  - The World's first tuition-free on-line University (<http://www.uopeople.org> ).
- Radio or Television educational broadcast eliminates the need for all learners and the instructor to be in the same physical location.
- Teleconferencing technologies enable instruction to be received simultaneously by multiple geographically dispersed learners.

#### **2. Access to remote learning Resources and Resource persons.**

- With the Internet, a wealth of learning materials in almost every subject and in a variety of media can be accessed from anywhere at any time by unlimited number of people.  
Examples:

- Online Biology Book (<http://ridge.icu.ac.jp/biobk/biobooktoc.html> )
  - The Human Skeleton (<http://www.eskeletons.org> )
  - Physics Educational Technology (<http://www.colorado.edu/physics/phet/web-pages/index.html> )
- ICT also facilitates access to resource persons- mentors, facilitators and peers all over the world e.g. Scitable ([www.nature.com/scitable/](http://www.nature.com/scitable/) ) is a collaborative learning space for science.

### **Equity in the provision of education to address the urban- rural divide**

Daniel gave some examples of how ICT4E can be used to address the urban-rural divide between schools,

- Using radio or television broadcasting ICT4E can bridge the urban-rural divide e.g. lessons are currently broadcasted on UBC and NTV televisions though the teachers still need to improve on their delivery methods.
- Another example is the SchoolNet Project in Ethiopia .Ethiopia faced with a chronic problem of shortage of teachers and interested in providing equitable access to education as a crucial weapon to fight poverty, decided to equip classrooms in more than 600 secondary schools with plasma screens. Science lessons are broadcasted from the Ethiopia Education Agency studio onto the plasma screens.

**Making education affordable:** Education can be made affordable by:

- Using virtual experiments to supplement real experiments i.e. virtual experiments are easier to sustain once the initial costs are met.
- ICT is extremely cheap to record, store, share, transmit and remotely retrieve information.
- Digital content is a non-rival good. Many people can use the same content simultaneously. The use of the digital content by one person does not diminish the quantity available for others.
- Virtual Field Trips – 7 Natural Wonders of the world (<http://www.panoramas.dk/7-wonders/> )

### **(5:00+)PM: Take-home Hands- on- Activity: Preparation of PowerPoint presentations of the group discussions on ICT for education (ICT4E).**

*(Session was facilitated by Chole Richard)*

Participants were asked to prepare PowerPoint presentations of the group discussions on ICT for Education (ICT4E) which they had presented at the plenary session in the afternoon and email them as an attachment to Daniel Kakinda ( [dkakinda@yahoo.com](mailto:dkakinda@yahoo.com) ), Allen Nansubuga ( [alnansubunga@yahoo.com](mailto:alnansubunga@yahoo.com) ), Chole Richard ( [cholerichard@yahoo.com](mailto:cholerichard@yahoo.com) ) and Ronald Ddungu ( [ronalddungu@yahoo.com](mailto:ronalddungu@yahoo.com) ) and send copies to the group members.

## Day 2: Tuesday 18<sup>th</sup> May 2010 Programme

Time	Activity	By Whom
8:30-9:00AM	Personal testimony about my life- special guest speaker (on Video)	Nick Vijicic
9:00 - 9:20AM	Process Journal : Participants' reflection on activities of the day 1	Participants
9:20-9:40AM	<b>Plenary Session:</b> Sharing of Personal Journal Entries	Participants
9:40-10:40AM	<b>Small Group Discussion:</b> Matching ICT tools with Teaching/ Learning Activities.	Participants
10:40-11:00AM	HEALTH BREAK & BREAK TEA	
11:00-11:30AM	<b>Hands-On Activity :</b> Using a Word Processor	Participants
11:30 – 11:50AM	<b>Plenary Exposition:</b> Display of some examples of digital content e.g. graphics, video, sound	Daniel Kakinda
11:50-12:30PM	<b>Plenary Discussions:</b> Digital Content	Daniel Participants
12:30-1:00PM	<b>Plenary Facilitator's exposition and harmonization:</b> Digital content	Daniel Kakinda
1:00-2:00PM	LUNCH BREAK & LUNCH	
2:00-2:30 PM	<b>Plenary Facilitator Presentation:</b> Learning Pyramid, 21 <sup>st</sup> century teaching, learning and Educator.	Daniel Kakinda
2:30 – 4:00 PM	<b>Small subject-group hands-on Activity:</b> Scavenger Hunt for digital content on the Internet relevant to their teaching:	Participants Richard Ronald

4:00 – 4:30 PM	<b>Plenary Session:</b> Sharing Experiences on the Scavenger Hunt	Participants
4:30 – 5:00 PM	(i) Facilitator’s harmonization on the scavenger hunt (ii) Presentation: Critical Human Issues when using ICT for Education.	Daniel Kakinda
5:00+	<b>EVENING TEA , PRIVATE WORK &amp; END OF DAY 2</b>	

**(8:30 – 9:00) AM: Session 1: Personal testimony about my life- special guest speaker**

*(Personal video of Nick Vijicic)*



Participants watched a video clip about the life of Nick Vijicic.

Nick Vijicic was born Dec 4 1982 in Melbourne, Australia with a rare physical disability: limbless, missing both arms at shoulder level and legless but with two small feet, one of which has two toes.

His life was filled with difficulties and hardships. Being bullied at his school, Nick grew extremely depressed and by the age of 8, started contemplating suicide.

After begging God to grow arms and legs, Nick eventually began to realize that his accomplishments were inspirational to many and began to thank God for being alive. Nick changed his attitude towards himself to wanting to become of God’s love and hope.

Nick learnt to write using the two toes on his left foot and a special device that slides onto his big toe which he uses to grip. He also learned to use a computer and types using the “heel and the toe” method at a speed of about 40 words per minute. At home, he takes care of his personal hygiene like shaving, brushing his teeth. He moves around the house by jumping or moving in an electric chair and also swims.

Nick graduated from college at the age of 21 with a double major in Accounting and Financial Planning. He is a preacher, a motivational speaker and director of **Life Without Limbs**, a Not-For-Profit organization for the physically disabled. He has travelled to a number of countries including Uganda as a motivational speaker focusing on the topics that today’s teenagers face.

“No matter whom you are, no matter what you are going through, God knows it. He is with you. He is going to pull you through. If you have a desire and passion to do something and it is within God’s will, you will achieve it in good time. Our attitude determines our altitude” says Nick Vijicic.

### **(9:00 -9:20)AM: Session 2- Process Journal: Participants’ reflection on the activities of Day 1**

Participants were asked to reflect individually on the activities of Day 1 and write down their thoughts about some or all of the following questions in their Process Journals.

Q1. What I think was the reason as to why my school selected me to come to this workshop.

Q2. What new ideas/concepts did I learn on day 1?

Q3. What special concept of ICT for education did I like and will use in my teaching?

Q4. How will my work and role as a teacher in the classroom change with regard to the 21<sup>st</sup> century teaching and learning?

Q5. How will ICT address the challenges I face as a teacher in providing education in my school and the classes that I teach?

Q6. What are my fears in the 21<sup>st</sup> century pedagogy and what help/support do I need to overcome these fears?

Q7. Which 21<sup>st</sup> century student-centered approaches I am most interested in using with my students?

Q8. Anything else you want to reflect.

### **(9:20 -9:40)AM: Session3 -Plenary Session: Sharing of Personal Journal Entries**

Eight participants on a voluntary basis were asked to read out what they had written in their Process Journal (Max 2 min each).

Below are some of the Process Journal entries:

*“The reason as to why my school selected me to come for the workshop is because am visionary and hardworking and enjoy working with students for their development. On day 1, I learnt that a number of challenges we face in teaching and learning now are different from long ago and there are ways of addressing these challenges. Concerning the special concept of ICT for education (ICT4E), I liked using the Internet for reading literature novels and doing research and I will use it for my teaching. My work and role*

*as a teacher will change in a way that my teaching will become more interesting for the learners and also I will make use of visuals and break the monotony of a teacher talking non-stop in front of the students. Because of the large classes I teach, ICT4E will help me reach out to all the students through the use of the projector and the students will be able to learn better. My fear in using ICT4E is the Internet connection and repair of the computers in case they breakdown since it will be a problem if the work has been prepared using computers and they fail to function. The 21<sup>st</sup> century student- centered approach am interested in is facilitating the learners to learn instead of teaching them and being the sole provider of the information” (Nakintu Agnes, Kitara Secondary School)*

*“I was chosen because I am innovative and the head teacher feels I know more and I have been handling the technical issues in my school. The workshop is refreshment for me and I have been awakened to continue with my career. I feel so resourceful and I want the facilitators to give us more highlights on how to cover the syllabus (Math and Geography) in the shortest time possible. The special concept of using ICT in education (ICT4E) that I liked was the use of ICT in teaching and fully involving the students on the hand on experience. My fear is that I feel am not yet there and I want to get more to get to the top of tops. The student-centered approach am interested in is multimedia whereby students can type their own work and email it to me. (Rwabu Elizabeth, Iganga Secondary School)*

*“I was chosen to come for the workshop because am always eager to learn, I have some basic computer knowledge and being the WSWM teacher, the school selected me to come for the workshop. I can also be a good agent of change since am very flexible among the staff members and students. On Day 1, I learnt how to prepare PowerPoint presentations. For ICT in education (ICT4E), the concept I liked was the use of videos to present some abstract/ hard concepts to visualize. While using ICT, I will only facilitate the learners giving them the skills to find knowledge for themselves. ICT will motivate the learners and help them change their negative attitude towards the science subjects” (Mugisha Julius, Musheruka Girls Secondary School)*

*“The school selected me to come for the workshop because am computer literate, honest and hardworking. I have learnt many things on Day 1 and among them is the use of the digital camera or phone to capture clips for using as teaching aids. By using electronic devices, I can be able to enable learners to have skills of making research and work longer than just doing the work manually” (Wamangoli Dickson, High Standard Kateera)*

*“I was selected to come for the workshop because the school has trust in me for delivering what I acquire from the workshop and am committed to the success of the program. On Day 1, I discovered that it is very possible to change the education system in Uganda towards ICT. ICT4E will help me get teaching and learning materials like textbooks and other teaching aids. I will have a shared responsibility with learners in integrating ICT4E in teaching and learning. ICT4E will help me solve hectic moments in teaching and learning like dictating notes, assessments and availing teaching/learning*

materials like textbooks. The student-based approach I would like to use is the two way communication between me and my learners for example I will give students assignments and they respond to them. I want to own a computer preferably a laptop to ease my work and also wants to share with other teachers both nationally and globally” (Nsereko Ismail, Bukomero Secondary School)

“The school selected me to come for the workshop because of my integrity, hard work, team work and professionalism. The new concept I learnt on day 1 was incorporating ICT4E in teaching and learning. The special concept in ICT for education (ICT4E) that I would like to use in my teaching is the use of computers, audio and visual/overhead projectors. ICT4E will change my role as a teacher in a way that I will not be relying on only “talk and chalk” but rather let the students discover on their own. The use of the overhead projector will help me handle big classes and will also help me solve the problem of time management. My fear about ICT4E is the power problem and this may require the school to buy a generator”. (Bira Beatrice, Bwera Secondary School)

“On day 1, I learnt that I need to be creative in delivering the lesson content to learners and how to use the available local examples to make my lessons interesting to the learners. My work and role as a teacher will change in that I will be able to guide the learners during the lessons. ICT in education (ICT4E) will help me to encourage the learners who are lazy in reading books to read using ICT devices like the Internet etc. My fear is that some students may not use ICT to impact on their learning process but instead use it to access certain information which may be harmful to their life such as pornography. I need to explain to them how to use ICT to access information necessary to what is learnt at school. The student-based approach am interested in, is using the learners to access the knowledge by themselves. I want to acquire at least one personal computer. (Olanya Thomas, Gulu College)

“I was selected for the workshop because am selfless, trusted and hard working .I learnt that God has a special gift for everyone from Nick’s inspirational talk. On day 1, I learnt how ICT can enhance teaching and learning. The concept in ICT for Education (ICT4E) that I liked was saving soft copies of books from the digital library. As a teacher, my attitude will change gradually and I will attain technological literacy. I will fully embrace ICT4E in facilitating and learning in the classroom. My fears for the 21st century pedagogies are lack of power and lack of ICT equipment. The student-centered approach am interested in is the use of ICT (hands on experience). I want to acquire a personal computer. ICT4E will help me address the challenges am facing in schools in the following ways:

- I will be able to access resources/ materials especially from the Internet.
- I will be able to prepare materials, save them in the computer so that the students can access it anytime.
- I will use the projector for presentations so that all the students can see.
- I will use computers to set the exercises and ask the students to take it home”

(Aliono Luciano, St. Mary’s Ediofe Girls Secondary School)

**(9:40 -10:40)AM: Session 3- Small Group Discussion: Matching ICT tools with Teaching and Learning Activities.**

Participants were divided into six groups to discuss the questions below and match the ICT tools with teaching and learning activities.

- (i) List teaching/learning activities.
- (ii) What ICT tools do you have access to or you need to have access to as a teacher both at the school and at home which can be used as teaching and learning tools?
- (iii) Match the ICT tools with the teaching and learning activities identifying in each case, the value added

Participants were asked to use the Mapping Template below:

Teaching/Learning Activity	ICT Tool	Value-added by the tool
Research		
Lesson Preparation		
Lesson Delivery		
Assessment & Feedback		
Tele-collaborative Projects		
Knowledge Sharing		
Field-Work/Excursion		

**(11:00-11:30) AM: Session 4 - Hands-On Activity: Using a Word Processor**

Participants were asked to make a Word document of their discussion based on the matching template that was provided and send it as an attachment to the following facilitators:

1. Kakinda Daniel ([dkakinda@yahoo.com](mailto:dkakinda@yahoo.com))
2. Ronald Ddungu ( [ronalddungu@yahoo.com](mailto:ronalddungu@yahoo.com) )
3. Chole Richard ( [cholerichard@yahoo.com](mailto:cholerichard@yahoo.com) )
4. Allen Nansubunga ( [alnansubunga@yahoo.com](mailto:alnansubunga@yahoo.com) )

Below is some of the participants' work:

## Group 4 Work

Teaching/Learning activities	ICT tools	Value – Added by using the ICT tools
<p><b>Research:</b> Looking for new ideas, knowledge, skills, and networking with other friends in different schools on similar topics/aspects.</p>	<ul style="list-style-type: none"> <li>• Computers that are connected to the Internet.</li> <li>• Mobile phones for conference calls and discussions.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved image of the school.</li> <li>• Easy accessibility to quality information.</li> <li>• Time saved in looking for information from other sources like textbooks</li> </ul>
<p><b>Note making/taking.</b> This helps in preparing for lesson delivery and also revision</p>	<ul style="list-style-type: none"> <li>• Computers for producing the softcopy, and storing the information researched.</li> <li>• Scanners for scanning pictures to be used where necessary.</li> <li>• Printers for having a hardcopy output.</li> </ul>	<ul style="list-style-type: none"> <li>• Time is saved as teacher has ready notes to use.</li> <li>• Students are able to refer to the notes taken.</li> <li>• Ease in lesson planning.</li> <li>• Easy management, increased output and a more interesting learning.</li> </ul>
<p><b>Scheming:</b> It is preparing for the work to be delivered /learnt in forms of topic and subtopics.</p>	<ul style="list-style-type: none"> <li>• Computers are used for scheming through drawing lesson plan tables.</li> <li>• Scanners for scanning already schemed work.</li> <li>• Printers for printing out of hardcopies to be given to individual teachers.</li> </ul>	<ul style="list-style-type: none"> <li>• Ease in work management (syllabus coverage)</li> <li>• Ease in identifying topics and subtopics already taught and those to be taught.</li> </ul>
<p><b>Lesson planning:</b> It helps the teacher in</p>	<p>Computers: for lesson</p>	<ul style="list-style-type: none"> <li>• Better management of records/work planned</li> </ul>

knowing the exact area that requires emphasis, and also makes the teacher aware of what to deliver on that day.	planning and storage of planned work	<ul style="list-style-type: none"> <li>• Work looks neater and clear.</li> </ul>
<p><b>Lesson delivery</b></p> <p>It involves presentation of information, knowledge and skills to the learners.</p>	<ul style="list-style-type: none"> <li>• Computers for producing the softcopies of lesson notes and storing the information.</li> <li>• Projectors &amp; Smart boards for displaying projected information ready to be received by the learners.</li> </ul>	<ul style="list-style-type: none"> <li>• Time saved.</li> <li>• Clear work presented</li> <li>• Easy learning</li> <li>• Easy to update notes.</li> </ul>
<p><b>Assessment &amp; Feedbacks.</b></p> <p>This is the act of knowing whether a learning – teaching process has taken place through testing, brain storming, exercises, etc.</p>	Computers are used to set exercises, display questions and receive feedbacks from students.	<ul style="list-style-type: none"> <li>• Better time management.</li> <li>• Improved record keeping.</li> <li>• Accessibility to a wider pool of questions and solutions.</li> <li>• It helps a teacher to know whether the students have been learning or not so as to devise other means where necessary.</li> </ul>
<p><b>Knowledge sharing:</b></p> <p>This involves exchange of ideas, acquiring new ideas, teamwork and transfer of learning.</p>	<p>Computers, phones, CD-ROMs, DVDs</p> <p>These help in easy distribution of information among individuals concerned.</p>	<ul style="list-style-type: none"> <li>• Better and new ideas acquired.</li> <li>• Quicker transfer and application of skills and knowledge.</li> <li>• Improved relations.</li> </ul>
<p><b>Report making.</b></p> <p>Involves compilation of results through the period of study (terms)</p>	Computers, flash disks and other necessary software, printers help in proper layout of information in columns, grades and positions.	<ul style="list-style-type: none"> <li>• Less effort needed than when done manually.</li> <li>• Time saving</li> <li>• Neat/clear work given</li> <li>• Easy to identify the progress of students/learners.</li> </ul>
<b>Meetings:</b>	<ul style="list-style-type: none"> <li>• Computers help to properly format the</li> </ul>	<ul style="list-style-type: none"> <li>• Neat and clear work given.</li> </ul>

<p>This involves the accessibility to students' problems and forging away forward through collective action.</p>	<p>agenda layout.</p> <ul style="list-style-type: none"> <li>Printers help to make hardcopies of the agenda.</li> </ul>	<ul style="list-style-type: none"> <li>Proper record keeping as regards the meeting outcomes.</li> </ul>
<p><b>Field Study trips</b></p> <p>This is an activity that involves students moving out of school to new places for exposure and learning experiences.</p>	<p><b>Computer connected to the Internet:</b> Students are able to experience the world and new places at the comfort of their classroom through virtual field trips. E.g. 7 Natural Wonders of the world (<a href="http://www.panoramas.dk/7-wonders/">http://www.panoramas.dk/7-wonders/</a>)</p> <p><b>CD-ROMS &amp; DVDS.</b> Information on field studies done can be stored on them for further study or revision.</p>	<ul style="list-style-type: none"> <li>Easy and quite an enjoyable study as students are stimulated by new things not seen before.</li> <li>It is cheaper than when buses are hired to transport students to further areas.</li> </ul>

### Group 5 work

Teaching/Learning activities	ICT tools	Value – Added by using the tool
Scheme of work	Computer, Ms Word, Ms Excel, Internet, printer, storage devices.	Professional, time saving, easy to edit and manipulate, neat, storage is reliable.
Lesson plan	Computer, Ms word, Ms Excel, Internet, printer, storage devices	Professional, time saving, easy to edit and manipulate, neat, storage is reliable, easy to supervise by Head of Department and Head teacher.
Lesson notes	Computer, Ms Word, Ms Excel, Internet, printer, storage devices, digital camera, smart board, scanner, phone.	More comprehensive, readable and neat, time saving, easily portable, not bulky, long life span, easy to edit and update.

Lesson delivery	Computer, Ms PowerPoint. Ms excel, Internet, storage devices, projector, digital camera, smart board, scanner, phone, TV , video splinter	More lively, easy to grasp, brings out the reality, its more student centered, its cheap, not tiresome, capture a big audience, time saving.
Lesson evaluation & assessment	Computers, Internet, email, Ms Excel- graphs, Ms Word, printers.	More accurate, time saving, easy to manipulate, better storage, cheap, easy to transfer,
Discussions groups	Computers, Internet board discussions, Ms PowerPoint, public address system, smart boards, TV , Video clips, multimedia,	More lively, easy to grasp, time saving, bridges the geographical gaps, learner centered, builds confidence and creativity.
Guidance and counseling	Computers, scanners, Ms Word, PowerPoint, video clips, Internet, storage devices, digital cameras	More lively, easy to grasp, time saving, bridges the geographical gaps, , builds confidence and creativity-being innovative, cheap
Research	Computers, Internet, Intranet, digital cameras, laptops, storage devices, scanners, audio visual recorders, palmtops, phones	More detailed and lively, cheap, encourages creativity and innovativeness, cover a wider range for comparisons. Easy to edit and update, profound knowledge sharing. You can be up to-date.
Collaborative projects	Computers, Internet, email, digital cameras, laptops, storage devices, scanners, audio visual recorders, video conferencing software e.g. Skype, yahoo etc printers	More detailed and lively, cheap, encourages creativity and innovativeness, cover a wider range for comparisons. Easy to edit and update, profound knowledge sharing
Knowledge sharing	Computers, internet, intranet, digital cameras, laptops, storage devices,	More detailed and lively, cheap, encourages creativity and

	scanners, audio visual recorders, phones, palmtops, printers	innovativeness, cover a wider range for comparisons. Easy to edit and update, profound knowledge sharing.
Field work/excursion	Computers, internet, intranet, digital cameras, laptops, storage devices, scanners, audio visual recorders, phones, palm tops, printers	Creates reality, encourages networking, easy storage for future reference, become more exposed and up to-date

**(11:30- 11:50) AM: Session 5: Plenary Facilitator Exposition: Display of some examples of digital content.**

*(Session was facilitated by Daniel Kakinda)*

The purpose of this session was to let the participants form personal opinions and impressions about what is digital content, different forms of digital content and qualities of good digital content.

Participants were asked to have the following post-viewing discussion questions as they watched the exposition on digital content:

- Q1. What is your understanding of digital content?
- Q2. What type of digital content do you know?
- Q3. What are the characteristics of digital content?
- Q4. What advantages does digital content offer for teaching and learning?
- Q5. What are the challenges of using digital content in teaching?

Daniel displayed examples of digital content which included:

- UNEB past papers and different subject past papers exams done in different schools.
- Secondary school quality learning materials for English, Biology, Chemistry and Physics from the Commonwealth of Learning (COL) website (<http://www.col.org/resources/crsMaterials/Pages/SecondLevelEd.aspx> )
- Science Simulations from the Physics Education Technology (Phet) site. (<http://phet.colorado.edu/simulations/> )
- A video clip on Dissection of a Cow's eye by students of Gayaza High School
- A PowerPoint presentation composed of photographs of Uganda Physical features.

- An animation of Faraday’s law of electromagnetic induction.
- A video clip of Bujagali Falls, on River Nile at Jinja.
- Interactive animation exercise on labeling the parts of the human ear with immediate feedback.
- A storyboard of a skit having story lines and scanned drawings of the scenes.
- A video clip of the “Bitter Fruit” skit.

**(11:50 AM – 12:30PM): Session 6- Post-Viewing Plenary Discussions on Digital Content**

Daniel led the participants into a discussion session on digital content based on the post-viewing questions. Below were the participants’ responses:

**Q1. What is your understanding of digital content?**

*Responses:*

- It is a more improved way of presenting information.
- It is the organization of data by the use of the camera.
- It is the electronic display of information by the use of computers, digital cameras etc.
- It is illustrating something from theory to practical.
- It is the electronically generated information that can be accessed through video and audio.
- It is material recorded from the environment to facilitate learning.

**Q2. What type of digital content do you know?**

*Responses:*

- Pictures e.g. the music instruments that were displayed
- Text e.g. the past papers and the storyline of the bitter fruit.
- Graphics e.g. the storyboard of the skit
- Audio and video e.g. the drama of the Bitter Fruit.
- Simulations and animations.
- Interactive assessments

**Q3. What are the characteristics of digital content?**

*Responses:*

- It is electronically stored.
- It is easy to manipulate and maintain.
- There is a high level of clarity.
- The content can be used anytime.

- The content looks real.
- It requires specific skills like scanning, video capturing.
- It can be referred to in the future e.g. the landslides in Bududa
- It requires High Order Thinking because you have to describe a given situation.
- You don't have to take a lot of time explaining.
- It requires high level planning.

#### **Q4. What advantages does digital content offer for teaching and learning?**

*Responses:*

- It is easy to grasp.
- The content is easily stored.
- It is cheaper when it comes to practical lessons i.e. in case you don't have enough apparatus.
- It is neat.
- It is easy to make changes.

#### **Q5. What are the challenges of using digital content in teaching?**

*Responses:*

- The cost of production for the digital content is very high.
- It is addictive.
- There is need to be careful when using the storage devices e.g. a simple crack on the CD can make it unreadable.
- Power problems may prevent one from accessing the content.
- Information may be lost in case the computer breaks down.
- There is need to update yourself on the different software i.e. the operating system keeps changing.

#### **(12:30 – 1:00) PM: Session 7- Facilitator's exposition and harmonization: Digital content.**

*(Session was facilitated by Daniel Kakinda)*

Daniel showed the participants 3 more examples of the digital content ; a simulation on measurement of time of oscillation of a spiral spring, interactive exercise on using a Vernier Caliper to measure internal and external diameters of objects, a Virtual Reality (VR) model of a house with real time interactive music system.

He thereafter asked for participant's comments on the 3 above examples.

*Responses:*

- It is self-help content i.e. you can teach yourself.
- There is interaction with the content.
- It requires basic knowledge and skills to use it.

Daniel noted the following:

- Simulations and Virtual Reality are also a form of digital content. Digital content can be in form of text, graphics, audio, video, animation, simulation, Virtual Reality or a combination of these.
- Some digital content is interactive while some is not interactive.
- Good and interactive content creates a favorable environment for self-paced learning.
- Digital content can be made multimedia. In the multimedia format, it makes learning easier because it engages more senses. The more senses engaged, the easier the understanding.
- Producing digital content gives an opportunity for one to use colours. Proper choice of colours increases the beauty of content which makes the content interesting to look at especially for women.
- Digital content is a non-rival good. Many people can use the same content simultaneously. The use of the digital content by one person does not diminish the quantity available for others.
- The cost of sharing digital content is minimal, you just need to copy and paste to a new storage device.
- The initial cost and time of production of digital content is high but the time can be reduced by collaborating with other people.
- Production of digital educational content requires both technical and pedagogical skills.

Daniel provided some possible solutions to some of the challenges of using digital content that the participants had mentioned as below:

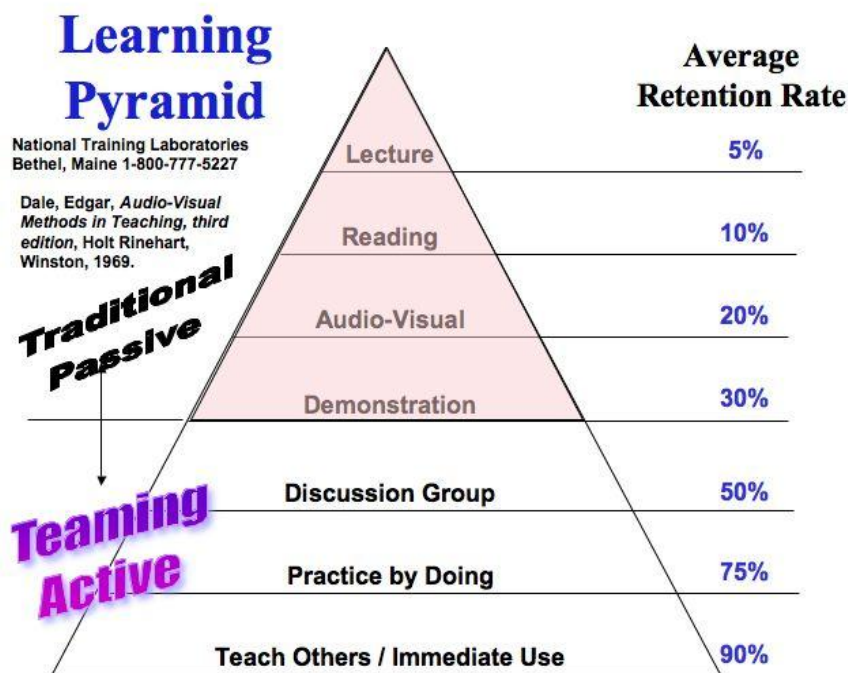
- Challenge of power: Schools can use electric inverters as a source of power back-up which can be used to run some minimum equipment when the mains power is off.
- The need to update oneself on the new programs: It is true that new Operating systems and productivity tools come to the market everyday but content made using older versions can be read by new versions of the software. Teachers don't need to need to chase the technology.
- Loss of information in case of a computer breakdown: there is need to have a backup for your information i.e. always have copies of your information on a flash disk, email, CDs etc. It is also always important to have updated anti-virus software.

**(2:00-2:30)PM: Session 8- Facilitator Presentation: The Learning Pyramid, 21<sup>st</sup> Century teaching and learning and 21<sup>st</sup> Century educator.**

*(Session was facilitated by Daniel Kakinda)*

Daniel explained the Learning Pyramid, 21<sup>st</sup> century teaching and learning and the characteristics of a 21<sup>st</sup> century educator.

**Learning Pyramid:**



**Fig 3 : The Learning Pyramid**

The Learning Pyramid (adapted from National training Laboratory. Bethel, Maine) gives the pedagogical justification for using participatory teaching methods as opposed to passive teaching methods.

Learners retain approximately:

- 90% of what they learn when they teach someone else and/or use the information immediately.
- 75% of what they learn when they practice what they learned.

- 50% of what they learn when engaged in a group discussion.
- 30% of what they learn when they see a demonstration.
- 20% of what they learn from audio-visual.
- 10% of what they learn when they've learned from reading.
- 5% of what they learn when they've learned from lecture.

## 21<sup>st</sup> Century Teaching and Learning

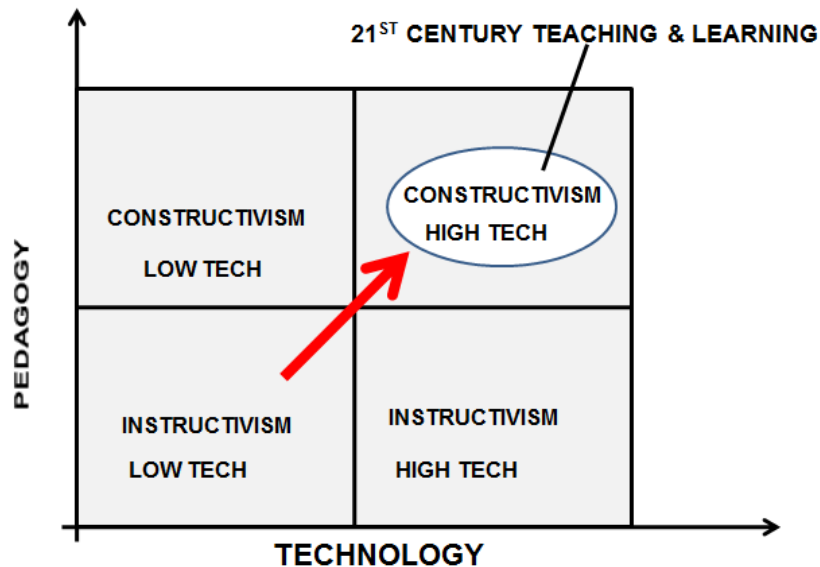


Fig. 4: 21st Teaching & Learning

Daniel cautioned participants that 21<sup>st</sup> century teaching and learning is not just about using technology but requires both the use of technology and change of pedagogy from instructivism to constructivism. The ICT4E workshop is aimed at building the participants' capacity for 21<sup>st</sup> century teaching and learning by improving both their pedagogy and their technology literacy.

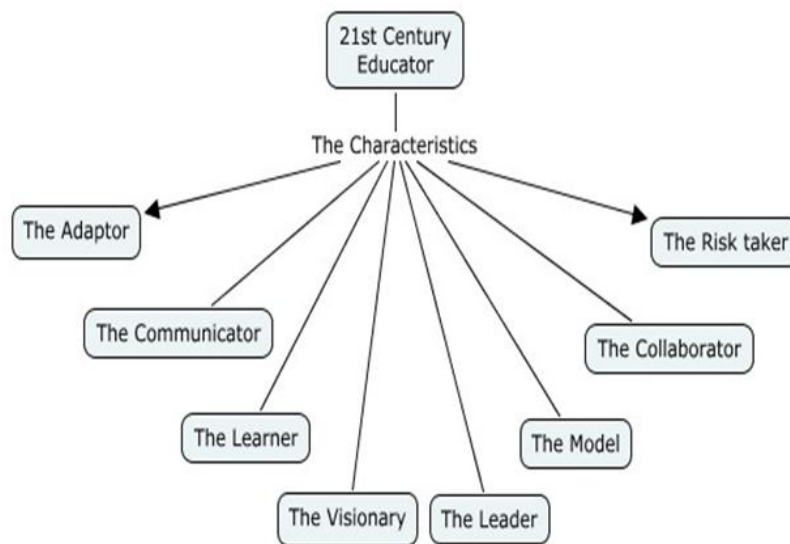
### The Characteristics of the 21<sup>st</sup> century educator

From the days of Socrates, characteristics of good teachers have included among others:

- An unquenchable thirst for knowledge – in order to teach better.

- A positive attitude towards teaching and a passion for teaching.
- A passionate commitment to foster learning in each individual student regardless of their perceived “ability”.
- A skilled preference for asking provocative questions rather than preaching answers.
- A life-long habit of reflection, self-assessment and personal growth.

Teaching in the 21<sup>st</sup> century, however brings with it additional challenges that previous generation of teachers did not face, and new critical success factors.



**Fig. 5 : 21st Century Teacher**

In addition to the long-term characteristics of good teachers, the 21<sup>st</sup> century teachers have to have additional characteristics:

*The Visionary:*

- Have a clear personal vision of their role, why they teach and how their teaching affects their students’ learning.
- Looks at other teachers’ ideas and envisage how they would use them in their classes.

- Looks across the disciplines (subjects) and through the curriculum, making links that would leverage and reinforce their own teaching and the learning of their students.

*The Adapter:*

- Must be able to adapt the curriculum and teach the curriculum innovative ways.
- Must understand students have different learning styles and must be able to adapt the teaching style to be inclusive of the different learning styles.
- Should change focus from learning objectives (what the teacher intended to cover by the end of the lesson) to learning outcomes (how different are the students at the end of the lesson from how they were at the beginning of the lesson in terms of knowledge, skills and attitudes).

*The Collaborator:*

- Must collaborate with fellow teachers across the country and across the global for the purpose of networking, knowledge, resources and skills sharing.
- Should be comfortable in using digital collaborative tools like the Internet, email, blogs. Wikis, social networks like Facebook etc.

*The learner:*

- Must be a long-life learner, continue to learn new and up-dated knowledge, acquire new skills like technology literacy, media literacy needed to be functional literate and competitive in the technologically driven information society.
- In the age of the Internet, memorizing facts from books just to re-transit them to students is a pointless activity. Teachers need to be information literate. Information literacy is the ability to realize the need for certain information, identify possible sources of the information, search for the information, analyze the information for its authenticity, correctness and relevancy, repackage the information in the most appropriate format and share it.

*The model:*

The 21<sup>st</sup> century teachers must model the behaviours that are expected of the students; tolerance, collaboration, team work, passion for work, global awareness, cross-cultural understanding and sensitivity etc. the must “walk the talk”.

*The Risk taker:*

In this very fast changing globalized world, teachers can't know everything. They must at times risk and break down the power structures and learn with or learn from

the students. They may need to use the students to help them navigate and understand new products and have students teach each other. They need to move from “sage on the stage” to facilitator on the sides.

*The Communicator:*

- Teachers need to have good listening, writing and presentation skills.
- Must be fluent in tools and technologies that enable communication and collaboration.

**(2:30 – 4:00) PM: Session 9- Small Subject Groups Hands-on Activity: Scavenger Hunt: Exploring Digital content on the Internet.**

*(Session was facilitated by Chole Richard and Ddungu Ronald)*

Participants were asked to form small groups with a maximum of 3 people. Group members had to have some teaching subjects in common.

Members in each group had to do a scavenger hunt for digital content (content notes, assessments, animations, simulations, interactive activities etc) on the Internet on a curriculum area; they were going to cover in class in the coming term.

Each group was asked to do the following:

1. Browse through and evaluate the digital content that they found useful.
2. Create a Word document, copy and paste the web links or addresses in word and write a small annotation about the link.
3. Note down how they would use the digital content they found in their teaching.
4. Note down any shortcomings with the digital content they explored.
5. Send the Word document by email to the facilitators copied to the group members.

Facilitators gave guidance and assistance on a needs-basis.

**(4:00 – 4:30) PM: Session 10- Plenary Reflection: Sharing experience with the Internet Scavenger Hunt.**

Participants were told to share their experiences on the Internet scavenger hunt for the digital content:

Below were the participants’ experiences:

- There was so much information on geometry which could divert our mind and some of the information you had to pay for it.

- It was a “*trial and error*” kind of search i.e. we would open a link and not find what we wanted then close and open another one.’
- I liked the format of the content on germination i.e. Objectives of the lesson, Content, Students’ Assessment Questions and Summary.
- It requires patience because the Internet was very slow when downloading information.
- Some of the information was not updated.
- A lot of information is acquired but relevancy matters to the learners.
- I acquired new knowledge on World War 1 which I have even never taught my students.
- I acquired new knowledge for my learners which I can use even without the Internet.
- I was used to the Cyber Technology Solutions which maps for us information but I can now do research on my own.
- Sometimes the data you want to download doesn’t come.
- Some page look so appealing but disappointing when you don’t get the information on the page.
- It took me ten minutes to get the simulations.
- I struggled to get the links that I wanted i.e. the computer continued to download when I was attaching the email.
- I learnt that being theoretical isn’t being practical, the person we thought was the computer wizard in the group also got stuck, when we were accessing information.
- It was exciting to see photos related to CRE.
- I wasn’t aware that you can get any information you want from the Internet.
- It was exciting to see soldiers in simulations for the World War 1 and this created a fear in me that controlling the students may be difficult.
- The exercise was time consuming because the video we watched played for a long time.
- I learnt that if you type a sentence you don’t get the information you want but you need to be specific on a certain issue by using just key words.
- I learnt how to work in a team, each one of us wanted to research on a given topic and we had to decide on what to research about.
- I was disappointed when the information was provided in a language that I don’t understand.

Daniel thanked the participants for sharing their experiences and the websites they found relevant to their teaching. He cautioned the participants that though the Internet is a global resource of information, it requires teachers and students to have new skills like information literacy and technology literacy.

Daniel told participants that it was important to note that:

- Finding very specific information relevant to the curriculum was not easy, therefore there is need for teacher to collaborate with others to share the Internet resources they have found useful.
- Not all information on the Internet is correct, up-date as people usually say. There is need for the teachers to always evaluate the information found on the Internet for its currency, correctness and authenticity

**(4:30 – 5:00) PM: Facilitator’s Presentation: Critical Human Issues when introducing ICT4E in schools.**

*(Session was facilitated by Daniel Kakinda)*

Daniel reminded participants that one of the reasons why their schools had sent them to the workshop was that the schools believed that they would be torch bearers on return to their schools to guide the schools on how to use ICT4E to enhance teaching and learning for better educational outcomes.

Daniel explained that schools have a number of issues to consider when introducing ICT4E including policy, infrastructure, technology, content and human issues. Schools have to consider all these issues as the draw up their Action Plans.

Daniel explained some of the critical human issues which must be considered when introducing ICT for education (ICT4E) and these included:

- *Teachers’ attitude to change:* Use of ICT may require teachers to assume a new role and relinquish more content than they feel uncomfortable doing.
- *Fear of change:* “I have got this far without ICT. Why do I need it now?”
- *Fear of commitment:* “I don’t have the time to learn ICT. ICT will take most of my time”
- *Fear of appearing incompetent:* “The students may know more than I do”.
- *Fear of technical aspects i.e. jargon and equipment:* “What is dot.com? What if I prepare a lesson and equipment fails me?”
- *Fear of not knowing where to start:* “Where can I get good website for African History?”
- *Fear of having to acquire much knowledge even before being able to start:* “How can I use a computer for research? I don’t even know how to type”.
- *Give me a fish syndrome:* “My students don’t want to do research .They just want me to give them the right answers”
- *Change of power structures:* “How can I learn with or from my students?”

“Buying computers can be expensive but is the easiest part of introducing ICT4E in schools, the most difficult part are the human issues. Technology is easy but people are difficult” concluded Kakinda Daniel

### Day 3: Wednesday 19<sup>th</sup> May 2010 Programme

Time	Activity	By Whom
8:30 -8:50 AM	<b>Process Journal:</b> Participants' reflection on the Day 2 activities.	Participants
8:50 - 9:20AM	<b>Plenary Session:</b> Sharing of Personal Journal Entries	Participants
9:20 - 10:00AM	<b>Plenary Inspirational talk:</b> Personal testimony- How ICT4E has impacted by professional and personal life.	Chebet Milton
10:00 – 10:40 AM	<b>Plenary Facilitator Presentation:</b> Teacher-Centred Instructions, Student- Centred Learning and Inquiry-based Learning	Daniel Kakinda
10:40- 11:00 AM	HEALTH BREAK & BREAK TEA	
11:00 – 12:00 PM	<b>Plenary Facilitator Presentation:</b> Introduction to Project based learning and the role of the teacher in Project-based learning.	Daniel Kakinda
12:00 – 1:00 PM	<b>Plenary Facilitator Sharing:</b> Projects I have been involved in.	Ddungu Ronald
1:00- 2:00PM	LUNCH BREAK & LUNCH	
2:00 – 2:50 PM	<b>Project Exhibition:</b> Projects that made it to Uganda Innovation Teachers' Forum, the Africa Innovative Teachers' Forum and to the World Innovative Teachers' Forum.	Milton Chebet, Solomon Bumba and Ronald Ddungu
2:50 – 4:00 PM	Plenary Exposition: Sharing of cases of Integrating ICT in the classroom (Geography and English Literature)	Ssemwogerere Charles, Solomon Asea and Kellen Busingye
4:00 – 5:00 PM	Participants' Refection: Sharing learning points from the day's sessions	Participants
	<b>EVENING TEA AND END OF DAY 3</b>	

**(8:30- 8:50) AM: Session 1- Process Journal: Participants' reflection on the Day 2 sessions.**

Participants were asked to reflect on the training sessions of Day 2 of the workshop and to write the reflections in their Process Journals using the guiding questions below:

Q1. What activity did you like most on Day 2?

Q2. What aspects of the activity you liked most made you like it most?

Q3. What activity did you find the least interesting?

Q4. What aspect in that activity you found least interesting made you find it the least interesting?

Q5. Which new ideas /concepts did you learn about ICT for education (ICT4E) on Day 2?

Q6. What new skills did you acquire on Day 2?

Q7. How did the activities on Day 2 change your attitude towards the use of ICT4E for teaching?

Q8. Which of the methodologies that promote the 21<sup>st</sup> century skills did you notice being used by the facilitators?

Q9. Did you find anything surprising?

Q10. Anything else you would like to reflect on?

**(8:50 – 9:20) AM: Session 2 - Plenary Session: Sharing of Personal Journal Entries.**

Eight participants on a voluntary basis read out what they had written in their Process Journals.

Below are the participants' reflections:

*“Scavenging was the most interesting activity for me because I did it myself and had hands-on experience. The new idea I got from ICT4E was how to be resourceful by using the equipment and building content through surfing. I realized that all subjects can use ICT4E so I promise myself to go mad with it. The methodology I noticed the facilitators using which promotes 21<sup>st</sup> century skills was the use of digital content. I realized that I need to thank God for my life after seeing Nick’s inspirational talk and I*

also realized that classroom control would be difficult if the computer lab is not well organized” (Birungi Margret, Masindi Secondary School)

*“The most interesting activity for me was the Scavenger hunting because it was a hand-on activity. The least interesting activity was the evening tea because it interfered with my scavenger hunting. My attitude as a teacher towards ICT4E has changed in a way that I have learnt that it’s all about me and not about other people. My surprise was when the Internet failed to attach a Microsoft word document of one page and took 45 minutes to attach and I was also surprised that there are few computers working in the computer lab”* (Senyonyi Moses, Trinity High School)

*“The most interesting activity for me was sharing individual findings about scavenging because of the disappointments the individuals in the group faced and what interested them about the activity. The least interesting activity was the scavenger hunting because of slow internet connectivity, and lack of skills. The new ideas for ICT4E that I learnt was using digital content for education  
The new skill that I acquired was how to use digital content for education, how to look for information from the Internet. I learnt that I should not be the sole provider of information but I can involve the learners in looking for useful information. The challenge that may befall the participants is failing to be competent as per the demand of the workshop”* (Atuhairwe Grace, Kitara Secondary School)

*“Nick’s testimony was challenging to me and I saw that if he can do different things without limbs, how about me with arms and it is an inspiration to the disabled students. The most interesting activities were the group discussions and active participation in looking for information (scavenging). When scavenging, the Internet was very slow and it denied access to the websites that we thought were most relevant to us. I learnt how to sending data using the Internet in multiple forms. I discovered that working in isolation might not be good and that it is important to use discovery methods to find information. I also learnt that ICT4E cannot be fully relied upon since it has frustrating issues; such as failure to access information”.* (Kageo Geoffrey, Karambi Secondary School)

*“Exploring the subject content was using the computer was the most interesting activity for me. The new ICT4E idea that I learnt was the change of power structure i.e. learnt that teachers can learn from the students. The new skills that I acquired were coordination and organization skills. My surprise was that we were told to leave the computer lab at 10 PM and yet the facilitators had told us that we can leave the computer lab at mid night”* (Achiro Everline, Awere Secondary School)

*“The most interesting activity for me was identifying the ICT tools and matching them*

*with the learning and teaching activities because I found out that it is not all about having all the equipment but having the equipment relevant to you. Nick's testimony was challenging to me and saw that if he can do different things without arms, what about me with arms. The new ideas for ICT4E that I acquired were the use digital content to teach, the characteristics of the 21<sup>st</sup> century educators and the formula for change (vision + skills + motivation + resources + action plan =change). As teachers we need to be committed to cause change. I have learnt that there is no way out for the teachers to avoid ICT" (Nsereko Ismail, Bukomero S.S)*

*"The most interesting activity for me was the scavenger hunt and I learnt that knowledge sharing is very important while searching for information. The frustrating bit in the scavenger hunt was denial to access information that was the most relevant in some of the websites. I learnt that with ICT, lessons can be student- centered and the students can work for long hours on their own. I discovered that as a facilitator, I need to do a lot of research. I was surprised that when you miss a single letter when researching, the computer doesn't give you what you want and hence you need to be precise. I learnt that ICT is for everybody and not only for science teachers" (Nakintu Agnes, Kitara Secondary School)*

*"I learnt that it is difficult to get the learners from the computers. I also learnt that as teachers, we should take caution of the human issues that may affect us from moving forward. The new skills that I acquired are networking skills and organization skills. The surprise I got is failing to access the content that you are interested in" (Aleml Michael, Arua Public School)*

### **(9:20 – 10:00) AM: Session 3- Inspirational talk: How ICT has impacted on my professional and personal life.**

*(Personal testimony by Milton Chebet).*

Milton Chebet, a Biology and Physical Education teacher of Gayaza High School said that he started using ICT4E in 2006 when he met Daniel Kakinda when he had just joined Gayaza High School and Daniel has been his mentor ever since.

"ICT is not only about teaching the learners but also for personal professional development" said Chebet.

He showed the participants a video clip showing the trends of ICT. The computer which used to almost occupy a room is now very small in size, mobile phones have become powerful instrument and now Internet can be used as a campaign tool like in the Obama presidential campaigns.

Milton told the participants that he got into ICT because of the circumstances. He was tired of paying people to type his course work at the University and the very many typing

errors they would make in his work. He therefore started tying his work. He had attended CCA at Makerere University. Lessons would start from midnight to morning but he didn't acquire a lot of skills because the lectures would come for one or two hours.

At Gayaza High School, he always took advantage of all the ICT workshops that were organized by SchoolNet Uganda and also took advantage of the SchoolNet Uganda teachers' mailing list and the opportunities on the mailing list.

"I never leave any opportunity on the mailing list unattended to" Milton added.

He encouraged the teachers to buy personal ICT targets like computers and digital cameras by saving a small amount from their salaries. He bought his first computer from SchoolNet Uganda at 250,000 shilling but now he has two laptops which he won last from at the Innovation Teachers competitions. He won a laptop at the Uganda Innovative Teachers' Forum and at the African innovative Teachers' Forum which was held in Mauritius.

Milton gave some ways in which schools can use ICT4E:

- Documentation of school project and activities. He documents every function he attends and every activity that he and his students do.
- Digitalizing notes.
- Typing your own exams.
- Digitizing schemes of work.
- Use the internet for note making.
- Collaboration e.g. online collaboration: He posted some of the projects he was doing on the IEARN forum; people got interested in the projects and started collaborating with him.
- Use of emails: he created a class email in 2007 for his biology students where he gives them work and they email it to the classroom email where all the students in the class can access the information.

Chebet said that students today are technology savy and the teachers need to be ICT fluent in order to meet the needs of the students.

Milton Chebet shared the following as some of the ways in which ICT had changed his teaching:

- He uses digital notes.
- He uses PowerPoint to arouse learners' interest.
- Sometimes he uses audio as a spice for learning.
- He involves his students in project-based learning and this imparts a lot of knowledge and skills to them.
- He gets more learning resources from the Internet.
- He uses various software e.g. Hot Potatoes to produce interactive student exercises.

- The students demand that I teach them.

Milton shared with the participants how ICT4E has impacted on his personal life:

- He has attended both national and international workshops.
- He has gone to places through ICT e.g. Accra, Ghana in 2008 for the African Innovative Teachers' Forum. This was his first travel by air.
- He traveled to Brazil in Nov 2009, to attend the Microsoft World Innovative Teachers' forum.
- He competed in Mauritius at the Africa Innovative Teachers Forum courtesy of Microsoft in August 2009 after winning in Uganda Teachers Forum in March 2009 Awards. He was one of the winners in Mauritius.
- He has learnt how to interact with very many people and has created links with many people across the globe.
- He has acquired ICT tools e.g. He got two laptops in one year (2009) and also helped the school acquire a Smart Board in a competition.
- He has facilitated at a number of ICT4E workshops.
- He has learnt documentation using digital devices such as cameras and camcorders.

*"There is no heavier burden than unfulfilled potential"* Milton concluded

### **Questions and Answers**

The participants had the following questions for Milton:

*Q1: Can you give us examples of the projects that you have been involved in?*

*Response:* There will be a mini exhibition in the afternoon and I will exhibit and share some of my projects.

*Q2: How possible is it for us to get the Hot Potatoes software?*

*Response:* The software is on the Gayaza High school computers, all you need is a CD to take the software. Please share it with the other teachers and schools. The software can also be freely downloaded from the Internet (<http://hotpot.uvic.ca/index.php>).

*Q3: I bought a mobile phone which is Internet-enabled but I have never used it. Can you help me to connect to the Internet?*

*Response:* With technology, you have to be passionate; you should take the initiative to make use of your phone. I will to help you during lunch time.

**(10:00 – 10:40)AM: Session 4 – Plenary Facilitator Presentation: Teacher-Centred Instructions, Student- Centred Learning and Inquiry-Based Learning.**

*(Session was facilitated by Kakinda Daniel)*

**Teacher– centred Instructions**

Daniel reminded participants that most schools in Uganda use teacher-centred instruction which can be characterized by some of the following:

- There is direct transfer of knowledge (facts) from the teacher to the student. The teacher’s role is to dispense knowledge and the students’ role is to receive knowledge. Students listen and repeat the expected answers.
- Students complete activities designed by teachers to achieve goals determined by the teacher. Students respond to direction and step by step instructions from the teacher as they progress through activities.
- Teaching focuses on the delivery of content resulting in teachers focusing on completion of the syllabus rather than focusing on students’ understanding of the syllabus.
- Students are evaluated solely by the teacher and are given extrinsic motivations like grades and rewards as a means of motivating them to do work

Teacher-centred instructions poorly promote student learning. It is no surprise that a number of students find schooling in Uganda uninteresting.

**When do students learn best?**

Participants were asked when students learn best and they had the following responses:

Students learn best when they:

- Have hands-on activities backed with minds-on activities.
- Do activities based on themes e.g. environmental degradation.
- Are allowed to share their skills and knowledge with peers.
- Use their environment as a learning tool.
- Are engaged in brainstorming activities.

As a way of harmonizing, Daniel noted that students learn best when:

- They are engaged in meaningful hands-on experiences that are combined with minds-on reflections.
- They are allowed to express themselves through multi-media (text, audio, video and pictures).

- They care about the content of their study and are given an opportunity to pursue questions that are important to them.
- They are engaged in real work produced for real audiences.
- They use the community as a laboratory for learning.
- Their talents and expertise are valued and are used to teach peers in collaborative setting.
- They have multiple opportunities to practice skills and talents within the real world context of their work such as interviewing different people in different situations.

### **Student-centred Learning**

Daniel noted that as a way of improving learning in Uganda schools, teachers have to change their instruction strategies from teacher-centred instructions to student-centered learning. Student-centred learning is characterized by some of the following:

- The student is in the driver's seat of the learning process. Student involvement and participation are necessary for learning. The teacher becomes a resource person and a facilitator.
- Relationship between students is more equal promoting collaboration, team work and peer-to-peer teaching and learning.
- Emphasis is on learning skills including the skill of "learning to learn" and not learning facts.
- The learner sees herself/himself differently as a result of the learning experience. Emphasis is on learning outcomes that learning objectives. Learning outcomes look at how different is the student in terms of knowledge, skills and attitudes as a result of the learning experience.

### **Inquiry-based learning**



**Fig. 6 : Inquiry-based learning**

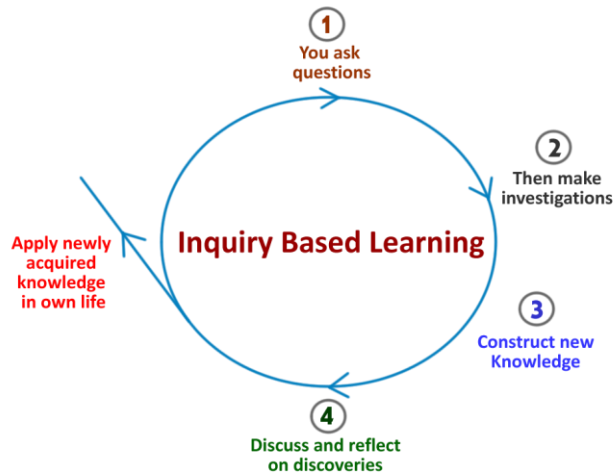
Participants were shown the above photograph predicting Inquiry-based learning and then asked what they understood by Inquiry-based learning and their responses were:

- Students finding out on their own.
- Students experience and discover on their own.
- It is discovery learning involving peer to peer education.
- It is discovery out of one's inquisitiveness.
- It is being curious and inventing.
- It is making observations about something.
- It is discovering something and formulating questions about it.

As a way of harmonizing, Daniel described Inquiry-based learning as:

- The process of formulating questions, organizing ideas, exploring and evaluating information, analyzing and synthesizing data and communicating findings and conclusions.
- It is a process where learning is achieved through questions generated from the interests, curiosities, concerns and experiences of the learners.
- When investigations grow from the learners' questions:
  - Learning becomes an organic and motivating process that is intrinsically enjoyable.
  - The learner will apply the newly acquired knowledge in own life and take concrete action in the world.

Inquiry- based learning involves the following:



**Fig, 7: Inquiry-based learning cycle**

- 1) Observation and asking questions
- 2) Making investigations
- 3) Constructing new knowledge
- 4) Discussing and reflecting on discoveries
- 5) Applying the newly acquired knowledge.

**(11:00 AM -12:00 Noon): Session 5: Plenary Facilitator Presentation: Introduction to Project based learning and the role of the teacher in Project-based learning.**

### **Project Based Learning**

Daniel described project based learning as one that combines learner-centered learning and Inquiry-based learning has the following essential components:

- A driving question that is anchored in a real world problem and is multidisciplinary.
- The community becomes the classroom and a learning source.
- Collaboration among students, teachers and others in the community.
- Cognition tools like ICTs are used in a meaningful and innovative way.
- It culminates into a product or artifact e.g. website, documentary etc. that meaningfully addresses the driving question.

### **Elements of a Project-Based learning experience.**

The elements of the project based learning include:

- An open-ended question or issue that is relevant the students' lives and of social importance.
- Real world use of technology.
- Student- centered learning and deliberate engagement of students' voice.

- Collaboration and team work towards a common goal.
- Multi-disciplinary components.
- Long- term time frame.
- Out-come based with an artifacts or product, presentation or action as a result of inquiry.

### **Process of Project-Based learning**

The process of the Project-Based learning involves the following steps:

- Debating/brainstorming to identify a real world issue or problem.
- Designing plans, experiments and questions for inquiry. Collecting and analyzing data.
- Drawing conclusions from data and reflecting experience.
- Communicating ideas and findings to others.
- Creating artifacts.
- Exhibition of artifacts to the community and taking action.

### **Role of the teacher in Project-Based learning**

In Project-Based Learning, the teacher is a facilitator and should:

- Model interest and enthusiasm for learning.
- Provide students with the resources i.e. contacts information of people, equipment, transport etc.
- Nurture an environment that support open inquiry.
- Discuss the difficulties the students encounter and offer appropriate guidance.
- Identify students' training needs (knowledge and skills) e.g. equipment skills, investigation skills, and collaborative skills and conduct the necessary trainings.
- Judge the students' morale and decide on motivating measures needed.

### **(12:00 – 1:00) PM: Session 6- Project- Based Teaching: Projects I have done with my students by Ronald Ddungu.**

The aim of this session was to give the teachers an exposition to some of the Projects teachers are involved in.

Ronald mentioned some of the projects he has been involved in with his students which included:

#### **EQUITY IN SCHOOL PROJECT**

This project was carried out by the Senior Five Mathematics class in 2007. It mainly looked at equity problems in Gayaza High School which divide the girls. This included

hair, family background, parent influence in school, leadership positions, the students' club you belong to because some are for the rich and many other issues. The class of 48 girls was divided into 6 groups and assigned the responsibility of designing a questionnaire that was used to collect the views of the students about the inequity issues in school.

The findings were analyzed within the Math statistics classes that were held within the computer lab making use of Microsoft excel software and the most frequent issues singled out as most important. The students also discussed possible solutions to the problems which we were to focus on during our peer sensitization workshops the following year and made presentations to the school using PowerPoint slides. The school hoped to make itself a better place by informing the school about the findings and implementing the solutions.

One of the outcomes of this discussion was the need to open our students to the communities to learn about community problems. This finally gave rise to the famous Gayaza High School mathematics project that enables of Senior One (S1) students to teach in a nearby primary school. This has showed the students that the majority of our communities live below the poverty level and it is their duty to change this and thus there is no need to foster inequity within their communities.

The second big outcome was the need for the administration to encourage students' clubs within schools. These clubs would open the students to the real life issues that may not be taught in class. Hence the school has a club council which is composed of all the club presidents and they hold several meetings to discuss how clubs can collaborate to forge more unity than disunity.

## **MY NAME PROJECT**

This project was carried out by the S1 class 2007. They mainly had to write about the origin and the meaning of their name including the impact of their name on their lives.

The students had formal discussions with their parents requesting to know the meanings of their names. Some students reported that they had to make trips to their villages to visit the grandparent who had the history of their names.

At the end of the project, a website was to be created to share the meaning of Ugandan names globally but this never took place because of lack of skills and it was increasingly difficult to get someone to teach both the teacher and the students. It is a worthwhile project for anyone to continue.

## **CITYARTS Pieces of Peace.**

The Senior Six students in 2007 painted pictures showing peace for purposes of fostering peace amongst people. We sent these paintings to Cityarts ([www.cityarts.org](http://www.cityarts.org)) whose headquarters are in New York to be included on a students' mural and website. This helped to give the school and the students a global face and the girls appreciated their skill and worked harder in their class work. These paintings were later on used to

produce season greetings cards and one of our own paintings was the most selling card.

### **STREET CHILDREN PROJECT**

This project was done by the iEARN ([www.learn.org](http://www.learn.org) ) and People to people clubs ([www.ptpi.org](http://www.ptpi.org) ). The students visited the street children in one of the suburbs, Kisenyi in Kampala and talked to them about the reasons that led them to the streets. This gave an insight to our students about the plight of the children in the different homes in Uganda and outside. Later on the students organized to have an Easter party for the street kids in this area and they carried food and drinks and shared a meal with them. Having a meal with street kids caused a lot of wonder within the students about the future of these kids and the students appreciated how lucky they were. The students reported about this activity in the iEARN forums to discover what happens in the other countries. They received some responses and this helped the students to place our problems within the global picture.

### **ENVIRONMENTAL EDUCATION PROJECT**

In this project, the students planted fruit trees around the sports field at our school and in a nearby primary school. These tree gardens were to be used as classrooms and some lessons were conducted within these gardens. However, not all the trees have been able to grow due to negligence in care and some trees are already bearing fruit enjoyed by both the teachers and students. The mathematics and physics lessons that were piloted have been documented for future reference. It is hoped more teachers will use these gardens to deliver their lessons hence inculcating the need to conserve our trees for the next generation to enjoy. This could be one of the cheapest ways of fostering environmental education within our schools.

### **WATER PROJECT**

This is a current project involving teachers across schools discussing the need to conserve water in our schools and the importance of using clean water. Each teacher is working with a group of students teaching them about water issues and seeking to develop commitment among our students to save, conserve and recycle water and also use only clean water. This project has also taken the students to their communities to assess the availability of water within these areas. The teachers and their students are connecting online using internet based classes created at [www.nicenet.org](http://www.nicenet.org) and discussing each other's situation. The teachers are developing lessons within their classes that can bring these water issues into the teachers' lesson. We hope to document these for further reference as a means of introducing environmental education within our schools.

## **THE TEDDY BEAR PROJECT**

During the bad times of fires within schools, the iEARN club decided to send a Teddy Bear to travel across schools sending peace messages. It travelled across six schools sending and collecting peace messages. This project was teaching students how to write a journal since they had to report about its stay in school for the two days and the places it visits. This project connected Gayaza High School to these six schools and we learnt a lot about them but we are also sure the students in these schools loved our interest in their school. Such a project teaches students to respect what they have since other people are also interested in their school.

## **POETRY PROJECT**

In this project, the students recorded students' poems that can be used to teach poetry within our classes. This enhances the students' presentation skill because it is creating a product to be viewed by others.

## **SCIENCE PRACTICAL PROJECT**

In this project the students documented presentations of the good students explaining how to go about selected practical sessions. So far they have been able to document one session in the O'Level chemistry and physics subjects. These act as peer teaching resources which enhance students' learning but also make the bright students more helpful to their colleagues and the school.

## **COMPUTER LITERACY FOR ALL PROJECT**

This project uses students to teach computer basic skills to the primary school teachers in Nangabo sub-county. The students practice their skills but also learn to help adults within their communities.

The second arm of this project trains the non-teaching staff in computer literacy which is an attempt to improve performance in the school. The Dining room, farm and compound staff can now create and type reports and send them to the officer in charge with great ease.

## **FOOD SECURITY AND SKILLS DEVELOPMENT PROJECT**

The foods and nutrition club goes out to the community to teach basic baking skills and also discuss the need to have food security to the parents and teachers within our nearby primary school community. The teachers and parents who were trained last year boast of having started businesses and are financially empowered. Our students learnt about how to empower your communities and can replicate such programs in other areas.

**(2:00 – 2:40) PM: Session 7 - Mini Exhibition of Uganda Innovative Teachers Projects.**

*(Session was facilitated by Ronald Ddungu, Milton Chebet and Solomon Bbumba)*

In 2008, four Uganda teachers namely; Charles Yakani, Milton Chebet, Ronald Ddungu and one other Uganda teacher participated in the Africa Innovative Teachers' competition which was held in Accra, Ghana courtesy of Microsoft Partners In Learning (PIL). Ronald Ddungu become a winner in the Community category and represented Africa at the world Innovative Teachers' competition which were held in Hong Kong where he became 2<sup>nd</sup> runner up.

In 2009, three Uganda Innovative teachers namely Richard Bukenya (a music teacher from Gayaza High School), Milton Chebet (a Biology teacher from Gayaza High School) and Solomon Bbumba from Revival Grammar School, participated in the Africa Innovative Teachers' Competitions which were held in Sir Seewoosagur city, Mauritius. Ronald Ddungu of Gayaza High School, one of the Africa continental judges for the 2009 Africa Innovative Teachers' competitions

Milton Chebet won the Gold (1<sup>st</sup> –best) award in the Community Category with his project "Preservation of African Medicinal Plants" at the African competition and represented Africa at the World Innovative Teachers competition which was held Nov 2009 in Brazil.

The purpose of the mini-exhibition was to give the participants an exposition to some of the projects which had been presented at the Innovative Teachers' competition and to provide participants an opportunity to interact with the previous winners.



**Fig. 8: Ronald Ddungu exhibiting the Education For Sustainability Project**

Three projects were exhibited namely:

### **1. Education For Sustainability (Kadongo Project) by Ronald Ddungu**

Ronald took participants through the Education For Sustainability project which involved using the Gayaza High School S1 students to teach Mathematics to pupils of a nearby Kadongo Primary School as part of community service by the students. The Gayaza High School students type the revision questions they use and make available enough copies to the pupil which enhances availability of learning resources.

Gayaza High School has provided stationery in terms of pens, pencils, books, realms of paper and rewards for good performance which support the classroom activities. The project has also seen Kadongo Primary School receive items like type writers, a duplicating machine, stencils and ink to enhance the school activities.

The project has benefited both the primary school pupils and the S1 students. It has improved the pupil attendance at the primary school and the pupils' interest and performance in Mathematics. The S1 students are more confident in discussing Mathematics, revise their Mathematics regularly, have interacted with community members and have come to realize there is a lot they can do to make a difference in their communities.

.Ronald presented the project at the 2008 Africa Innovative Teachers' competition held in Accra, Ghana and was the best in the community category. The project was 2<sup>nd</sup>

runner up at the World Innovative Teachers event which was held in Hong Kong in 2008.

## **2. Preservation of African Medicinal Plants by Milton Chebet**

The objective of the project was to work with students to identify different medicinal plants, their medicinal value and to conserve them on the school compound.

The students were involved in a number of activities including:

- The students identified the different types of trees, searched on the Internet for their medicinal value, scientific names and made PowerPoint presentations.
- The students consulted the elderly people in the village about medicinal value of the trees because they wanted to combine and document the information that they had acquired from their research with that from the elderly and document it.
- The students visited the Botanical Gardens in Entebbe for information about medicinal trees and their scientific names from the Botanist and shared it on the IEARN forum.
- They students visited herbalists to find out which trees they use for the different herbs.
- The students went to a supermarket to see the medicinal products that are made from the different trees.
- After all that, the students tagged all the trees on the school compound with their scientific names and their medicinal value.

Milton noted that the project was ongoing and it took three months and through the project, he and his students acquired the following skills:

- Leadership skills
- Research skills
- Presentation skills

Milton concluded by saying that teachers need to involve the administration in the projects because projects require time and sometimes a few costs e.g. He had to transport the students to the Botanical Gardens.

## **3. Young People As Agents of Change by Solomon Bbumba**

Solomon Bbumba started this project with a major aim of involving young people in the social, economic and political affairs and development of the country.

As a teacher, Solomon had realized that young people who are clean from the habits of corruption, embezzlement, selfishness, tribalism, nepotism among others would be easy to motivate to bring about social change in their societies than the old men and women

who are always involved in endless workshops with little or no implementation activities on ground.

The project had 4 aspects:

- i. Developing digital content: Students took pictures and shot small videos which would be used by the teachers during teaching.
- ii. Capacity building teachers: Pupils were used to inspire teachers to train in computer skills.
- iii. Food security: Young pupils in Luweero Community School, a village primary school were facilitated and motivated to start their own food gardens as a way of adding practical to the theory they learn in agriculture lessons. The food gardens benefited the pupils' families and communities and also made the children value their ancestral land so that they don't sell it off when they grow-up.
- iv. The Dead Sea not revival: This aspect was intended to inculcate in the young generation a spirit of patriotism, national unity and to learn to contribute towards the vulnerable groups. Most of students from Revival Grammar are orphans and receive funding from sponsors. Solomon I wanted to teach these students how to give to the needy what they don't need. One of the nearby schools had been burnt down and the students of that school had lost their belongings. This was a time when the students in Revival Grammar had just received new mattress from their sponsor, so they donated their old mattresses and bags to the students whose property had been burned.

### **(2:50 – 4:00)PM: Session 8 - Plenary Exposition: Examples of Integrating ICT in the classroom**

*(Session was facilitated by Ssemwogerere Charles, Solomon Asea and Kellen Busingye).*

Three teachers from Gayaza High School shared with the participants how they were integrating ICT in their respective subjects.

#### **Integrating ICT in Geography by Semwogerere Charles**

Charles has digitized all his notes and made PowerPoint presentations of his notes. He takes photographs of the things he uses in his lessons. He showed participants the photographs he uses when taking about problems of urbanization in Kampala City.

“This makes the lesson more authentic and interesting to the students” Charles added.

When setting exams, he uses his photos for photographic interpretation rather photos from the text books. He uses video clips and animations to help students understand abstract concepts like faulting and volcanicity.

He illustrated some of the photographs, videos and animations he uses in his Geography lessons.

### **Integrating ICT in Geography by Asea Solomon**

Solomon noted that Geography is a practical lesson and students need to visualize what takes place.

He took the participants through the use Google Earth software get satellite images of any part of the country or world. He in particular used Google Earth to get the satellite image of Gayaza High School which he often uses for S1 students to get the geographical location of the school and to draw the school map.

He noted that the use Google Earth software required Internet connection.

Solomon showed the participants the PowerPoint Presentation he uses in his lesson about comparing Kampala City and New York Metropolitan area. The presentation had photos he had taken of Kampala city and photos of New York he had downloaded from the Internet.

Solomon also showed participants how he uses the Encarta Software to get the geographical location of places and to help students visualize the continental drift and how tornadoes work.

Lastly, he showed participants a video clip of the Stalactites cave (Amabere Caves) in Fort Portal he took on a field trip which he uses in his lessons on chemical weathering.

### **Integrating ICT in Literature in English by Kellen Busingye**

Teachers need to know that most textbooks are outdated and should only look at them as guides and see how they can meet the dynamic needs of the learners by updating their notes. She gave an example of teachers of English who are still using the “English In Use” which is outdated and has foreign names. Kellen said she has been able to download information from the Internet which she uses to update her notes.

Kellen showed the participants the different ways she uses ICT to teach literature which included:

- Using Google to search for good teaching materials e.g. how to write a short story. She copies the information in Ms Word and thereafter modifies it to the level of her students.
- Uses the Internet for research and types all her notes which she updates after discussing with her students since language keeps on growing.
- Typing her scheme of work and exam papers.

- Kellen uses the Encarta and also DVDs like that of the Animal Farm to enhance her teaching. She uses newspaper articles as learning resources and photographs for student's imaginative compositions.

In her concluding remarks, Kellen noted the following:

- The highest level of madness is when you do things the same way every time and different result.
- Teachers need to “aspire to inspire before they expire”.
- As teachers, if we are not motivated we can't motivate the learners. She believes she is a teacher by calling and it is her responsibility to help the learners understand and achieve their goals.
- As a teacher, when you fail one student, you are also a failure.

**(4:00 – 5:00) PM: Session 9- Plenary Sharing learning points by participants from the day's sessions.**

Participants were given an opportunity to share their learning points from the day's activities.

- *“I have discussed with my colleague that when we return to school, we are going to start using problem-based learning because we have got all the equipment at school e.g. video cameras, digital cameras etc.”* .  
(Elly Nayenda, Arua Public School)
- *“When I was told to come for the workshop, I told my fellow teachers that I was going to ask the facilitators a question “why ICT can't be integrated in History but the activities of workshop have already answered my question and now am going to encourage the other teachers to integrate ICT in their subjects”.*  
(Moses Senyonyi, Trinity High School)
- *“I have learnt that interaction of clubs reduces cohesion and encourages sharing among the students and I also learnt that using ICT to help students visualize concepts makes the students retain their knowledge”*  
(one of the participants)
- *“I have always been teacher-centered and I have always been talking to students other than allowing the students to carry out research but from now am going to use the students to create learning materials”*  
(One of the participants)
- *“I need to move from P.O Box to Dot.com. I was inspired by Ronald's way of teaching Math and I compared Gayaza High School with my school setting and*

*how I can close the gap. I now know that the project-based learning is the solution and I am going to share the technology because it doesn't discriminate among teachers like Cyber Technology which is only for science teachers"*  
(Baluku Geoffrey, Karambi S.S)

- *"There are a lot of gaps in our schools which Close the Gap is going to address and there are a lot of potentials using the project-based learning"*  
(One of the participants)
- *"Its' now time to talk to our colleagues to start using ICT like the digital cameras and soft copies on the DVDs and CDs"*  
(one of the participants)
- *"What I thought I knew is nothing close to what I have learnt today. At school we have all the equipment like the projector, digital cameras and our problem has been the change of attitude of the teachers but with project-based learning am sure their attitude is going to change"*  
(Alioni Luciano St. Marys' Ediofe Girls' S.S)
- *In my school, Mt. Rwenzori Girls' school, the teachers always want to be transferred to good schools like Gayaza High School but now I see that being transferred to Gayaza High School is a challenge because all the teachers are Dot.com so you can actually chase yourself before they chase you and this is what am going to tell my fellow teachers and encourage them to get on board as far as ICT is concerned. I also learnt that involving the non-teaching staff is good.*  
(Kathuneni Elizabeth, Mt. Rwenzori Girls' School)
- *This is going to be a turning point for us the teachers and am going to tell my fellow teachers at school how the teachers at Gayaza High School share the information they have. The workshop has been meaningful and I have been challenged that all the teachers in Gayaza High School use laptops as notebooks and now I feel I need to own one. I have learnt that in Project-based learning, the students are resourceful and I am now thinking of a problem to start a project and am also going to tell the Arts teachers that they can also use ICT. The computers that were provided by SchoolNet are still packed in boxes so am going to tell the administration to install them immediately because the students need hands- on experience.*  
(Nakintu Agnes, Kitara S.S).
- *"I thank the teachers of Gayaza High School for inspiring us and sharing information with us. As teachers, we have been lagging behind because of poor or no networking and use of the oldest methods of delivering information. I therefore am going to tell my fellow teachers and the administration that they can*

*acquire information through networking and knowledge sharing. I thought I knew Physics but when Ronald showed us some Physics lessons, I felt displaced. I have also been challenged by the digital library and am going to introduce the idea at my school. I have found out that a number of teachers teach because they have to teach, they are present in the classrooms but absent in the eyes of the learners. I have learnt that using the natural environment brings the students closer to the community. I am going to make a brief report about the workshop and email it to the head teacher which I will share with the other teachers”*  
(Alemi Micheal, Arua public School)

- *“The teaching in my school, Iganga Secondary School is teacher-centered but through collaboration with the Gayaza High School teachers I will get the teachers to know how to use videos to conduct lessons. The attitude of teachers is going to be a great problem but when I go back the I am going to encourage the teachers to get email addresses and give them the email addresses of the teachers of Gayaza High School and tell them that they can get videos and content from them”*  
(Rwabu Elizabeth, Gayaza High School).
- *“At one time I wondered why the students at Gayaza High School get distinctions but now I know that the teachers in Gayaza High School go an extra mile to teach their students better. I am going to encourage the Head teacher to install the Internet and also encourage the teachers to type their own work”*  
(Birungi Margret, Masindi Secondary School)
- *“The head teacher of my school, Muni Girls’ is very supportive of ICT but the teachers have a negative attitude and always say that computers and ICT are for the super teachers of sciences but am now going to encourage the teachers to use the 21<sup>st</sup> century pedagogy and in fact I will be the first Arts teacher to conduct a lesson in the computer lab”*  
(Inzikuru Zenah, Muni Girls’ School).
- *“I was the Acting Head teacher of Kotido Secondary School which was a Dot.com school but the mistake I made was that I always had my work typed by the secretary. I am now the Director of Studies at Masindi Secondary School which is a P.O. Box school and my office is filled with too much paper work so it is high time I made it Dot.com. I am the Director of Studies and my colleague at the workshop is the Deputy Head teacher of the school therefore being movers in the school we are going to advocate for the necessary equipment to implement ICT”*  
(Amanyire Kassim, Masindi Secondary School).
- *“I am the head of department for IT in the school and we have no Internet therefore I have discussed with my colleague that we shall install Internet in 2 months’ time. SESEMAT is hands-on, Cyber technology is eyes-on and now*

*Close the Gap is minds-on which is aiming at changing teachers' attitude. Negative teachers' attitude has a bad effect in the school but with the knowledge that we have acquired from the workshop, we shall make a turning point" (one of the participants)*

- *"SchoolNet has really endeavored to implement ICT in the school i.e. It gave us computers, content and we have been trained before in report making but most of the teachers are old and P.O Box therefore am going to talk to the head teacher and we organize ICT sensitization workshops for the administration, PTA and the teachers. Kellen stated that "when you fail one student, you are also a failure" but at my school we have been failing many students. Most of the students who are admitted in the school got 3<sup>rd</sup> grade and teachers have an attitude that they are wasting time teaching such students because they can't change"*  
(Nsereko Ismail, Bukomero S.S.)
- *"I have been in the IT department for a long time but I have yellow notes but now am going to digitalize all my notes. At one time at the school the results of the students got lost but if they were digitalized, we would have had copies of the results. Am going to use items around us in the community and document the activities"*  
(Draleku John, St. Mary's Ediofe Girls S.S)

#### Day 4: Thursday 20<sup>th</sup> May 2010 Programme

Time	Activity	By Whom
8:30 - 10:40 AM	<b>Hands- On Activity:</b> Using Bestgrade Software to produce Computerized reports	Ronald Ddungu Participants
10:40- 11:00 AM	HEALTH BREAK & BREAK TEA	
11:00 – 11:20 AM	<b>Plenary:</b> Sharing personal reflections on using Bestgrade to produce computerized reports.	Participants
11:20 – 11:40 AM	<b>Plenary Presentation:</b> Implementing computerized report – Experience of Gayaza High School	Ddungu Ronald
11:40 – 12:10 PM	<b>Plenary Brainstorming:</b> Human challenges anticipated when implementing computerized reports and suggestions of how to overcome them.	Participants Facilitators

12:10-1:00 PM	<b>Plenary Presentation:</b> Brief overview and explanation of content on the CDs to be provided to the workshop participants.	Daniel Kakinda
1:00-2:00PM	LUNCH BREAK & LUNCH	
2:00 – 3:00 PM	<b>Plenary Brainstorming and facilitator exposition:</b> The DON'Ts of PowerPoint Presentation and adding value to PowerPoint Presentations	Daniel Kakinda Participants
3:00 – 5:00+ PM	<b>Individual Presentation Project work:</b> Multimedia PowerPoint presentation to enhance understanding related to an administrative task or a subject-related area in the curriculum.	Participants
	<b>EVENING TEA AND END OF DAY 4</b>	

**(8:30 – 10:40) PM: Session 1- Hands- On Activity: Using Best Grade Software to produce computerized reports.**

*(Session was facilitated by the Ronald Ddungu)*

At a plenary session, Ronald asked the participants to mention some of the advantages of the school computerized student report system and their responses were:

- It eliminates forgery of reports on the side of the students.
- Editing the results is easier i.e. no white wash.
- It is faster i.e. you work with large amounts of data.
- It is time saving when making sums, averages and positions.
- Information can be referred to in the future.

Participants were provided with CDs containing Best Grade installation and instruction files for their schools. Best Grade is a free, open source school management system designed for sub-Saharan African countries. It can be downloaded from <http://bestgrade.org>

Participants had a hands-on experience on using Best Grade to make computerized school reports.

Ronald Ddungu led the participants through the hands-on activity with Richard Chole providing help to the participants on a needs-basis.

Ronald cautioned the participants on the following as they introduce the computerized reports in their schools:

- The teachers should pilot the system for the mid-term exams and if there are any problems, they should let them know so that they contact the designers.
- The teachers should customize it for their schools and later use it in the neighboring schools.
- The teachers shouldn't sell the software but can charge a small fee for their customization and training.
- The teachers can train other people and may be charge for the training.
- The teachers need to create a critical mass of people willing to use Best Grade who can support them even if the system crashes.

### **Questions and Answers**

Participants had the following questions for Ronald to which he gave the following responses:

*Q1: Can the software give you the position out of the whole class because in our schools students are positioned according to classes and not streams?*

Response: Yes, it can give you the positions for the streams and for the classes.

*Q2: How can the school bursar use this system?*

Response: In some of the schools, the teachers handle school fees so they can use the system to notify the school bursar of the students who have paid, those who haven't paid and those who have a school fees balance.

*Q3. Can the school bursar use it for the day to day activities of the school?*

Response: The system has been modified for academics though it can be manipulated to suit some of the activities of the school bursar. However, if your school can afford, it would be better to buy a school management system which can manage both the finances and the academics and able to integrate them.

### **(11:00 – 11:20) AM: Session 2- Plenary Participants' Personal Reflection: Using Best Grade Software to produce computerized reports.**

Participants were asked to reflect on their experience with using the Best Grade and share their reflection with other participants. Below were some of the participants' reflections:

*'The system is user friendly and I see myself in a new method of making reports and I will implement the computerized reports in the whole district'*  
(Nsereko Ismail, Bukomero S.S)

*“The system is a turning point for the teachers who are afraid of using computers and I am going to pilot it in the beginning of Term exams for the senior ones”*  
(Nayenda Elly, Arua Public School)

*“I have always moved to Nasser road for people to make my report cards but with Best grade I am going to make the reports myself and this will reduce some of the costs that I have been incurring”* (Namirembe, Trinity High School)

*“The system is going to enable P.O Box teachers to come on board because students normally forge reports but with the computerized systems they will not be able to forge or change the marks”* (Participant)

*“I have learnt that innovativeness is very important and for very many years teachers have suffered with additions in the reports therefore this will make the teaching interesting”* (Participant)

**(11:20 – 11:40) AM: Session 3- Implementing computerized reports (Gayaza High School experience).**

*(Session was facilitated by Ronald Ddungu)*

Ronald said that the first time the a computerized report system was introduced in Gayaza High School; it crashed when power went off three days before the end of Term and the teachers had to make written reports until 2 AM in the morning. Most of the teachers blamed the system and in fact the Head teacher who had introduced the system never mentioned it again until when she left the school.

The school re-introduced the system again after a number of years but this time using a small number of teachers who were movers and had computer skills. The system was piloted with the mid-term exams whereby he told the class teachers to make computerized reports for the mid- term exams.

On the visitation day, when the parents came to visit their children they were very happy to have detailed reports and thanked the teachers who were on the compound that day and it is these teachers who picked it up and later it became a School policy.

Lastly, Ronald told the participants that when introducing the computerized report system they need a critical mass of teachers in favour of the system and they should pilot it at a time when teachers have less influence e.g. they can pilot it at the beginning of Term exams and use the class teachers.

**(11:40 – 12:10) PM: Brainstorming: Human challenges anticipated when implementing computerized reports and suggestions of how to overcome them.**

Participants were asked to mention some of the human challenges that they anticipate to meet when introducing the computerized reports and how they indent to overcome them.

*Challenge 1: Lack of experience to use the software and the dedication to do the work.*

*Possible solution:* Participants need familiarize themselves with the software and thereafter bring the other people on board.

*Challenge 2: Changing the teachers' attitude*

*Possible solutions:*

- Working hand in hand with the administration to get their buy-in and thereafter make it a school policy.
- Making sample reports as a motivation and comparing them with previous terms' reports that are full of white wash.
- Talk to individual teachers about the system on a one-to-one.
- Advocating for the school to make computerized reports a school policy.
- Begin with the class teachers because they are the ones who compile the marks.

**(12:10 – 1:00) PM: Brief overview of Digital content on the Workshop CDs.**

*(Session was facilitated by Daniel Kakinda)*

Kakinda Daniel gave participants a brief overview of some of the digital content which had been included on the workshop CDs which were to be given to the participants and also asked participants to make copies of the CDs for themselves and to copy the CD content to the school computers. He warned the participants against keeping the CDs to themselves.

The digital education content on the CDs included:

- The ICT for education (ICT4E) facilitators' manual which the participants can use as a guideline when conducting similar workshops at their schools.
- The Phet (Physics Education Technology) software installation file. Phet needs to be installed on the computer by simply double clicking on the installation file. Phet contains a number of Maths, Physics and Chemistry simulations.
- SimLab which contains a number of Physics simulations which can be used for Physics virtual experiments to supplement the traditional experiments.
- UNEB O'Level past papers.
- A question bank having exams from different schools.
- Biology Online book
- Some literature books and their study guides.
- Software for composing music.
- A softcopy of the WSWM anthem.
- Literature novels.
- Quality secondary school material (Chemistry, Biology, Physics) and the tutor's guides from Commonwealth of Learning.

Daniel demonstrated to the participants some of the virtual experiments that the students can do with the simulations on the CDs.

In conclusion, Daniel noted the following:

- The computers that were provided by Close the Gap have licensed Microsoft software and schools should guide against replacing licensed software with pirated software.
- Close the Gap ICT4E project is not only minds-on project as one of the participants had earlier said but it is ***minds-on, hands-on and attitude-on*** project. For ICT4E to succeed teachers must have the right knowledge, right attitude and the right skills.

**(2:00 – 3:00) PM: Plenary Reflection and Brainstorming: The DON'Ts of PowerPoint Presentations and adding value to PowerPoint Presentations.**  
(Session was facilitated by Daniel Kakinda)

Daniel ran those the PowerPoint Presentations participants had produced on Day 1 and asked them to comment on the “feel and look” of the presentations and not on the content. The purpose of the activity was to help participants identify what they should avoid when making PowerPoint Presentations.

Below were some of the participants’ comments:

*Group 6 PowerPoint presentation:*

- The animations were monotonous.
- The colour combination was irritating

*Group 5 PowerPoint presentation:*

- There was a lot of text and it was playing at a very fast speed; the text should be readable and not congested.
- The text animation made presentation childish and hence unsuitable for serious audiences like the Board of Governors.

*Group 1 PowerPoint presentation:*

- The animations took a lot of time.
- It is difficult to get the message in the presentation because the audience is taken up by the animations.
- The use of different colours for the different slides was irritating because audience takes some time to adjust to the new colour each time the slide is changed.

**Some of the DON'Ts of PowerPoint Presentation**

As a way of harmonizing, Daniel mentioned the following DON'Ts of PowerPoint and cautioned the participants of being carried away by technology and do certain things because technology can do them.

- Don't put too much text on a slide. The audience is going to make a huge effort to read the text which will distract them from paying attention to what you are saying.
- Don't use clipart. Use real visuals (pictures or photos) relevant to your message. The audience wants to see what you are talking about.
- Avoid using a font colour that does not contrast with the background colour as it is hard to read e.g. white and yellow, red and green.
- Don't use animations or sound effects unless they are crucial to your presentation. These features may seem impressive at first to people new to PowerPoint but can be a real distraction to the audience.
- Don't use too many graphics on a slide. Your audience will spend more time looking at them rather listening.
- Never read your slides word by word. Just talk freely. Remember that your slides are only there to support not to replace your talk. If you are just reading your slides, the audience will get bored and stop listening.

“Keep your presentation's “feel and look” simple. Concentrate on the quality of your content, question the added-value of whatever PowerPoint feature you use in your presentation. Be driven by pedagogy and not by technology. *PEDAGOGY IS KING, TECHNOLOGY IS SLAVE*” Kakinda advised.

### **Adding value to PowerPoint Presentations.**

Daniel asked the participants to congratulate themselves for the good PowerPoint presentations they had put together considering the fact that a good most of them were using PowerPoint for the first time. He noted that there was still room for improvement and asked the participants how they would like to improve their future presentations.

Participants made the following suggestions:

- Adding video clips.
- Using authentic pictures/photos from the Internet or environment.
- Adding scanned drawings.
- Adding sound clips.

Daniel showed the participants some examples of developed PowerPoint related to school administrative work and to subject lessons which included:

- The Presentation about the developments at the school at the PTA meeting.
- Report of WSWM exhibition to the parents at Mt. Rwenzori Girls' Secondary school.

- Uganda Musical Instruments which integrated text, graphics, audio and video clips.

The purpose of this session was to give the participants a sense of the type and quality of presentation projects they are expected to produce.

### **(3:00 – 5:00+) PM: Individual Presentation Project work**

*(Session was facilitated by the participants)*

Each of the participants was told to select an area from his or her administrative tasks e.g. report of the workshop to be presented at the opening meeting of the term, overall performance of the students or a subject-related unit in the curriculum to be covered in the next term and make a multimedia presentation to enhance understanding or teaching and learning of the area.

The facilitators provided help and guidance on a need basis in developing participants' skills in using digital and video cameras for taking photos and video clips and downloading them on computer.

### **Day 5: Friday 21<sup>th</sup> May 2010 Programme**

<b>Time</b>	<b>Activity</b>	<b>By Whom</b>
8:00 – 8:30 AM	<b>Individual Hands-On Activity:</b> Completion of Presentation Project work involving using PowerPoint to develop a multimedia presentation on administrative work or a multimedia enhanced curriculum related lesson.	Participants Chole Richard
8:30 -9:00 AM	<b>Plenary Presentation:</b> Personal testimony- Impact of ICT on my life	Wamangolo Dickson
9:00 - 9:30AM	<b>Plenary Inspirational talk:</b> Personal testimony- Impact of Project-based learning on my life (student's perspective)	Ronald Kasendwa
10:00- 10:40AM	<b>Plenary Demonstration:</b> How to use a Smart Board	Kizito Samuel
10:40- 11:00 AM	HEALTH BREAK & BREAK TEA	
11:00AM-	<b>Plenary Brainstorming:</b> Challenges of leading the ICT4E project and possible solutions to the challenges.	Participants

11:40 AM		Kakinda Daniel
11:40 AM-1:00PM	<b>Plenary Brainstorming:</b> The way forward - Issues to be considered when developing an ICT4E school Action plan:	Participants Kakinda Daniel
1:00-2:00PM	LUNCH BREAK & LUNCH	
2:00-2:30 PM	<b>Plenary:</b> Sharing individual PowerPoint multimedia projects in their in their individual projects.	Participants
2:30-4:00PM	<b>Presentation:</b> The Innovative Teachers' Forum and Microsoft Partners In Learning (PiL) Network	Ronald Ddungu Chebet Milton
(4:00 – 4:30) PM	<b>Plenary Presentation:</b> Introduction to SchoolNet Uganda Online Support and the iEARN Collaboration Centre	Daniel Kakinda
4:30 – 5:00 PM	<b>Plenary:</b> Workshop Evaluation, Award of Certificates and Closure.	Facilitators
<b>END OF DAY 5 AND THE WORKSHOP</b>		

**(8:00 – 8:30) AM: Individual Hands-On Activity: Completion of Presentation Project Work**

*(Session was facilitated by Chole Richard)*

Participants were asked to complete their project work involving using PowerPoint to develop a multimedia presentation on administrative work or a multimedia enhanced curriculum related lesson.

Chole Richard provided help and guidance to the participants on a need basis.

**(8:30 – 9:00) AM: Personal testimony: Impact of ICT on my life by Wamangoli Dickson**

Dickson said that the first time he was told to teach computer studies was reluctant but later took it up. Since then he has been able to do a course in computer Networking and has also acquired a laptop. He has attended and presented at a number of ICT workshops.

Through ICT, he has been able to supplement his income through typing people's work.

Dickson said that he repairs the computers at the school and has trained a student who repairs the computers in his absence but this does not stop him from farming and community work like cleaning the wells. He is also in-charge of the WSWM program in his school.

*“It’s never too late for mending.”* Dickson concluded

**(9:00 – 9:30) AM: Personal Testimony- Impact of Project-based learning on my life (student’s perspective) by Ronald Kasendwa**

Ronald said that he has participated in a number of projects which included Mtandao Afrika, a project of SchoolNet Africa and implemented by SchoolNet Uganda in Uganda.

Mtandao Afrika is a pan-African web design contest where a team of a maximum of 4 students and 2 teachers from several schools and countries collaborate to design an educational website.

Ronald first participated in Mtandao Afrika in 2007 when his team designed a website on *Tropical Malaria* but his team did not reach the finals. He strategized and his team did a website on *Prostitution in Africa in 2008* and this time they won the platinum award under the *Arts and Literature category*.

Ronald told the participants his motivation for participating in the Mtandao Afrika which included:

- He got inspired by a friend who had won in the 2007 contest and had outstanding photos when he was in Egypt. He also wanted to get an outstanding photo.
- He has a lot of interest in web design therefore he wanted to freely get an opportunity of working on a real web project.
- He wanted to travel abroad at least to board a plane for the first time.
- He wanted to prove a point i.e. to challenge people’s negative attitude especially his teachers in his secondary school who always told him that he was wasting time.

He got the following benefits from participating in Mtandao Afrika project:

- He developed a number of inter-personal skills like teamwork and collaboration, communication and self-expression.
- It opened his gates to web design and development and now he does it commercially.
- He achieved his goals and targets and the teachers who were discouraging him got the message that he can do it.

- His team won the platinum award under the *Arts and Literature category* in the 2008 contest

In 2009, Ronald participated in the Adobe Youth Voices. The Adobe Youth Voices (AYV) is an international program that is implemented in Uganda by SchoolNet Uganda where Youths under schools/sites express their voices through media and produce media about issues that affect their society. He worked under SchoolNet Uganda *Inspiring Science Education for Girls* site and they produced a documentary about *Gender Disparity in Science*.

The documentary unveiled the hidden causes of the low participation and retention and performance of the girl-child in science

His motivation for participating in the AYV included:

- He had always wanted to have his name scroll through credits at the end of a media piece.
- He really wanted to know what's behind the media we watch i.e. the production process.
- He wanted to develop graphic design and animation skills to improve his web design.
- He wanted to have something to occupy him in S.6 vacation since he was not working.
- He wanted to belong to a network.

Ronald mentioned some of the benefits he got from participating in AYV which included:

- He moved to a number of schools across the country and got to see a mountain (Mt. Rwenzori) for the very first time.
- He got an opportunity to facilitate in a number of SchoolNet Uganda's workshops.
- He met a number of big people during the interviews for their documentary.
- He developed graphic design and animation skills that have continuously boosted his work in web design.
- He improved his inter-personal skills.
- He was involved in video documentation a number of SchoolNet Uganda's workshops which earned money that he used to buy a laptop.
- He achieved his dream i.e. he had his name scroll through credits at the end of their documentary.
- Their documentary emerged one of the best that year and received a sponsorship to the US for the AYV summit and also acquired a 2year US Visa.

While at the Adobe Youth Voices Summit (AYV) in California USA, Ronald was involved in a number of activities which included:

- He worked on media projects.
- He was trained in animation design using Flash CS4 by the software producers.
- He presented in the Adobe Conference Centre about their media production.
- He had an opportunity to meet some of the world's best film makers who gave him a clear and detailed understanding of the whole media production process.
- He had an opportunity to meet David Nakabayashiki, the visual artist of Lucas Film Industry who was mainly involved in the production of movies like: *Transformers*; *Iron Man*; *Pirates of the Caribbean*; and *Harry Potter*, took them through the processes involved in developing the characters.
- He also visited *DreamWorks*, a famous movie production company that is known for producing animated movies like: *Madagascar*, and *Monsters vs. Aliens*. At DreamWorks, they were taught of how to transform a storyboard to the finished movie, story-telling, and the different roles involved in media

In 2009, Ronald also participated in the Global Virtual classroom project where schools in different countries are paired to produce a website. He worked with the students of Gayaza High School which was working with a school in Canada and another in USA to produce a website on *Violence in Teens World*.

At the beginning of this year, Ronald got a contract with World Bank Institute to facilitate the EVOKE game i.e. an online game about the problems facing the world and brainstorming solutions. When they advertised for the job, they were looking for someone who is able to collaborate, work in a team, consume a lot of digital media, moderate an online community and solve a local problem. He had acquired all these skills when he participated in the AYV project so he applied and he was the only student who was given the job.

He organized a mini- workshop for the University students at Makerere University and the World Bank Institute people were happy and want him to renew his contract though he is still reconsidering offer. He still has to figure out how he would combine his studies with the facilitating role.

**(10:00 -10:40)AM: Plenary Session - Demonstration on how to use a Smart Board**  
(Session was facilitated by Kizito Samuel)

Kizito Samuel told the participants that the Smart Board is interactive. Some Smart Boards require only a projector while others require both a projector and a computer. Smart boards are innovative and are designed to make the teaching innovative

Samuel demonstrated to the participants the different features of the smart board which included the board interface, the ink aware features, the pen panel, and the gallery and how they can be used in lesson delivery.

**(11:00 -11:40) AM: Plenary Brainstorming: Challenges of leading the ICT4E project and possible solutions to the challenges.**

### **Challenges of leading the ICT4E project in schools.**

Daniel cautioned the participants that moving schools to the 21<sup>st</sup> century teaching and learning requires them to be innovative and the situation for every school is different so there won't be any single size fits all. The project schools have different financial resources, different infrastructure, different human resources and different visions. What may work at one school may not work at another school.

“In a number of cases, you will have to think out-of-the-box but there will be challenges which you must anticipate as you draw up your action plan and think of possible ways of addressing those challenges. In projects, there are always risks and as you put your project proposal together, you must do a risk and analysis and come up with risk mitigation strategies” Kakinda added.

Participants were asked some of the challenges they anticipated to face as they try to move forward the project at their respective schools. Below were some of their responses:

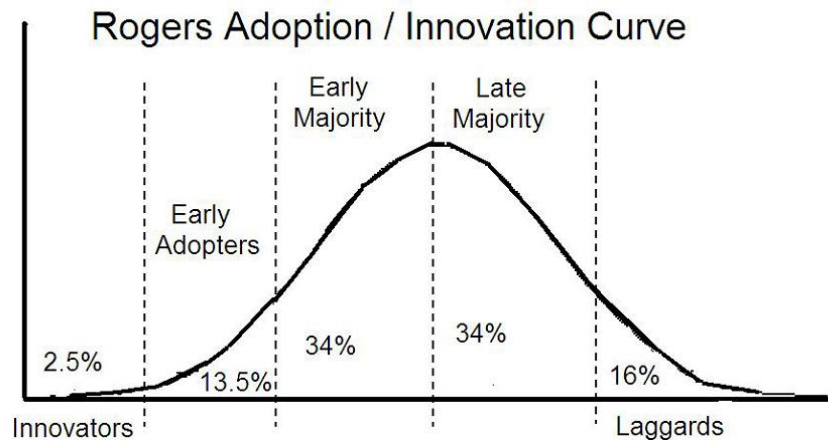
- Failure of other teachers to see your personal vision.
- Financial constraints.
- Discouragements from the other teachers.
- Lack of confidence in self that you can move the project forward.
- Conflicting loyalties from home needs and project needs.
- Failure to get enough time for the project
- Other computer literate teachers may snatch away the idea at the last moment and put you down.

### **Reactions to the challenges that the participants mention**

Daniel made the following reactions to some of the challenges identified by the participants:

- (i) *Regarding failure of other teachers to see your personal vision and discouragement from other teachers.*

Daniel explained to the participants the Roger Adoption/Innovation curve



**Fig. 9 : Rogers Innovation Curve**

In any population including schools and for any new idea or product, there are innovators, early adopters, early majority, late majority and laggards.

*Innovators (2.5%):* Brave people, pulling the change and are driven by passion.

*Early Adopters (13.5%):* Respectable people, opinion leaders, try out new ideas but in a careful way.

*Early Majority (34%):* Thoughtful people, careful but accepting change more quickly than average.

*Late Majority (34%):* Skeptic people will use a new idea/product only when the majorities are using it.

*Laggards (16%):* Traditional people, caring for the “old ways”, are critical towards new ideas and will only accept it if the new idea becomes mainstream or a tradition.

Daniel advised participants to identify people at their schools who fall in the category of innovators and early adopters (16%) and sell them the project idea rather than trying to bring everybody on board at the beginning. These are people (innovators and early adopters) are driven by passion and internal motivation for success and not by external motivation like extra pay. This 16% needs to be trained and nurtured into ICT4E champions who will stand on your side whatever the challenges.

“Once you have created a critical mass of teachers using ICT4E, the majority will follow. You can thereafter lobby for a school policy to force the laggards to use ICT4E” Kakinda added.

(ii) *Regarding financial constraints*

“As leaders of change, you must come up with innovative and creative ways of acquiring new ICT resources like digital cameras, projectors and ways of maintaining and sustaining in good working conditions the ICT resources already available. You

should avoid asking for everything from the school otherwise you will become an additional stress to the already financially constrained schools” Kakinda advised.

Below are some of the things the participants could be to cut-down the running costs:

- Commit time and energy to organize and conduct ICT4E workshops for teachers and some person-to-person informal training.
- Model the spirit of knowledge and skills sharing.
- Network with teachers from other schools for the purpose of learning from them and resource sharing.
- Produce sample computerized reports using the Bestgrade software provided at the workshops, present them to the school administration to win their support towards moving the school to computerized reports and offer to train other teachers.
- Participate in competitions like the Innovative Teachers forum to raise the profile of the school and to win additional equipment for individual teachers and the school.
- Keep the school administration and the staff updated by sharing the reports from national trainings conducted by SchoolNet Uganda and the reports of your activities at school.
- Empower yourself with technical skills so as to cut down the technical maintenance costs.

(ii) *Conflicting loyalties between home responsibilities and ICT4E responsibilities.*

“Share your vision for involving yourself in ICT4E activities with your spouse and family members. Let there be tangible benefits in terms of your professional development and in terms of family welfare. This does not necessary need to be in terms of additional income. It may be in terms of the children using ICT4E to enhance their performance at school and gaining marketable skills which will make them more competitive in future” Kakinda advised.

(iv) *“Time for the project”*

- Cascade the training to bring the other teachers and students on board who can help you when you are busy.
- If you have the passion for what you are doing, time can always be created.

**(11:40AM -1:00 PM): Plenary Brainstorming: The way forward- Issues to be considered when developing an ICT4E school Action plan.**

Daniel noted that putting and Internet is expensive but is the easiest part of the whole process of using ICT4E to improve teaching and learning. Successive implementation of ICT4E requires a holistic approach including, policy, infrastructure, capacity building and content. The strength of a chain is determined by its weakest link so the success of ICT4E will depend on the factor which is least considered of policy, infrastructure, capacity building and content.

One of the biggest mistakes in implementing ICT4E projects in schools is forgetting the teacher factor. Most ICT4E projects fail because of teachers' negative attitude and lack of capacity to integrate ICT in the curriculum. Capacity building must go beyond ICT literacy training.

Daniel led the participants in a brainstorming session regarding the success factors for ICT4E by asking probing questions.

### **(i) ICT infrastructure**

*Question: What strategies do you hope to use to ensure acquisition and maintenance of ICT facilities at schools?*

Participants' Responses:

- Train the teachers to some level of addiction and after encourage them to have personal computers.
- Create activities so that the students can see the value of the facilities to avoid spoiling them.
- Create a policy of access to prevent students from stealing the equipment.
- Put Heads of Departments on board for example the Directors of Studies (DOS) so that they can discuss ICT facilities under the budget for academics in the meetings.
- Respond positively to invitations to ICT workshops like the Close the Gap workshop organized by SchoolNet Uganda because in such workshops where we acquire useful software and exposure.
- By being relevant to the school objectives and mission.
- Training students and using them to maintain the computer lab.

As a way of harmonizing, Daniel told participants that there is need for the school to:

- Ensure all teachers have adequate access to ICT facilities during and after school hours.
- Technical support which is available on a timely basis.
- Time taken setting up an ICT enhanced lesson is minimized.
- There are a reasonable number of ICT resources for the students e.g. a small student to computer ratio.

Daniel mentioned some of the possible strategies that the teachers can use to acquire ICT facilities which included:

- A school policy of buying some ICT facilities every term.
- A budget line for hardware and software maintenance and servicing.
- A school policy on access for teachers and students.
- A maintenance contract with an external organization or company.
- Technical capacity building for the teachers e.g. SchoolNet Uganda will be organizing a technical training workshop for the project schools in the Dec 2010-Jan 2011 holidays.
- Partnering with organizations implementing ICT4E projects.
- Employing an in-house computer lab technician

## **(ii) Teacher professional capacity building**

*Question: What strategies do you hope to use in order to develop the teachers professional capacity to integrate ICT4E across the curriculum?*

*Participants' Responses:*

- Organize internal workshops for a full day or half day and invite resourceful persons.
- Organize external workshops with neighboring schools and also external visits.
- Use the available software for exposition to the teachers.
- Tell the teachers about the available opportunities for them e.g. the opportunities availed on the mailing list.

As a way of harmonizing, Daniel provided the possible strategies below:

- Encourage teachers to share and network for the purpose of learning from each other. There is more to benefit from sharing than competing.
- Encourage teachers to attend ICT related school-based workshops organized with the purpose creating awareness of the potential of ICT in education, building ICT skills and pedagogical skills for integrating ICT in education.
- Encourage teachers to liaise with other schools to learn collaboratively and share ideas with regard to ICT use in the classroom.

- Encourage teachers to join national and international ICT in education professional networks like the Microsoft Innovative Teachers Network, iEARN (International Education and Resource Network- (<http://www.learn.org>)).
- Encourage teachers to attend national & international ICT4E conference and experience.
- Encourage teachers to use online resources and to attend online professional development courses. Teachers must be long-life learners, multi-skilled and multi-disciplinary to remain relevant. for example:[http://us.learn.org/professional\\_development/online\\_courses/index.php](http://us.learn.org/professional_development/online_courses/index.php)
- Have a budget line for professional development (school, individual).
- Set ICT for Education (ICT4E) competency levels to be achieved by teachers.

### **(iii) ICT based education Content**

*Question: What strategies do you hope to use to ensure acquisition of ICT-based digital content?*

*Participants' Responses:*

- Buy some digital content and share with other schools.
- Search for some content from the Internet.
- Teachers can become members of British Council because it has some good content for videos.

As a way of harmonizing, Daniel provided the strategies below:

- Digitalize the content already available at the school e.g. teachers notes, question banks, schemes of work and lesson plan.
- Search for the available copyrighted or open educational content from the other schools and on the Internet.
- Buy off-shore digital content from content re-sellers.
- Record digital content from TVs.
- Build teachers' capacity to create digital education content.

### **Action Plan**

Daniel told the participants that their first activity after the workshop is to complete their school's ICT4E draft action plan which they need to present and discussion with the

school administration. An action plan is a written document that describes the activities that the school will undertake after the training to help integrate ICT4E in teaching and learning. In developing the action plan, participants should keep in mind the following points:

- Write activities as discrete steps that are realistic, measurable and attainable.
- Identify the responsibilities.
- Develop specific time schedule for completing the activities.
- Identify resources necessary to complete the activities including plans for acquiring these resources.
- Identify the evidence to show successful completion of the activity.

### Template for the Action Plan

Participants were given the action plan template which they could modify:

	Activity	By Whom	Resources needed	When	Evidence
1.	Write a workshop report	The two teachers who attended the 5-day SchoolNet Workshop.	.....	1 <sup>st</sup> of 2 <sup>nd</sup> term 2010	Report shared with the administration, staff and SchoolNet Uganda
2.	Organize a 1 day sensitization workshop for staff members				Report of the workshop shared with the stakeholders.

In conclusion participants were reminded that for ICT4E to succeed at their schools five key elements; vision, skills, motivation, resources and action plan are extremely crucial.



**(2:00 – 2:30) PM: Plenary: Sharing individual PowerPoint multimedia projects ideas.**

Because participants had not completed their project work, they were asked to share what they are putting together in their individual projects reflecting on the aspects below:

- (i) Mention whether it is lesson or a presentation on an administrative task.
- (ii) If it is a lesson, what subject, what unit?
- (iii) How do you hope to use ICT to enhance your presentation?
- (iv) What have you succeeded in doing?
- (v) What do you intend to do to add value to your presentation?

*“I am doing a presentation on inspiring teachers to use ICT especially Arts teachers with CRE as my subject. I got a digital bible which I am going to include and I will also add some video clips from the Internet” (Senyonyi Moses, Trinity High School)*

*“I am preparing a report about the workshop to the stakeholders and in my presentation am going to put pictures of Gayaza High School, the computer lab and the digital lab. Am going to include the workshop objectives, various facilitators and pictures of how the participants were involved in the hands-on and minds-on” (Atiku Okuonziga Rahman, Aringa Secondary School)*

*“I am preparing a presentation about the impact of ICT in society and am going to include the pictures of people accessing the Internet to show how ICT eases communication. I will show the challenges we face when using ICT e.g. power problems*

*and limited knowledge and I will also show the way forward i.e. relationship with other people, saving power equipment and maintaining the equipment” (Wamangoli Dickson, High standard Christian School, Kateera)*

*“I am writing a report about the workshop and am going to include pictures for the venue of the workshop, why people need ICT and pictures of teachers and students of different subjects using ICT”. (Rwabu Elizabeth, Iganga Girls Secondary School)*

*“I am preparing a presentation on vegetation in East Africa under Geography and I am going to include the photos and information on the different types of vegetation. I am also going to include graphic on the savannah type of vegetation and what I have succeeded in getting so far are the pictures showing the characteristics of the different types of vegetation”. (Wapaali Ivan, Gulu College)*

*“I am doing a presentation on environmental degradation and am looking at the causes and solutions. Under the causes, am going to include pictures of firewood, settlement and domestic and office furniture. Under the solutions, am going to include photos of metallic materials for settlement, planting more trees and use of saving stoves and gas” (Nsereko Ismail, Bukomero Secondary School)*

*“I am doing farm structures under Agriculture and I looked at the definition, pictures of the different farm structures and the uses of the different farm structures and intend to incorporate clips from other people’s work” (Kumakech Godfrey Ovana, Gulu Secondary School)*

*“I am doing farm structures and I looked at the various examples of farm structures and their importance e.g. roads, fences both live and dead. I also looked at storage of water at the farms and I will capture video clips of live activities taking place at the farm” (One of the participants)*

*“I am preparing a presentation on experimental teaching. On the cover page am going to include the place and the curriculum coverage. Am going to put emphasis on the LOTS and HOTS and I will include appreciation to the host school for the workshop and SchoolNet Uganda” (Naiga Brenda, Transform Educational Center)*

*“I am doing a presentation under physics (mechanics) and I looked at the types of machines, uses and the types of energy that they use. Am going to use photos and show their application in the daily life” (Mugisha Julius, Masheruka Girls School)*

*‘I am making a presentation on ICT tools and I have got a video and audio of digital content but am also looking for the text. Am going to include the 21<sup>st</sup> century skills and integrate how ICT can be used by teachers of the different subjects” (Bukulu Geoffrey, Karambi S.S.)*

**(2:30 -4:00)PM: Plenary Presentation:** The Innovative Teachers’ Forum and Microsoft Partners In Learning (PiL) Network.  
*(Session was facilitated by Ronald Ddungu and Chebet Milton).*

Ronald Ddungu told the participants that Gayaza High School, SchoolNet Uganda and ICT Consult had put together a tentative program for the Uganda Innovative Teachers Forum for 2010.

The program will have three activities:

**Activity 1:** This will be a one day non-residential workshop which will be held on 5<sup>th</sup> June 2010 at Gayaza High School. Invitations to participate will be sent out to as many schools as possible. The aim of the activity will be to introduce teachers to the concept of innovative teaching, innovative schools and Innovative Teachers' Forum. Past innovative teachers winners and SchoolNet Uganda would be responsible for conducting the workshop. Participating schools will be responsible for the cost of transport of their teachers to and from the workshop and for lunch. The teachers would then be expected to put their projects together and submit them in to the organizers before 15<sup>th</sup> June 2010.

**Activity 2:** This will be a 2-day residential workshop and will be held on 15<sup>th</sup> June 2010 at Makerere University, faculty of computing. Only those schools or teachers who will have submitted in their projects to the organizers will be invited to the workshop. The schools will be responsible from transporting the teachers to and from the workshop and the organizers will be responsible for the accommodation and meals. Previous winners and SchoolNet Uganda will be responsible for facilitating the workshop.

- Day one: Training and mentorship of teachers and schools to be able to produce a VCT and to upload the VCT on the Microsoft Partners In Learning Network (<http://africa.partnersinlearningnetwork.com>). Peer review sessions will also be organized for this day.
- Day two: Mini competition and speeches from the host institution, visiting companies, Head teachers, District authorities and Ministry of education officials. Three best teachers will be selected as finalists for the Uganda Innovative Teachers' forum in each of the following four categories; innovation in collaboration, innovation in content, innovation in community and peer review category.

There will also be the innovative school category where the best eight schools will be selected as finalists to participate in the final event.

**Activity 3:** Uganda Innovative Teachers' Forum will be held on 15<sup>th</sup> July 2010 at one of the hotels in Kampala. The organizers will take care of transport, accommodation and meals for the finalists. Many other teachers and schools will be invited to attend at their own cost of transport and accommodation. Facilitators will include SchoolNet Uganda, previous winners and ICT Consults.

The aim of this activity will be to select of representatives at the African Innovative Teachers' Forum that will be held in Mombasa, Kenya on the 27<sup>th</sup> August 2010.

## **The program will be as follows:**

Day one at night: Mentorship for teachers and schools to be able to good presentations. Peer review sessions to be organized for this day.

Day two: Final competition and speeches from the visiting companies, Head teachers, District authorities, Microsoft officials, Ministry of education officials and Chief Guest. The guests visit the teachers' stalls and listen to presentations. The judges take the first round of judging at about 12 noon and then have a meeting over lunch. The judges have a second round to focus on the likely winners.

The best teacher in each of the following categories will be selected to represent the country:

1. Innovation in collaboration
2. Innovation in content
3. Innovation in community
4. Peer review category.

In the innovative school category, the best school will be selected to represent the country. However second and third schools in order of performance will be recognized too.

The Prizes will include:

- The best FOUR teachers will be awarded with a laptop each.
- The best school will take home a big sized Smart Board; the second best school will have a smaller sized Smart Board and the third school will win a projector.

The winners at the Uganda Innovative Teachers Forum will represent Uganda at the Africa Innovative Teachers event which will be held in Mombasa, Kenya on the 27<sup>th</sup> August 2010 with travel, accommodation and feeding costs covered by Microsoft.

## **Microsoft Partners in Learning (PiL) Network Africa.**

Milton Chebet told the participants that the Innovative Teachers Competitions is run by Microsoft Partners in Learning (PiL) and in order to participate in the Uganda Innovation Teachers competition, they have to submit their work (VCTs) on the PiL Network website (<http://africa.partnersinlearningnetwork.com>).

He urged the participants to join the PiL Network whether they want to participate in the innovative teachers' competitions or not because the PiL Network offers a number of opportunities to teachers. Teachers can:

- Find lesson plans and activities, as well as share your own resources.
- Access free tools and learning programs for your classroom and school.
- Create or join communities and discussions.

- Collaborate with like-minded colleagues, improve education in your own classroom and community, and ultimately help improve the quality of education globally.
- Keep their materials online and make it either private or public.

Milton gave the participants an exposition to the Microsoft PiL Network and asked them to explore the PiL Network website on their own in their free time.

**(4:00 -4:30) PM: Plenary Presentation:** Introduction to SchoolNet Uganda Online Support and the iEARN Collaborative Centre  
(Session was facilitated by Kakinda Daniel)

Daniel informed the participants that SchoolNet Uganda in addition to conducting face-to-face capacity building workshop maintains three website which provide ongoing online support to schools, teachers and teachers. These include:

1. <http://www.schoolnetuganda.sc.ug> : This is SchoolNet Uganda main website. It provides information about SchoolNet Uganda, its past and present projects, upcoming and completed workshop including downloadable workshop reports. The site also includes personal testimonies of the impact of SchoolNet Uganda activities on teachers and students.
2. <http://www.uderb.org> : The Uganda Digital Resource Bank provides an online space where teachers can share teaching resources, links to Internet resources and past papers of the various schools. Past papers can be downloaded from this site.
3. <http://schoolnetuganda.sc.ug/wswmonlinesupport/> ): This is the World Starts With Me (WSWM) online support for the sexuality education program implemented by SchoolNet Uganda. It provides online counseling to young people regarding their sexuality. Daniel said that SchoolNet Uganda coordinates international projects like the IEARN and IEARN is International Education and Resource Network and it is a network of teachers and students and links up schools.

**The iEARN Collaborative Centre (<http://media.iearn.org/>)**

Daniel informed participants, that beyond using the Internet to access digital content, the Internet allows teachers to connect to other people for the purpose of networking, knowledge sharing and for doing tele-collaborative projects.

Daniel advised participants to join educators' network. One such network is iEARN- the International Education and Resource Network. iEARN is the largest international education network linking 30,000 member schools & youth organization, 2 million students in over 130 countries & 20 languages. In Uganda, iEARN is coordinated by SchoolNet Uganda with Daniel Kakinda as the iEARN-Uganda country coordinator.

Daniel told the participants that for them to participate in iEARN activities, they need to register (registration is free) at the iEARN Collaborative centre (<http://media.earn.org>). Once they submit the registration form it would be sent to the country coordinator for validation.

Once a member, the teacher and his students can participate in:

- (i) Linking to iEARN members (<http://media.earn.org/forums>): A place where to meet other teachers and students for sharing ideas, and educational resources.
- (ii) Participate in 9 weeks online professional development courses for teachers (<http://earn.org/professional/online.html>)
- (iii) iEARN Projects (<http://media.earn.org/projects>): iEARN projects are designed and facilitated by educators and students worldwide, and result in a range of collaborative final "products."

Two primary seven (P7) students namely Babirye Peace and Nakato Joy, of Lohana Academy, Kampala Uganda, shared their experience of participating in the *One Day in the Life* (<http://www.onedayinthelife.org/>) iEARN shared their experience with the participants.

Babirye Peace and Nakato Joy who participated in the one day in a life at school project shared their experience as below:

Peace and Joy said that one morning their Mother gave them a digital camera to take photos of all their activities at school and they started by taking photos when they were reciting their morning prayer, having a mathematics lesson, lunch etc. After taking the photos, they documented their work and sent it to the project coordinator. They were extremely happy to see their work uploaded on the project website and to read stories from students from schools in other countries. They currently participate in iEARN discussion forums and say they have acquired communication and networking skills.

#### **(4:30 -5:00)PM: Workshop Evaluation and Closure**

##### **Workshop Evaluation**

Participants were asked to evaluate the workshop in terms of their learning outcomes. How different were they in terms of knowledge, skills and attitudes. They were asked to write their evaluations on paper without their names and hand the evaluations to the facilitators. Participants' evaluations were compiled and are shown in Appendix 1.

##### **Closing Remarks by SchoolNet Uganda – Close the Gap ICT4E project coordinator**

Allen Nansubuga, the ICT4E project coordinator congratulated the participants upon having completed the workshop successfully and asked them to put all that they had

learnt in practice and also to bring other teachers on board as soon as they get back to their schools.

“As teachers, you take the Close the Gap project serious as part of your professional personal development. The skills and knowledge you have acquired during the workshop should project you to greater heights” Allen advised.

Allen told participants that 17 out of 20 head teachers attended the Head teachers’ sensitization workshop in Jan 2010 and they were asked to identify and send 2 teachers for this workshop therefore all the teachers who were sent should know that the Head teachers had reasons for selecting them and shouldn’t disappoint them.

Allen said that there will be a 5-day Head Teachers’ ICT4E workshop in the 2<sup>nd</sup> term holiday and a , 5- day technical workshop for one teacher and one student (preferably a girl for mixed schools) and she will be carrying out technical inspection in all the schools in the 1<sup>st</sup> term of 2011.

Allen concluded by thanking the facilitators for the work well done and Gayaza High school for hosting the workshop.

### **Award of Certificates and official closure**

Participants were awarded certificates of completion and the workshop was officially closed.

### **Report compiled by:**

1. **Nalubega Sylvia – Workshop Rapporteur**
2. **Kakinda Daniel – SchoolNet Uganda Training Director**

### **Appendix 1: Workshop Evaluation**

Participants were requested to evaluate the workshop in terms of their learning outcomes (the impact the workshop had on them in terms of knowledge, skills and attitudes).

Below were some of the participants’ learning outcomes:

#### **(a) Attitudes**

- I used to think ICT is only for Science teachers and I thought it was not necessary to me because I already have organized notes in History and

Geography. But today after the 5-day workshop, I think I will go back and start using ICT4E because it can be used in all subjects.

- My general attitude towards teaching had become negative because I was going nowhere, but thank God for this workshop, I am really pumped up. I now know that even through teaching you can reach great heights.
- I got inspired by my fellow teachers previously it was other professionals inspiring me.
- I am now convinced ICT can be integrated in all subjects. I previously thought it was for Computer teachers.
- This workshop has really changed my attitude towards ICT and digital media (multimedia) in general. I used to see exposure of the young to multimedia as a risk factor but I now believe it is an avenue to success. It is something to be encouraged than discouraged.
- Before the workshop, I thought computers are for other people other than the teacher, I now see that the teacher should be the first beneficiary as a computer is a basic requirement for life. I now plan to own one.
- After the workshop, I plan to get rid of my yellow notes and own a personal laptop.
- I now feel I should possess a personal PC for preparation of digital content. I have also prepared a personal action plan to join the dot com generation.
- I now believe ICT is for all teachers unlike before when I thought it was for science teachers alone.
- I have only been using computers to type my exams and playing games. Now I will use the computer for preparing my lessons and organizing materials for the lessons.
- The workshop has changed my attitude or the way I view myself in relation to both my personal development and my commitment to serve others. It has helped me to begin to see myself as being able also to do something which others can appreciate.
- My attitude towards ICT4E has positively changed. I will go and encourage my colleagues to use ICT in teaching and learning.
- I had mixed feelings and attitude towards ICT but my fears and negative feelings have been attended to. I am now confident that ICT4E is relevant in all subjects.
- I now strongly believe in the need to work in partnership with fellow teachers to enhance the teaching and learning process.

- I have realized the need to adopt the 21<sup>st</sup> century pedagogies otherwise I will be outdated.
- I understand now that ICT is meant to help me in teaching. I used to think ICT consumes a lot of time and could only be used by people who had plenty of time but now I understand it will make my work easier. ICT should now become part and partial of my life.
- The workshop has removed from me unnecessary fears about ICT. I am now ready to go forward and cause change in my school.
- My attitude has changed positively towards computer use. I have now realized the advantage of using computer and the Internet.
- I have many times been complaining of having no time to do work on the computer. I have realized my attitude determines my altitude. From now I have to think big, come out of the box and walk my talk with a supporting portfolio.
- I came to the workshop wondering how teachers of Arts subjects had been mistakenly invited for an ICT workshop because I thought ICT was for sciences only and had nothing to do with the Arts. As I go out of the workshop, I have changed my attitude. I now know it is for all subjects for the 21<sup>st</sup> century pedagogy. I am going to enlighten my fellow teachers to change that attitude and begin using ICT in all subjects.
- My attitude has been changed from “ICT good for Education” to “ICT essential for Education”.
- I have realized I have to share all I get without thinking about myself alone. I have to change my selfish attitude. I can comfortably go an extra mile to serve the community since others have done so.
- I have had a change in attitude towards my surrounding community and I now feel I should involve my community more.
- I now realize ICT can make a positive great change in my teaching and also in my professional development.
- I used to think learning computer and mastering it is a gift but this workshop has proved me wrong.
- I have learnt to appreciate the contributions of others from the testimonies I listened to and watched. I now appreciate that I can do things and foster change.
- I discovered that the best way of doing well in life is to collaborate and share ideas and values with others and I will do the same.

## **(b) Skills**

- I learnt attaching files to emails and sending the same email to a number of people.
- I learnt drawing diagrams using ICT tools and to do Internet scavenger hunting.
- The workshop has increased my communication skills in that I am now able to communicate appreciably with friends.
- I have improved my typing skills and Internet researching skills.
- I have got presentation skills.
- I have improved my collaboration, team work and presentation skills.
- I have learnt how to save information from the Internet.
- I had tried computer sometime back for a short while but as I came to the workshop, I could not switch it on but now I have opened an email address, surf the Internet and make PowerPoint presentations.
- Admittedly, I have got new ICT skills at the workshop. I have got skills from fellow participants of downloading software from the Internet which I have installed on my laptop and hope to use to advance ICT in our school and community.
- I have improved my communication and interpersonal skills.
- I can now take photos using a digital camera and download them on a computer. I can make a PowerPoint report. I can also make student report cards using the Bestgrade software.
- I have learnt basic skills used in project-based learning and communication and knowledge sharing skills.
- I have acquired presentation skills targeted at creating impact on the audience.
- I have learnt how to insert pictures in PowerPoint, searching for digital content on the Internet and to chat online.
- I have for the 1<sup>st</sup> time learned how to use and access digital content. I have gained skills of interpersonal relationships.
- I have developed presentation skills, collaborative skills and the skill of working for long hours unsupervised.
- I can now manipulate the PC better. I can use PowerPoint, email, Internet, digital content etc. Most importantly I can now use the computer to teach.

- I came to the workshop just knowing how to open Ms Word and Ms Excel. I can now use other programs like Ms PowerPoint, Internet Explorer. I can also take photos and video clips using a digital camera and download them on a computer.
- I can now use digital tools to collect information from the environment to add value to my lessons.
- I can now use email and Internet, something I had never dreamed of.
- I learnt how to collaborate with teachers in different countries online.

### **(c) Knowledge**

- I now have some knowledge of how ICT can be integrated in the teaching and learning process.
- When I reported for the workshop, I had some knowledge on Ms Word and a bit of Ms Excel. The workshop has added to me knowledge of Ms PowerPoint, searching for information from the Internet. I also learnt that ICT is not only for science teachers but for all teachers to improve the learning situation in the class. I learnt that the 21<sup>st</sup> century needs teachers who are innovative and I also learnt that I should stop stigmatizing myself.
- I now know how to hyperlink a music or video file to my PowerPoint presentation.
- The workshop enabled me to know that ICT4E promotes learning and teaching, makes work easier and motivates both the learner and the teacher.
- I now know some 21<sup>st</sup> pedagogy like project-based learning.
- I have been exposed to a wealth of ICT knowledge that will make me relevant in the global village.
- I got to know that the world is moving from the use of traditional ways of doing things to the use of technology. I got the knowledge of applying ICT in Education and how useful it is to the teaching and learning process.
- I learnt how to co-operate and that cooperation leads to success. I learnt that learning never ends and is gradual. I also learnt that learning materials can not only be got from the books but also from the Internet.
- I have discovered one can use ICT4E in any subject. I being a History and Geography teacher, I thought one could not get ICT materials and content for the above subjects. As I leave the workshop to go back to Muni Girls, I am going with CDs containing Geography and History notes. It's very interesting.
- Beyond using the Internet for personal things, I can now integrate it in my subject.

- I have learnt how integrate ICT in teaching and learning through the use of tele-collaborative projects.
- I have now a reasonable knowledge about ICT4E and can integrate ICT in my daily teaching, research and personal development.
- I have gained a lot of knowledge in the area of computer, collaboration, project-based learning, Bestgrade software, Internet research and how to use ICT to enrich my lessons.
- From people’s personal testimonies, I now know it pays to embrace ICT in teaching.
- I can now comfortably talk about ICT4E and how it can be used to enhance teaching and learning. I have knowledge of the challenges of the 21<sup>st</sup> century and how as teachers we can prepare ourselves and our students to be functional literate and competitive in the 21<sup>st</sup> century.
- I have gained an insight of what is taking place in education both locally and globally. I have picked a general sense that education is geared more to solving man’s day to day problems. In order for learners to be able to apply what they learn, there is need to teach them clearly using visuals –to make the abstract concepts clearer and using different forms of ICT which make learning more interesting. I have also gained the knowledge of networking and partnering in Education.

## **Appendix 2: Participants’ Names, Schools, Teaching Subjects and Contact Information**

<b>No.</b>	<b>Names</b>	<b>School</b>	<b>Subjects</b>
1.	Alemi Michael	Arua Public School	Maths, Chemistry

2.	Chole Richard	PMM Girls (co-facilitator)	Literature in English
3.	Nayenda Jurua Emilly	Arua Public School	Mathematics
4.	Kakinda Daniel	SchoolNet Uganda (lead facilitator)	Physics
5.	Atiku Rahman Okuonziga	Aringa SS	Physics Chemistry
6.	Rwabu Elizabeth	Iganga SS	Computer Studies, Geog, CRE
7.	Orijabo Saidi	Aringa SS	Commerce, Accounts, Economics
8.	Maate Kathungu Elizabeth	Mt. Rwenzori Girls SS	Business Education
9.	Allen Nansubuga	SchoolNet Uganda (co-facilitator)	Electrical Engineer
10.	Inzukuru Zenah	Muni Girls SS	English language & Literature
11.	Aseru Judith Jane	Muni Girls SS	History, Geography
12.	Olal Andrew	Awere SS	Technical drawing, Building construction, Wood work
13.	Achiro Everline	Awere SS	History, CRE, Knowledge of Behavior and Self
14.	Atuhurra Grace	Kitara SS	English Literature
15.	Ddungu Ronald	Gayaza High School (co-facilitator)	Physics Maths
16	Bataaze Musa	Iganga SS	Computer, Commerce

17	Wamangoli Dickson	High Standard Christian School Kateera	English, Computer
18	Brenda Naiga	Transform Educational Centre	English language, Art& Design
19	Nakintu Agnes	Kitara SS	
20	Ssenyonyi Moses	Trinity High school Kawempe	History , CRE
21	Jonathan Serunkuma	Transform Educational Centre	Fine Art
22	Alioni Luciano Cazu	St Mary's Ediofe Girls' SS	Biology
23.	Amanyire Kassim	Masindi Secondary School	Economics History
24.	Birungi Margaret Kato	Masindi Secondary School	English Lang. /Literature in English
25.	Namirembe Lydia	Trinity High School Kawempe	Fine Art, Geography
26.	Kumakech Godfrey Ovona	Gulu Secondary School	Agriculture
27.	Baluku Geoffrey	Karambi S.S	Mathematics,Economics

28.	Leonor Kaggwa	Gayaza High School	Mathematics
29.	Olanya Thomas	Gulu College	CRE/Political Education
30.	Wapaali Ivan	Gulu College	Geography, CRE
31	Nuwagaba Edison	Masheruka Girls' Secondary School	Biology
32.	Mugisha Julius Kakwara	Masheruka Girls' Secondary School	Physics Chemistry
33.	Nsereko Isimail	Bukomero Secondary school	History Luganda
34.	Namuganyi Majorine	Bukomero Secondary school	Geography History
35.	Birabwa Immaculate	High Standard Secondary School Kateera	Luganda
36.	Biira Beatrice	Bwera Secondary School	Swahili language
37.	Draleku John Jay Milsome	St. Mary's Ediofe Girls Secondary School	Physics
38.	Monday Alfred	Karambi Secondary	Physics

		School	Chemistry
39.	Abisayah Mupaghasya	Bwera Secondary School	Agriculture Biology
40.	Semwogerere Semakula Charles	Gayaza High School	Geography
41.	Solomon Asea	Gayaza High School	Geography
42.	Omony George William	Gulu Secondary School	Computer, Geography, Mathematics
43.	Nalubega Sylvia	SchoolNet Uganda (Rapporteur)	Technical Support Staff
44.	Ronald Kasendwa	Makerere University	